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# DO CUSTOMERS VALUE COST-BASED PRICE TRANSPARENCY IN MOTOR INSURANCE? EFFECTS ON CONSUMERS' PURCHASE INTENTIONS, LOYALTY AND WILLINGNESS TO PAY

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# Do Customers Value Cost-Based Price Transparency in Motor Insurance? Effects on Consumers' Purchase Intentions, Loyalty, and Willingness to Pay

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**Abstract**

The aspect of cost plays a decisive role for insurance companies as well as consumers and regulatory authorities. On one hand, insurers concentrate on reducing costs to improve their profitability. On the other hand, there is a clear public demand for increased cost transparency in insurance contracts. Thus, this paper aims to analyze how consumers' product evaluations might be influenced by adding an extra cost presentation to the normal price-quality display. We conducted an experimental study (n = 1100) utilizing a German online panel to investigate the effects of cost-based price presentation in motor insurance on consumer satisfaction regarding price transparency, purchase intention, loyalty, and willingness to pay (WTP). Our results reveal that an additional cost presentation significantly increases consumers' satisfaction, exerting a positive influence on their purchase decisions and their resulting willingness to recommend the offer purchased – depending on insurance class – albeit without a change in level of their WTP. Moreover, our findings indicate that psychographic and socio-demographic consumer characteristics lead to differences in product evaluation.

**Key words** Price Transparency · Behavioral Insurance · Behavioral Pricing · Empirical Survey
**JEL Classification** C93 · D11 · D12 · D81 · G22

## 1 Introduction

A direct consequence of the global financial crisis is a loss of public confidence in the financial sector. Therefore, regulatory authorities have striven to ensure that legislation considers transparency requirements. At the European Union level, for example, the Revision of the Insurance Mediation Directive (IMD 2) and the Markets in Financial Instruments Directive (MiFID II) aim to harmonize current legislation and standards to improve consumer protection for insurance as well as financial products.

An important pillar of IMD2 is the obligation to disclose costs incurred within an insurance company for all insurance products offered for sale. Articles 15–20 of the revised Directive clearly propose that

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disclosure of "the amount of any variable remuneration received by the sales employees of insurance undertakings and intermediaries [is mandatory] for the sale of non-life products with a transitional period of 5 years" (European Commission (EC), 2012, p. 9). For life insurance contracts, the disclosure obligation already applies. In Germany, for example, life and health insurers have been obliged to show the total costs in insurance contracts since 2008.[1] Furthermore, the EC argues in its Proposal for a Directive of the European Parliament and of the Council on Insurance Mediation that the "disclosure of the different elements of the total price – including the intermediary's remuneration – will enable the customer to choose on the basis of insurance cover, linked services (for example if the intermediary does claims handling), and price" (EC, 2012, p. 10).

Regulatory authorities argue that consumers need to know the total costs for an actual comparison of insurance products, independent of business line. In contrast, the insurance industry and insurance associations stress that current transparency standards in non-life insurance are sufficient to meet consumers' expectations (The German Insurance Association (GDV), 2012, p. 1), and not least, through technological progress leading to a product evaluation based on the amount of insurance cover and the respective premium paid.

It is crucial to consider customers' understanding of transparency in the ongoing debate regarding the creation of increased transparency in buying non-life insurance. Consumers make their current purchase decisions based on essential product characteristics such as scope of benefits and price. The question remaining is whether consumers judge planned mandatory cost information as an essential product feature and therefore an important purchase criterion. Furthermore, would customers pay more for cost transparency, such that any required adoption of such a scheme could be implemented on a cost-effective basis for insurer and consumer, without leading to higher premiums for the insurance portfolio as a whole?

This paper aims to analyze this question by asking consumers themselves regarding the non-life product of motor insurance using an empirical survey conducted online in Germany. The sample ($n = 1100$) is representative of the local population concerning gender and age (18–65 years). This paper provides several contributions. First, we analyze whether an additional cost disclosure influences consumers' satisfaction with respect to transparency. For this purpose, we use a 2 x 2 between-subjects design. Respondents were shown one product card with a motor insurance offer, out of four variations of cards that only differed in terms of the product line surveyed (partially comprehensive as well as comprehensive insurance) and the additional presentation of costs incurred by insurance companies (administration and claims costs, insurance tax, and insurer's profit). The four product cards ($n = 275$) in total had the same structure. Second, we develop a transparency-based consumer decision model that a consumer uses when buying insurance. This model enables us to test the influence of consumers' satisfaction regarding perceived transparency on their purchase decision, loyalty, and willingness to pay (WTP). Third, we investigate the impact of psychographic (consumers' expertise and perceived risk with motor insurance

[1] Since 2008, with the entry into force of the Regulation on Information Obligations for Insurance Contracts, insurance companies are obliged to provide policyholders with information regarding "the total cost of the insurance, including all taxes and other cost components" (German Parliament, 2007, para 1) as well as "any additional costs, if applicable, stating the total amount payable and any possible additional taxes, fees, and costs not levied via or charged by the insurer" (German Parliament, 2007, para 1). The aforementioned provisions apply for life and health insurance.

products, price consciousness, and switching intention) as well as socio-demographic characteristics on consumers' product evaluation, namely, purchase decision, loyalty, and WTP.

We perform various analyses to test the research hypotheses. First, to analyze consumers' perception of transparency, we apply statistical significance tests (t-test) subsequent to the descriptive statistics. Second, we use structural equation methodology to assess the complex relationships of the transparency-based decision model. Finally, we use pairwise parameter comparisons considering the critical ratio ($C.R.$) for differences in product evaluation based on various groups.

The findings of the study provide various insights that could help both practitioners and regulators better understand the role of cost-based transparency in motor insurance. The investigation reveals significant differences between the answers given for the four subsamples. No significant differences in the answers for both product lines exist when respondents evaluate the product cards for today's presentation without costs. However, responses differ when it comes to the assessment of the two product offers with the cost presentation. Thus, customers with partially comprehensive insurance do not value cost transparency. However, an additional cost presentation significantly increases consumers' satisfaction with comprehensive insurance, exerting a positive influence on their purchase decision and their resulting willingness to recommend the offer bought. However, their WTP shows no increase. Moreover, our findings indicate that psychographic and socio-demographic characteristics are determinants of these observed differences in consumer product evaluation.

This paper is organized as follows. In section 2, we review the relevant scientific literature. On the basis of this overview, we prepare our research hypotheses in an insurer's context and formulate our research model. Next, in section 3, we outline insurer's premium cost calculation practices to determine cost components of a motor insurance contract to ensure a realistic cost presentation in the product cards used in our survey. In section 4, we describe the research methodology of our study. Section 5 presents the results and the hypotheses tested. Finally, the implications of our analysis and future research are discussed in section 6.

## 2 Theoretical Background and Research Hypotheses

Insurance products are intangible and not standardized like other services (Zeithaml, 1981, p. 186). Therefore, depending on the product type, insurance is often an elusive product for consumers, who often find it challenging to be fully informed about the product – particularly its benefits and costs – before signing a contract, because of extensive information described in detailed and technical insurance terms and conditions (Wandt, 2012). These aspects have the consequence that transparency is a widely discussed issue relating to insurance, especially its pricing.

Consumers' decision-making process when buying and the corresponding companies' behavioral pricing processes have been studied in detail in marketing science (Monroe, 1973; Zeithaml, 1981; Oliver and Swan, 1989; Rust and Zahorik, 1993; Anderson et al., 1997; Monroe and Lee, 1999; Homburg et al., 2005). In an insurance context, the consumer's purchase decision is often only analyzed from an economic viewpoint with regard to the utility theory by Von Neumann and Morgenstern (1944). However, several studies investigate the influence of price presentation on consumers' purchase decision and their WTP

for life insurance (Wakker et al., 1997; Albrecht and Maurer, 2000; Zimmer et al., 2009, 2012; Huber et al., 2013). Furthermore, several authors deal with the aspect of transparency in pricing but often with regard to perceived price fairness (Kahneman et al., 1986; Oliver and Swan, 1989; Campbell, 1999; Bolton, 2003; Bolton and Alba, 2006; Ferguson and Ellen, 2013). In an insurance context, only a few authors investigate aspects of consumers' decision-making process when buying insurance (Matzler et al., 2006; Huber and Schlager, 2011).

Previous studies have not addressed, the extent to which transparency as a form of price presentation affects customer perceptions of non-life insurance and whether transparency can be seen as a decision criterion for purchasing insurance. Given the increasing discussions on the issue of transparency, there is an urgent need to analyze a consumer's decision-making process to provide an understanding of the complex phenomenon of transparency when buying insurance. Accordingly, the research questions for this study are as follows: Do consumers perceive a planned mandatory cost presentation providing increased transparency? Do consumers judge cost transparency as an essential product feature? Furthermore, what impact will this perception have on their purchase decisions and willingness to recommend insurance? In addition, does consumer WTP increase with a higher transparency perceptions so that a required cost presentation could be implemented in a cost-effective manner for insurance companies and consumers without leading to higher premiums for the insurance portfolio as a whole?

## 2.1 The Link between Price Presentation and Price Transparency Perceptions

The price of a product or service is a complex construct that represents a positive or a negative purchase criterion for consumers (Lichtenstein et al., 1993, p. 234). In order to influence this consumer perception, price presentation plays an important role. The impact of different manners of price presentation on consumers' purchase behavior has widely been studied (for example, Tversky and Kahneman, 1981; Kahneman et al., 1986; Oliver and Swan, 1989; Bearden et al., 2003; Carter and Curry, 2010; Peine et al., 2010). Ferguson and Ellen (2013, p. 404) argue that it is important for companies to know when they can take an economic advantage through targeted disclosure of various parts of price information. Kahneman et al. (1986) analyze the influence of price charges and determine that consumers judge prices as being more fair when they believe that higher prices reflect the company's costs. These findings are confirmed in several studies by Bolton (for example, Bolton, 2003; Bolton and Alba, 2006). In addition, Sinha and Batra (1999) as well as Oliver and Swan (1989) determine that consumers satisfaction is influenced by perceptions of price information. Matzler et al. (2006) investigate, among others, the impact of price transparency and price fairness on consumers' satisfaction in an insurance context. Furthermore, alongside political demand decreased costs in insurance contracts, studies show that consumers desire more transparent and fair insurance products (Maas et al., 2008; Bain & Company, 2012; Ernst & Young Global Limited, 2012) regarding cost transparency (Scherer and Schmeiser, 2010, p. 36). Moreover, Sinha and Batra (1999, p. 240) reveal correlations between consumer perception regarding price information and different product categories. Thus, with regard to consumer perceptions concerning price transparency, we hypothesize the following:

*H1: An additional presentation of costs has a positive effect on consumers' perceptions concerning price transparency.*

*H2: Consumer perceptions concerning price transparency based on an additional cost presentation vary depending on the scope of insurance cover.*

The alternative hypotheses imply that an additional cost presentation has no impact on consumers' satisfaction regarding price transparency and that consumer satisfaction regarding price transparency does not change depending on the scope of insurance cover.

## 2.2 The Link between Price Transparency Perception and Product Evaluation

An insurance policy's price plays a crucial role in a consumer's decision whether to take out insurance (Laury and McInnes, 2003, p. 219). Nowhere is this more so than in competitive insurance markets such as the German motor insurance industry (Insurance Europe, 2007, p. 32). Price is a complex construct and thus affects consumers' purchase decision either positively or negatively (Lichtenstein et al., 1993, p. 234). Consumers do not always have complete information regarding product utility and price and thus make their purchase decision based on the information available to them (Kim et al., 2008, p. 546). This lack of information leads to a decision-making process under uncertainty (Monroe and Lee, 1999, p. 210), especially in an insurance context (Diacon and Ennew, 2001; Huber and Schlager, 2011). This is due to the fact that consumers often perceive insurance products as more complicated and complex than other services and goods (Zeithaml, 1981, p. 188). This perception may be positively affected by the more consumers notice pricing practices to be less complex and more transparent (Kimes, 1994, p. 24).

Consumer satisfaction results from fulfilled perceptions (Churchill and Surprenant, 1982, p. 492). Bearden and Teel (1980, p. 22) state that satisfaction is a "function of consumer expectations operationalized as product attributes." In this study, we focus on the satisfaction that consumers perceive in cost-based price transparency with correlations to consumers' product evaluation. Accordingly, we define satisfaction as the perception that customers agree with the presented form of price transparency, and that this type of presentation meets their expectations. Therefore, we state that consumers' satisfaction regarding perceived price transparency influences their purchase behavior.

*H3: Consumer satisfaction concerning price transparency positively influences their purchase decision.*

Today's opportunity to compare different product offers regarding extent of insurance cover and price allows customers to more independently meet their needs. Especially in the easier-to-understand business classes of property and casualty insurance, online comparison portals enable consumers to compare various product offers. However, for insurers, it is crucial yet at the same time difficult to retain profitable customers in such a highly competitive market environment (Chow and Holden, 1997, p. 275).

Today's "unit of value is the customer relationship" (Jacob, 1994, p. 215). "It doesn't pay to have satisfied customers, it pays to have loyal ones" (Chow and Holden, 1997, p. 276). Thus, it is a decisive factor for insurers to understand what drives customer loyalty and how it can be increased (Anderson and Swaminathan, 2011, p. 221). In an insurance context, policyholders want more insights into current pricing practices and ask for greater price transparency (Bain & Company, 2012). If a company is successful in satisfying consumers' needs and consumers purchase the product offered, this relationship affects consumers' willingness to recommend the product and therefore their loyalty (Chow and Holden, 1997, p. 295). Furthermore, loyalty influences consumers' risk perception regarding a company, and thus, loyal consumers are prepared to pay higher prices when they are satisfied with the product or service used (Chow and Holden, 1997, p. 290). Chow and Holden (1997, p. 295) state that increased customer loyalty leads to a domino reaction with consequences for "repeat sale and referrals, revenues and market share growth." Therefore, we hypothesize the following:

*H4: Consumer purchase decisions positively influence their willingness to recommend the product to other people.*

*H5: Consumer loyalty positively influences consumers' WTP.*

The alternative hypotheses imply that consumer satisfaction concerning price transparency has no positive impact on consumers' purchase decisions and that consumer purchase decisions do not positively influence willingness to recommend the product as well as that consumer loyalty does not positively influence WTP.

## 2.3 The Link between Consumer Characteristics on Product Evaluation

In addition to marketing communications, behavioral aspects also affect consumer product evaluation. Therefore, psychographic as well as socio-demographic consumer attributes characterize consumers' product perceptions and purchase behavior (Wells and Sciuto, 1966; Monroe and Lee, 1999; Campbell, 1999; Homburg and Giering, 2001; Mittal and Kamakura, 2001; Bolton, 2003; Peine et al., 2010).

Scientific research considers various factors to be important in consumers' decision-making process when buying products. However, aspects around the risk topic and uncertainty have the greatest effect on consumers' purchase decisions in our research context of insurance. In addition and complementary to the features of perceived risk and consumer expertise, we focus on two further features, price consciousness and switching intentions, because of the special environment of the German motor insurance market. This business market is strongly competitive with a high consumer willingness to switch insurer (Insurance Europe, 2007, p. 32). Furthermore, the market is characterized by high cost pressure because of low margins and price-conscious consumers (Insurance Europe, 2010, p. 21).

Consumers' risk perceptions have a high influence on their decision-making processes (Zikmund and Scott, 1974; Kahneman and Tversky, 1979; Bearden and Teel, 1980; Diacon and Ennew, 2001; Matzler et al., 2006; Kim et al., 2008; Slovic, 2010; Huber and Schlager, 2011; Barseghyan et al., 2013). Jacoby and Kaplan (1972) define seven different types of perceived risk. In an insurance context, two of interests are

financial and product risk. Both types of risk may prevent consumers from making a purchase decision and bias their satisfaction regarding transparency (Kim et al., 2008, p. 546). Moreover, consumer perceptions concerning price information depends on their price consciousness. The results of Gabor and Granger (1961, p. 177) reveal a positive significant relationship between perceptions of price information and consumers' level of price consciousness. Furthermore, consumers' switching intentions influence their satisfaction regarding transparency (Tellis and Gaeth, 1990; Homburg and Giering, 2001). The more satisfied consumers are, the lower their switching intentions (Homburg and Giering, 2001, p. 46).

Among psychographic consumer characteristics, socio-demographic attributes characterize consumer product perception (Gabor and Granger, 1961; Bearden and Teel, 1980; Donthu and Garcia, 1999; Homburg and Giering, 2001; Laury and McInnes, 2003; Ulbinait and Kučinskien, 2013). Therefore, to analyze whether consumer product evaluations differ depending upon various psychographic and socio-demographic characteristics, we formulate the following two hypotheses:

*H6: Consumer product evaluations differ with respect to various psychographic consumer characteristics.*

*H7: Consumer product evaluations differ with respect to various socio-demographic consumer characteristics.*

The alternative hypotheses imply that consumer product evaluations do not differ with respect to psychographic as well as socio-demographic consumer characteristics.

## 2.4 Experimental Study Framework

Figure 1 shows the experimental framework of the study. The aim is to utilize this framework to analyze whether consumers perceive a planned mandatory cost presentation as imporved transparency and what impact this perception will have on their purchase decisions, willingness to recommend insurance, and WTP. Therefore, we conduct three independent analyses.

The model setup for Analysis 1 consists of two independent variables and one dependent variable. The independent variables are *price presentation* (with and without an additional cost representation) and *product class* (partially comprehensive and comprehensive insurance). The dependent variable is consumers' perceived *transparency satisfaction*. Thus, the basis for the model framework of Analysis 1 is a 2 x 2 between-subjects design.

Analysis 2 comprises the main theoretical framework of this study. The underlying logic of this transparency-based consumer decision-making model is that consumers make purchase decisions (*Purchase*) based on their satisfaction with perceived transparency (*Transparency satisfaction*). Consumers' purchase decisions positively affect their willingness to recommend the offer (*Loyalty*). We measure if consumer loyalty increases (*WTP*) for motor insurance. We use structural equation modeling to evaluate our hypotheses. Specifically, we analyze the reliability of the various items of the four constructs and asses their validity.

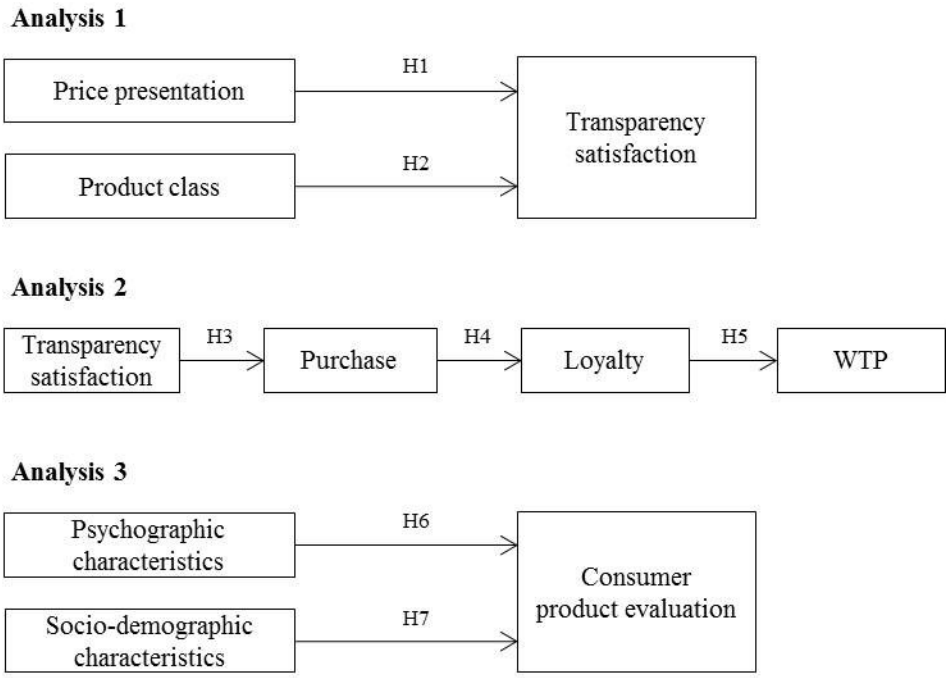


Figure 1: Experimental Framework.

Analysis 3 considers the question of how the independent variables – *psychographic* (consumers' expertise, perceived risk with motor insurance products, price consciousness and switching intention) as well as *socio-demographic characteristics* – operate as predictor variables to affect the dependent variable of *consumer product evaluation*. On the basis of main model, we perform pairwise parameter comparisons considering the (*C.R.*) for differences in product evaluations based on various groups.

# 3 Premium Cost Calculation in Motor Insurance

Calculating the cost components of motor insurance contracts for both product lines included in our survey is required for manipulating the two independent variables of price presentation and product class. To avoid biases in this context, it is important that only price presentation differs between each offer. Thus, structure and value of insurance contracts remain the same in both product lines. Furthermore, the precise cost calculation is crucial to ensure a realistic cost-based price presentation. In addition, we ensure comparability between the different product offers. These are important requirements to test the hypotheses in Section 5. In the following, we describe in two steps how the cost components of motor insurance contracts are composed.

In a first step, the underlying consumption for calculating costs for the four product offers constitutes the general premium cost model for non-life insurance according to Farny (2011, p. 66). Insurance companies determine premiums with regard to loss occurrence probability and size of possible losses (Insurance Europe, 2010, p. 33). Accordingly, the gross premium $G$ of a motor insurance contract is calculated on the basis of the following cost components: risk costs $C_r$, which contain a safety margin $M$,[2] operational costs $C_o$, insurer's profit $P$, and insurance tax $T$.

$$G = C_r + M + C_o + P + T.$$

Risk costs $C_r$ serve to cover damages likely to occur in the future in an insurance portfolio. Thus, risk costs $C_r$ are claims expenditure $C_c$, and contain a safety margin $M$ that constitutes the contribution margin for potential excess of loss (Farny, 2011, p. 62). Operational costs $C_o$ include costs for acquisition and administrative expenses (Insurance Europe, 2010, p. 7). The gross premium $G$ included insurance tax $T$ amounts 19% for motor insurance products in Germany.

The premium cost calculations are based on the financial and technical results of the German motor insurance industry in 2012, which are provided in Table 1.

| Financial and technical results | Insurance class | |
|---|---|---|
| | Partially comprehensive | Comprehensive |
| Written gross premiums $G_w$ (without $T$) | 1 462 | 7 211 |
| Gross claims expenditure $CE_g$ | 985 | 6 632 |
| Claims ratio $CLR$ | 67.5% | 92.2% |
| Combined ratio $CR$ | 91.7% | 106.2% |

Table 1: Financial and Technical Results
Reported values of $G_w$ and $CE_g$ are in millions of euros (EUR m). All values presented are from GDV (2013, pp. 55–57).

These available data allow us to determine the required values for calculating the several cost components of motor insurance policies. The necessary variables for the calculation of each cost component are as follows:

- $G = G_w + T$
- $P$ results from $CR$ plus interest $I$.[3]

[2]The underlying model only contains a safety margin and no reinsurance costs. This is due to the fact that reinsurance costs cannot be steadily determined without reliable quantitative data. This lack is compensated by a corresponding safety margin $M$.

[3]Interest is the result of insurer's capital investment. In accordance with the minimum duration of a motor insurance contract, we use a corresponding maturity of one year. However, studies show that it may be assumed that the average customer relationship in motor insurance is of a longer period but without indicating precise terms (for example, AutoScout24 Media, 2011). As the basis for the interest rate, we use Allianz's average investment interest rate, which amounted to 5.7% in 2012 (Allianz Versicherungs-AG, 2012, p. 8).

- Cost ratio $C_oR = CR - C_cR$

We report the results of the premium cost calculation in Table 2. Thus, the values used for price presentation for partially comprehensive insurance are: 51.9% claims costs $C_r$ ($C_r - M$), 20.3% operational costs, 11.8% insurer's profit $P$, and 16% insurance tax $T$. For comprehensive insurance amounts, the values are as follows: 72.7% claims costs $C_r$ ($C_r - M$), 11.8% operational costs, −0.4% insurer's profit $P$, and 16% insurance tax $T$.

| | Insurance class | | | |
|---|---|---|---|---|
| | Partially comprehensive | | Comprehensive | |
| $CE_g$ | 985.00 | 56.62% | 6 632.00 | 77.29% |
| $M$ | −81.41 | −4.68% | −394.39 | −4.60% |
| $OC$ | 353.80 | 20.34% | 1 009.54 | 11.76% |
| $UP$ | 204.68 | 11.76% | −36.06 | −0.42% |
| $T$ | 277.70 | 15.96% | 1 370.00 | 15.97% |
| $G$ | 1 739.77 | 100.00% | 8 581.09 | 100.00% |

Table 2: Premium Cost Calculation
Reported values in the respective left-hand column of each insurance class are in millions of euro (EUR m).

In a second step, we calculate the premiums of a motor insurance contract for both partially comprehensive and comprehensive insurance. The premium calculations are based on the same assumptions for both product lines to ensure comparability and are as follows:

- The chosen example policyholder is 40 years old, married, owner of a home with a garage, and acquired a drivers' license at the age of 18 years.
- The example selected a new VW Golf car,[4] which is the most common registered vehicle in the German passenger car market (WirtschaftsWoche, 2013, p. 11).
- Additional vehicle-specific price-determining risk factors are EU average annual mileage of 15 000 km (Insurance Europe, 1999, p. 31), the policyholder and partner are the most common drivers, the policyholder is the vehicle owner, the vehicle is exclusively private use, the vehicle was bought with credit financing (80% of car purchases are financed in Germany, Verbraucherzentrale Hessen, 2013, p. 1), and the registration district corresponds to an area with average claims costs (namely, Sontheim, Insurance Europe, 2007, p. 28).
- The deductible amounts to 150 euros for partially comprehensive, and 300 euros for comprehensive insurance (inclusive of 150 euros for partially comprehensive insurance).
- The offer contains no additional services.

[4]The detailed description and value of the car are as follows: VW Golf VII 1.4 TSI (140 PS, 103 KW, value 23 000 euros). The respective type designation is pursuant to German standards. Besides, the fact that this car model is at the top tier of car registration statistics, the car's engine power correspondents to the average engine power of 137,4 PS in Germany in 2013 (Heide, 2013, p. 1).

The corresponding premium for partially comprehensive insurance amounts 82.54 euros, and for comprehensive insurance, the premium totals for 169.80 euros. The percentage values of the first calculation based on the financial and technical results are used to express the cost components of a motor insurance contract to the subjects of the empirical study. Finally, the price presentation was shown to the respondents in form of a pie chart in absolute euro terms, and the calibration for partially comprehensive insurance reads as follows: 43 euros for claims costs, 17 euros for operational costs, 10 euros for insurer's profit, and 13 euros for insurance tax. For comprehensive insurance, the values presented are as follows: 123 euros for claims costs, 20 euros for operational costs, and 27 euros for insurance tax. Due to the fact that insurer's profit is slightly negative in comprehensive insurance, no insurer's profit can be specified because of rounding in absolute euro terms.

# 4 Method of the Experimental Study

## 4.1 Experimental Design for Different Price Presentations

Our aim is to analyze whether an additional presentation of costs in an insurance contract influences consumers' product evaluation. For this purpose and to test our research hypotheses, we conduct an empirical study using varied of price presentations of a motor insurance offer. The structure is consistent in each offer. It offers a brief mention of the respective product line with a short description of insurance benefits and the premium to be paid. The offers only differ in the additional presentation of costs incurred by the insurance companies.

The *product dimension* comprises the two product lines of partially comprehensive and comprehensive insurance. Motor vehicle liability insurance is excluded from the offerings because this is a mandatory insurance required by law in Germany. Therefore, the customer is not free to decide whether to purchase such insurance coverage. The *cost dimension* comprises a product card without cost representation and a product card with cost presentation, the latter of which contains information regarding administration and claims costs, insurance tax, and insurer's profit. In terms of their design, the insurance offers without cost presentation are absolutely identical to those product cards providing cost breakdown information. The only difference is that the two offers without cost presentation end after presenting the insurance premium (Part 1 of each offer), whereas the product cards with cost presentation also contain a pie chart providing cost information (Part 2 of offers with cost presentation, Offers 2 and 4). Therefore, we use a 2 x 2 between-subjects design, comprising the four different product offers. Table 3 provides an overview of the various price presentations.

| Product Dimension | Cost Dimension | |
|---|---|---|
| | No Cost Presentation | Cost Presentation |
| Partially Comprehensive Insurance | Offer 1 | Offer 2 |
| Comprehensive Insurance | Offer 3 | Offer 4 |

Table 3: Overview of Product Offers

## 4.2 Survey Design and Procedure

The experimental study is based on an online survey conducted in Germany in January 2014 in the corresponding national language of German. The sample is representative of the German population concerning gender and age (18–65 years). Table 4 displays detailed descriptive statistics.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Age** | | | | | | |
| 18–29 | 30–39 | 40–49 | 50–59 | 60–69 | | |
| 221 | 195 | 263 | 246 | 175 | | |
| **Gender** | | | | | | |
| Male | Female | | | | | |
| 558 | 542 | | | | | |
| **Car owner** | | | | | | |
| Yes | No | | | | | |
| 1051 | 49 | | | | | |
| **(Co-)decider on subject of insurance** | | | | | | |
| Key decider | Co-decider | | | | | |
| 825 | 275 | | | | | |
| **Household size (person)** | | | | | | |
| 1 | 2 | 3 | 4 | 5 or more | | |
| 204 | 419 | 252 | 160 | 65 | | |
| **Monthly household income (net in TEUR)** | | | | | | |
| Under 1.5 | 1.5 < 2 | 2 < 3 | 3 < 4 | 4 < 5 | 5 or more | Unspecified |
| 159 | 196 | 300 | 207 | 84 | 58 | 96 |
| **Number of children under 18 years** | | | | | | |
| No | 1 | 2 | 3 or more | | | |
| 718 | 220 | 115 | 47 | | | |
| **Family status** | | | | | | |
| Married | In a relationship | Divorced / widowed | Single | | | |
| 531 | 282 | 105 | 182 | | | |
| **Current job situation** | | | | | | |
| Full-time | Part-time | Self-employed | Unemployed | Retired | Homemaker | Student (full-time) |
| 502 | 168 | 98 | 40 | 133 | 95 | 64 |
| **Highest level of education** | | | | | | |
| Elementary school | Apprenticeship | Secondary school | University-entrance diploma | | University / college | |
| 32 | 251 | 305 | 265 | | 247 | |
| **Purchase of motor insurance within past 12 months** | | | | | | |
| Yes | No | | | | | |
| 656 | 444 | | | | | |
| **Type of current motor insurance** | | | | | | |
| Motor liability insurance | | Partially comprehensive insurance | | Comprehensive insurance | | |
| 148 | | 402 | | 550 | | |
| **Sales channel** | | | | | | |
| Personal, insurance agent | Personal, broker | Online direct insurer | Insurer's website | Online comparison portal | Other | |
| 508 | 106 | 168 | 115 | 138 | 65 | |
| **Payment frequency** | | | | | | |
| Annual | Semi-annual | Quarterly | Monthly | | | |
| 476 | 200 | 253 | 171 | | | |

Table 4: Sample Description

A total of $n = 1\,100$ questionnaires were answered. Thus, each individual product card subsample contains a total of approximately $n = 275$. Each subsample only received one product card to assess. In allocating the respective product offers, respondents who were policyholders of motor vehicle liability insurance as well as policyholder of partially comprehensive insurance received a product card for *partially comprehensive insurance*. Survey participants who were owners of comprehensive insurance obtained a *corresponding comprehensive insurance* product card. The quotation of the two groups was a 50-50 division.

The survey is divided into three main parts. Following the introductory cover letter, we identify our target group by requesting various screening characteristics, namely, age, (co-)decider for private households on the subject of insurance, as well as whether the respondent dealt with the topic of motor insurance within the past 12 months. In the first main part of the survey, the respondent's psychographic variables, *consumers expertise, perceived risk with motor insurance products, price consciousness*, and *switching intention* are measured.

In the second main part of the survey, respondents received a page with the following information: "You will now see a product offer for an insurance quote. We kindly ask you to closely observe this offer in order to review it later. The offer is exemplary to understand with respect to the insured vehicle. Moreover, the aspect of your personal no-claims discount does not matter in the offer." On the basis of this information, respondents were shown one of the four product cards. The offer is been introduced with the following description: "You have decided to purchase a new vehicle – a VW Golf with a value as new of 23 000 euros. It is your goal to take out comprehensive insurance (or partially comprehensive insurance, depending on the respective product card) for your new VW Golf in addition to the motor vehicle liability insurance. Now, you are offered the following insurance offer to protect your vehicle." Following the product offer presented, the questionnaire comprised questions regarding participants' product evaluation: *satisfaction with perceived price transparency*, *purchase intentions toward the product*, *willingness to recommend the offer*, and *WTP*.

In the third and final part of the survey, *socio-demographic attributes* such as gender, car ownership, household size, monthly household income (net), number of children under 18 years, family status, current job situation, and highest level of education. Moreover, this final part included questions concerning participants' current motor insurance situation such as any purchases of motor insurance within the past 12 months, type of current motor insurance, the sales channel of any prior purchases, and usual payment frequency.

## 4.3 Measurement of Variables

All scales measuring the applied constructs have been validated in previous studies. However, we adapted the scales to ensure applicability in the context of insurance. For all constructs, we have included multi-item measures to make latent constructs measureable, such as consumer preferences and attitudes. To ensure constancy in data collection and evaluation, a seven-level Likert scale is used questionnaire-wide, with options for all items ranging from "1 = does not apply at all" to "7 = fully applies." We only have adapted the scale wording with respect to the specific consumer's evaluation of the offer (namely, for the three constructs of *consumer purchase intention*, *WTP*, and *loyalty*). Here we have used a probability scale analogous to the question wording ranging from "1 = very unlikely" to "7 = very likely."

To analyze consumer evaluation of the product offer, we use five attributes. Each of these attributes was conceptualized through various items. The construct *purchase intention* consists of three items from Kozup et al. (2003, p. 33). *Loyalty* in context of positive word-of-mouth communications is based on three items of Zeithaml et al. (1996, p. 36).

Next, as no scale has yet been proposed for *consumer satisfaction with perceived price transparency* we developed a six-item scale, which is tested using confirmatory factor analysis. When developing this scale, we used already established items from Homburg et al. (2005, p. 87), Huber and Schlager (2011, p. 20), and Matzler et al. (2006, p. 231). In addition, for measuring *WTP* for motor insurance with respect to transparency, we developed our own three-item scale and tested it using confirmatory factor analysis. In a first step, analogous to our research question, we asked consumers: "How likely would you be to purchase this motor insurance even if you have to pay a higher premium for the presentation of cost components?" Second, we asked the participants: "How likely would you be to pay a higher motor insurance premium for the presentation of cost components?" The mean of these two items builds the construct *WTP* in our model. In addition, participants were asked – "How much more would you pay for such a cost representation?" – if they gave one of the two previous questions a rating above 4. Consumers indicated their WTP in euros.

Moreover, we collected several *psychographic variables* in order to test differences in consumers' product evaluation. The level of *consumers' expertise with motor insurance premiums* was measured using five items. These are from Mishra et al. (1993, p. 344), Kopalle and Lindsey-Mullikin (2003, p. 234), and Huber et al. (2013, p. 20). *Price consciousness* was gauged by employing three items: one item from Donthu and Garcia (1999, p. 20) and two items from Lichtenstein et al. (1993, p. 243). *Perceived risk with motor insurance* was determined using five items based on three items from DelVecchio (2005, p. 194), and two items from Huber and Schlager (2011, p. 24). Moreover, we investigated *switching intentions* on the basis of four items from the study of Burnham et al. (2003, p. 122). All scale items and their reliabilities are presented in detail in Table 5.

In addition to these four psychographic characteristics, we collected various *socio-demographic attributes* as described in Section 4.2 to analyze differences in consumers' product evaluation.

# 5 Data Analysis and Results

## 5.1 Descriptive Statistics

Table 5 displays the descriptive statistics of consumer evaluations and psychographic consumer variables by reference to each of the four product offers. The first insights reveal only slight differences in consumer response behavior across all product cards.

Thus, consumer attitude and behavior with respect to motor insurance products can be described without reference to product and cost dimension as follows: The average consumer is medium experienced with the product class and its premiums, is price-conscious, associates the purchase and the resulting financial risk as rather low, and shows a low switching intention.

When analyzing consumer evaluation of the product offers, perceived satisfaction concerning price transparency rises the highest approval rating. Consumers who judged Offers 2 and 4 – with cost representation – show significantly higher satisfaction, especially for comprehensive insurance. Moreover, the respondents are willing to purchase the product offer shown. Their willingness to recommend is also above the neutral level of four. However, on average, respondents do not show a higher willingness to

| Constructs with items | Offer 1 | Offer 2 | Offer 3 | Offer 4 | FL | CA |
|---|---|---|---|---|---|---|
| *n* | 276 | 274 | 275 | 275 | | |
| **Satisfaction with perceived price transparency** | | | | | | **0.91** |
| The presentation of price composition is complete and correct. | 4.48 (1.33) | 4.77 (1.35) * | 4.44 (1.55) | 4.99 (1.29) ** | 0.83 | |
| The presentation of price composition is clear and understandable. | 4.65 (1.39) | 5.06 (1.46) * | 4.59 (1.53) | 5.27 (1.25) ** | 0.81 | |
| I have a clear overview about the costs of the motor insurance. | 4.88 (1.34) | 5.04 (1.34) D | 4.93 (1.51) ** | 5.39 (1.20) B | 0.65 | |
| I know what I have to pay and what I get. | 4.95 (1.30) | 5.09 (1.42) d | 4.90 (1.35) ** | 5.33 (1.31) b | 0.69 | |
| I am satisfied with the presentation of price composition. | 4.68 (1.47) | 4.91 (1.41) | 4.49 (1.56) | 5.08 (1.38) ** | 0.86 | |
| The presentation of the price composition meets my expectations. | 4.72 (1.36) | 4.68 (1.41) d | 4.53 (1.54) ** | 4.92 (1.27) b | 0.77 | |
| **Purchase intention** | | | | | | **0.94** |
| How likely would you be to purchase this motor insurance? | 4.42 (1.60) | 4.33 (1.63) D | 4.40 (1.63) * | 4.70 (1.44) B | 0.92 | |
| Given the price information shown, how probable is it that you would consider the purchase of this motor insurance? | 4.60 (1.55) | 4.45 (1.58) d | 4.53 (1.61) | 4.74 (1.50) b | 0.91 | |
| How likely would you be to purchase this motor insurance, given the price information shown? | 4.44 (1.64) | 4.37 (1.64) d | 4.43 (1.67) | 4.64 (1.51) b | 0.92 | |
| **Loyalty** | | | | | | **0.93** |
| How likely is it that you would recommend this motor insurance to others? | 4.32 (1.52) | 4.27 (1.56) | 4.19 (1.58) | 4.50 (1.54) * | 0.93 | |
| How likely is it that you would recommend this motor insurance to someone asks your advice? | 4.29 (1.56) | 4.31 (1.57) | 4.23 (1.60) | 4.45 (1.54) | 0.92 | |
| How likely is it that you would encourage friends and relatives to buy this motor insurance? | 4.09 (1.51) | 4.09 (1.59) | 4.05 (1.54) | 4.27 (1.54) | 0.88 | |
| **Willingness to pay** | | | | | | **0.80** |
| How likely would you be to purchase this motor insurance even if you have to pay a higher premium for the presentation of cost components? | 3.28 (1.44) | 3.15 (1.43) | 3.10 (1.54) | 3.27 (1.47) | – | |
| How likely would you be to pay a higher motor insurance premium for the presentation of cost components? | 3.20 (1.40) | 3.18 (1.44) | 3.03 (1.50) | 3.26 (1.52) | – | |
| **Expertise** | | | | | | **0.85** |
| I am well informed about prices of motor insurance. | 4.33 (1.41) | 4.33 (1.38) | 4.54 (1.33) | 4.46 (1.38) | 0.81 | |
| I am considered somewhat of an expert when it comes to knowing the price of motor insurance products. | 3.56 (1.44) | 3.42 (1.44) | 3.62 (1.41) | 3.57 (1.54) | 0.83 | |
| My friends think of me as a good source of price information regarding motor insurance. | 3.89 (1.44) | 3.66 (1.54) | 3.94 (1.56) | 3.82 (1.55) | 0.84 | |
| When purchasing motor insurance, friends and family ask me for advice. | 3.80 (1.58) | 3.69 (1.57) | 3.78 (1.52) | 3.75 (1.66) | 0.72 | |
| I am familiar with the topic of motor insurance premiums. | 4.13 (1.50) | 4.03 (1.57) d | 4.36 (1.41) | 4.31 (1.58) b | 0.76 | |
| **Price consciousness** | | | | | | **0.73** |
| I will compare prices of more than one insurer before I decide to purchase a motor insurance. | 5.69 (1.36) | 5.40 (1.55) * | 5.49 (1.45) | 5.29 (1.53) | 0.88 | |
| I usually purchase the cheapest motor insurance. | 4.53 (1.46) c | 4.60 (1.46) D | 4.16 (1.51) a | 4.09 (1.54) B | 0.65 | |
| I will compare more than one insurer to take advantage of low prices for my motor insurance. | 5.46 (1.41) | 5.33 (1.57) | 5.45 (1.50) | 5.20 (1.53) | 0.89 | |
| **Perceived risk** | | | | | | **0.80** |
| You need to be careful when buying a motor insurance since a lot can go wrong. | 4.29 (1.41) | 4.43 (1.48) d | 4.23 (1.54) | 4.17 (1.51) b | 0.61 | |
| Given the financial expenses associated with purchasing a motor insurance, there is substantial financial risk. | 3.26 (1.50) | 3.27 (1.52) | 3.07 (1.58) | 3.15 (1.54) | 0.80 | |
| Due to the financial commitment, I am unlikely to buy a motor insurance. | 2.67 (1.56) | 2.79 (1.66) | 2.49 (1.44) | 2.61 (1.55) | 0.70 | |
| Considering the investment involved, purchasing a motor insurance would be risky. | 3.36 (1.34) | 3.52 (1.44) D | 3.26 (1.39) | 3.18 (1.51) B | 0.84 | |
| Given the financial expenses associated with purchasing a motor insurance, there is substantial financial risk. | 3.51 (1.38) | 3.57 (1.40) | 3.34 (1.41) | 3.42 (1.49) | 0.77 | |
| **Switching costs** | | | | | | **0.79** |
| Switching to a new insurer will probably result in some unexpected hassle. | 3.17 (1.40) | 3.34 (1.45) | 3.09 (1.44) | 3.21 (1.43) | 0.81 | |
| I worry that the service offered by other insurers won't work as well as expected. | 3.88 (1.43) | 4.12 (1.41) d | 3.90 (1.55) | 3.84 (1.46) b | 0.72 | |
| Switching to a new insurer will probably involve hidden costs. | 3.31 (1.40) | 3.45 (1.41) | 3.25 (1.39) | 3.46 (1.47) | 0.82 | |
| I don't know what I'll end up having to deal with while switching to a new insurer. | 3.68 (1.51) | 3.73 (1.74) | 3.48 (1.60) | 3.56 (1.74) | 0.79 | |

Table 5: Measurement scales and relevant data.
Reported values denote the average and the standard deviation (given in parenthesis). The grades are based on a seven-level Likert scale: 1 = does not apply at all, 7 = fully applies. The letters refer to the product cards in the presented order, i.e., A = Offer 1, B = Offer 2, C = Offer 3, and D = Offer 4. The letters denote significant differences between product dimensions and asterisks between cost dimensions. * or lowercase letters denote significance at the 5% level, ** or capital letters at the 1% level. FL denotes the factor loadings of each item, and CA indicates Cronbach's Alpha of each construct.

simply pay to receive an additional cost presentation.

### 5.1.1 Significances between Product and Cost Dimension

In our first analysis, we use t-tests[5] to analyze whether an additional cost presentation leads to differences in consumer perceptions in terms of perceived price transparency (cost dimension), and whether differences exist in responses between the two product types surveyed (product dimension). Hypothesis 1 predicts that an additional cost presentation has a positive effect on consumer perceptions concerning price transparency. In contrast, Hypothesis 2 states that consumer perceptions concerning price transparency based on an additional cost presentation will variy depending on the scope of insurance cover.

The analysis of differences reveals significant differences between the responses to the two products as well as cost dimensions. Table 5 shows these results. The letters (A, a) indicate significant differences between mean values in the two product lines requested (partially comprehensive and comprehensive insurance), while asterisks (*, **) report the significant differences between mean values in the two types of cost presentations (without and with cost presentation).

No significant differences in the answers of both product lines exist when respondents evaluate the product cards without costs (Offer 1 compared with Offer 3). However, responses differ concerning the assessment of the two product offers with cost presentations (Offer 2 compared with Offer 4).[6] That is because customers with a partially comprehensive insurance do not value cost transparency (Offer 1 compared with Offer 2). However, an additional cost presentation significantly increases perceptions of price transparency by consumers with comprehensive insurance (Offer 3 compared with Offer 4).

Therefore, Hypothesis 1 has to be rejected for consumers with partially comprehensive insurance, whereas Hypothesis 1 is not rejected for consumers with comprehensive insurance. In addition, Hypothesis 2 is not rejected. Customers with comprehensive insurance prefer a more transparent price presentation with additional indications of costs incurred by the insurer compared with consumers of partially comprehensive insurance, who do not value price transparency.

Furthermore, the results indicate that a consumer with comprehensive insurance values price transparency, with provision of such positively influencing their purchase decisions. At the same time, consumers willingness to pay does not increase on average.

[5] We checked our data for normality and variance homogeneity. To prove the data for normality, we conducted a Shapiro-Wilk test, which showed a highly significant deviation from normality with an error probability of $p < 0.001$. Therefore, we cannot assume a normal distribution. To check the data for variance homogeneity, we performed the Levene's test. Whereas for cost dimension variance homogeneity can be assumed, in terms of product dimension, namely, for differences between partially comprehensive and comprehensive insurance, variance homogeneity does not apply ($p < 0.001$). Therefore, because its robustness is also violated by assumptions and because of the large sample size (for example, Kang and Harring, 2012), we use the t-test to analyze the data regarding significant differences between both independent similarly sized groups, namely, cost and product dimension.

[6] This result is also confirmed through analyzing the data with pairwise parameter comparisons considering the critical ratios (C.R.) for differences. Thus, a $C.R. > 1.96$ ($p < 0.05$) indicates significant differences between various groups (Homburg and Giering, 2001, p. 52). The calculation of $C.R.$ for parameter difference tests enables us to indicate test statistics between studied groups, in this case, the four product cards were surveyed. When analyzing the differences between Offers 2 and 4, significant differences are observable ($C.R.$ 2.21, $p < 0.05$). The prerequisite for calculating $C.R.$ is an appropriate group model with fixed measurement weights. This condition is fulfilled by our transparency-based decision model, which is presented in detail in Section 5.2.

### 5.1.2 Consumers' Willingness to Pay

Similar results are observable in the declaration of total euro amounts. Table 6 reports the average amounts for each product card for both average WTP by all respondents as well as positive WTP by subjects who indicated their WTP with a value above four on the scale. Irrespective of WTP, the results underline our previous findings. Thus, consumers with partially comprehensive insurance do not value cost transparency compared with those with comprehensive insurance. The results for product dimensions (Offer 2 compared with Offer 4) are significant at the 5% level for consumers with a positive WTPy. In this case, consumers' WTP for an additional cost presentation amounts on average to 31.67 euros for comprehensive insurance, a business line in which consumers value price transparency. Considering the WTP of all respondents, these values are considerably smaller than those for consumers with a positive WTP. However, consumers with comprehensive insurance show WTP higher amounts, especially for Offer 4 with an additional price presentation.

Further analyses are necessary to test the Hypotheses 3 to 7.

| **WTP Expressed in Euros** How much premium would you pay more for a presentation of cost components in euro? | **Insurance Class** Offer 1 | Offer 2 | Offer 3 | Offer 4 |
|---|---|---|---|---|
| Average WTP | 276<br>7.11 (21.86) | 274<br>5.63 (14.71) | 275<br>7.17 (20.41) | 275<br>8.41 (22.60) |
| Positive WTP | 75<br>26.17 (35.64) | 70<br>22.05 (22.13)<br>d | 75<br>26.30 (32.13) | 73<br>31.67 (34.58)<br>b |

Table 6: Average and Positive Willingness to Pay Expressed in Euros
The reported values in the first line contain the number $n$ of respondents, and the reported values in the second line denote the average and the standard deviation (given in parenthesis). The letters below denote significant differences between product dimensions and refer to the product cards in the presented order, i.e., A = Offer 1, B = Offer 2, C = Offer 3, and D = Offer 4. Lowercase letters denote significance at the 5% level, capital letters at the 1% level.

## 5.2 Testing the Transparency-Based Decision Model

The structural model of Analysis 2 aims to investigate the antecedents of consumer purchase behavior based on cost-based price transparency. The underlying logic is that perceived price transparency influences consumers' purchase intention to buy motor insurance with consequences on their loyalty and WTP. The model allows us to analyze the effects of cost-based price presentation on consumers' product evaluations. The basis of the decision-making process is the entire sample of $n = 1\,100$.[7]

[7] As the results of Analysis 1 reveal significant differences between the four product offers, we also have analyzed our model for the four subsamples that were the basis of Analysis 1. We found for all subsamples analog significant item paths and significant correlations between the four constructs ($p < 0.001$). Thus, the base model is confirmed in its entirety for motor insurance in total as well as for each insurance class with and without cost presentation. However, we have decided to focus on the entire sample when reporting the model's results because of the importance of our research question of whether consumers value cost-based price transparency as an essential purchase criterion, and whether this attitude influences their willingness to pay in the business line of motor insurance as a whole.

### 5.2.1 Test of Validity and Reliability

To analyze the accuracy of scaling procedures and the hypothesized set of model relationships as shown in Figure 1, we check their validity and reliability using confirmatory factor analysis developed by Jöreskog (1977). To ensure convergent and discriminant validity, the analysis contains all constructs concerning consumer product evaluation analogous to Analysis 2. The analysis is based on a maximum-likelihood ratio test.

To evaluate the convergence of our model in total, we examine the following global fit measures: The chi-square/degree of freedom value $\chi^2/df = 2.407$ ($\chi^2 = 679.191$, df =275, $p < 0.001$) indicates a good model fit ($\chi^2/df \leq 2.5$, Homburg and Baumgartner, 1995, p. 169). The estimated model yields a goodness-of-fit index *GFI* of 0.956, and an adjusted goodness-of-fit index *AGFI* of 0.927. For both descriptive global fit measures, a threshold value of 0.9 is proposed (Homburg and Baumgartner, 1995, p. 166). The root mean square error of approximation *RMSEA* is 0.026 and thus indicates a good model fit if the threshold value is less than equal to 0.05 (Homburg and Giering, 2001, p. 54). In addition, the comparative fit index *CFI* is 0.964, above the threshold value of 0.9 (Homburg and Giering, 2001, p. 363). Therefore, all values indicate a good model fit.

In addition, the local fit measures for the constructs indicate good convergent validity. All *item loadings* are determined using principal component analysis. Their values are all above the threshold value of 0.5 as suggested by Anderson and Gerbing (1988). In addition, composite reliability for all factors is above the threshold value of 0.6 (Bagozzi and Yi, 1988, p. 82), with all factors having values above 0.9. Furthermore, all model's paths are significant with $p < 0.001$. *Cronbach's Alpha* values for each construct are high and in general above the threshold value of 0.7 (Nunnally, 1978, p. 245). The reliability of all constructs is quite good. To determine whether the model meets the requirement of discriminant validity, we use the Fornell and Larcker (1981) test. The proposed threshold value for average variance extracted *AVE* is 0.5 (Fornell and Larcker, 1981, p. 46). *AVE* of our latent variables is as follows: *AVE Transparency satisfaction* = 0.596, *AVE Purchase* = 0.840, and *AVE Loyalty* = 0.829. In addition to the good convergent validity already proven, the values of the Fornell and Larcker test also indicate the good discriminant validity of our model.

Table 5 summarizes the results of validity and reliability analyses. Finally, all values for the conducted analysis achieve the required threshold levels, and therefore indicate a strong evidence of reliability and validity for the transparency-based decision model.

### 5.2.2 Test of the Model's Effects

We use a structural equation model to analyze our hypotheses 3 through 5. With the help of causal modeling analyses, we establish the relationships between our constructs. To test the effect of consumer satisfaction concerning price transparency on consumers' product evaluations, we analyze the relationships between the constructs using path analysis. Figure 2 shows the final model including path coefficients estimates and coefficients of determination $R^2$, which are indicators for model fit.

When considering $R^2$, two constructs show high values for variance explained above the threshold level of 0.3 (Herrmann et al., 2006, p. 44). Thus, the model explains 42.5% of the variance in *Purchase*,

and 85.3% of the variance in *Loyalty*. However, the model only explains 11.1% of the variance of *WTP*. Therefore, it seems that other factors influence *WTP* that are not considered in our model. However, this study investigates the influence of perceived satisfaction with regard to price transparency on consumers' product evaluations.

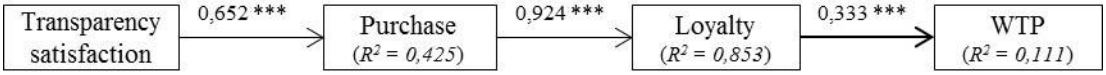


Figure 2: Results of the Transparency-Based Structural Model.
Reported values denote the standardized estimates of structural equation coefficients. The asterisks denote the significance level, * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

The three hypotheses formulated here are highly significant at the 0.001 level, and all path coefficients estimates are above the threshold of 0.2 by Chin (1998). Consumer satisfaction concerning price transparency has a strong positive influence on consumers' purchase decisions ($\beta = 0.652$, $p < 0.001$), as stated by Hypothesis 3. The strongest impact occurs on their willingness to recommend the product offer to other people ($\beta = 0.924$, $p < 0.001$), corroborating Hypothesis 4. Considering Hypothesis 5, consumer willingness to recommend a motor insurance policy impacts their WTP ($\beta = 0.333$, $p < 0.001$).

Finally, we conclude that perceived satisfaction regarding cost-based price transparency directly influences consumers' product evaluations.

## 5.3 Differences in Product Evaluation Due to Predictor Variables

The objective of Analysis 3 is to check whether psychographic and socio-demographic consumer characteristics as predictor variables have a significant impact on differences in consumers' product evaluations. The formulated hypotheses state that consumer product evaluations differ with respect to both psychographic (H6) as well as socio-demographic characteristics (H7). To check these two hypotheses, we use significance tests. On the basis of our main model, we perform pairwise parameter comparisons considering the *C.R.* for differences to indicate significant differences between various groups and latent variables. These two groups are: predictor variables (socio-demographic and psychographic characteristics) and latent variables (transparency satisfaction, purchase, loyalty and WTP). We perform the analyses based on our entire sample ($n = 1\,100$) because we are interested in showing which consumer characteristics generally drive consumers' perceptions regarding price transparency and their product evaluations, namely, purchase intention, loyalty, and WTP.

### Psychographic Characteristics

Hypothesis 6 states that product evaluations differ with respect to psychographic consumer attributes. We analyze this impact for the four possible predictor variables (*consumer expertise*, *price consciousness*, *perceived risk*, and *switching intention*). Specifically, we investigate the influence of the four predictive variables by subdividing the respective seven attribute levels (in accordance with the seven-level Likert

scale) into two categories: "negative attitude" and "positive attitude." The results of significant differences indicate that psychographic characteristics impact consumers' product evaluations.

Whereas *consumers' expertise* has no influence on their product evaluations, *WTP* significantly differs between non price-conscious consumers compared with consumers who are rather price-conscious, with a critical value of 7.48 at the 0.05 level. Furthermore, *consumers' perceived risk* with motor insurance products leads to differences in their *satisfaction regarding transparency* (*C.R. of 3.92, $p < 0.05$*). In addition, *switching intention* and *satisfaction concerning transparency* have a significant difference with a *C.R. of 3.00 ($p < 0.05$)* for consumers with a low willingness to switch insurer compared to consumers with high switching intention.

Therefore, Hypothesis 6 is not rejected. *Consumers' switching intention* and *risk perception* result in differences in perceived satisfaction with price transparency. However, *consumers' price consciousness* impacts their WTP.

Factors leading to differences in consumers' product evaluations with respect to all facets investigated are reported in Table 7 concerning both psychographic and socio-demographic variables.

| Characteristic Type | Transparency Satisfaction | Purchase | Loyalty | WTP |
|---|---|---|---|---|
| Psychographic | Perceived risk<br>Switching intention | | | Price consciousness |
| Socio-Demographic | Age<br>Monthly net income<br>Sales channel | Household size<br>Number of children | Current job situation<br>Payment frequency | Current job situation<br>Sales channel<br>Payment frequency |

Table 7: Consumer Characteristics that Lead to Differences in Consumers' Product Evaluation

**Socio-Demographic Characteristics**

Hypothesis 7 predicts that socio-demographic attributes will lead to differences in consumers' evaluation of a motor insurance policy. The results of the pairwise parameter comparisons considering *C.R.* reveal the influence of various socio-demographic characteristics on consumers' product evaluation.

*Gender* exerts no effect on consumers' product evaluations. *Transparency satisfaction* significantly differs by consumer *age*. The differences are the highest for younger consumers compared with older respondents. For example, subjects aged between 18 and 29 years compared with those of 59 and 60 years of age (*C.R.* 4.01, $p < 0.05$). Furthermore, *transparency satisfaction* significantly differs by *monthly household income* level. This perception differs the most between incomes under 1 500 euros and between 3 000 $<$ 4 000 euros (*C.R. 2.53*, $p < 0.05$).

*Household size* also influences consumers' *purchase intentions*. Significant differences exist between one-person households, and households with five or more person (*C.R. 2.61*, $p < 0.05$). In addition, three-person households (*C.R. 2.43*, $p < 0.05$) differ in their purchase intentions compared with households having five or more persons. Consumer *purchase intentions* are also affected by *number of children under 18 years*. Therefore, childless households have buying behavior different than households with three or more children (*C.R. 2.78*, $p < 0.05$).

In contrast, *current job situation* influences *WTP*. All interviewed groups show a different WTP compared with students, with pensioners showing the highest differences (*C.R. 3.86*, $p < 0.05$). Furthermore, students show a different *loyalty* compared to retired policyholders (*C.R. 2.74*, $p < 0.05$).

*Sales channel* also affects consumers' *transparency satisfaction*. Significant differences can be seen between the use of an online comparison portal and personal contact, either with an insurance agent (*C.R. 2.78*, $p < 0.05$) or a broker (*C.R. 3.35*, $p < 0.05$).

Moreover, consumers' usual *payment frequency* has a significant effect on WTP. Differences exist between consumers who annually pay and those who pay half-yearly (*C.R. 2.46*, $p < 0.05$). In addition, the most common payment method influences consumers' *loyalty*. This varies the most according whether payments are made monthly payment or annually (*C.R. 2.70*, $p < 0.05$).

Therefore, Hypothesis 7 is not rejected. Socio-demographic consumer characteristics influence consumers' product evaluations. While *age*, *monthly net income*, and the *sales channel* used affect *consumers' transparency perceptions*, factors expressing *household size* influence *consumers' purchase intentions*. In contrast, consumer *loyalty* is characterized by *current job* and usual *payment frequency*. *Job situation* and *payment arrangements* lead also to significant differences in *WTP*, as well as preferred *sales channel*.

# 6 Discussion and Implications

This study analyzes the influence of a cost-based price presentation upon consumers' satisfaction regarding price transparency, purchase intention, loyalty, and WTP. In doing so, we determine the premium of partially comprehensive and comprehensive insurance contracts, and calculate the underlying cost components for both policy types. On this basis, we test how consumers evaluate an additional cost presentation across both product lines. To do so, we show participants of a representative German online panel one of four product cards. On the one hand, the product offer contains a today's price benefit presentation without a cost presentation, and on the other hand, the product offer comprises a today's price benefit presentation with an additional cost presentation. These two possibilities are tested for both product lines. We present respondent with the cost components in form of a pie chart, including claims costs, operational costs, insurers profit, and insurance tax. All product cards are identical in terms of their structure and content – the single difference being that one product offer per business line contains an additional cost presentation after showing the premium.

### Implications for the Regulator and Insurers

Broken down by insurance class, our results indicate that policyholders of partially comprehensive insurance do not value an additional presentation of cost components accured by an insurance company. In contrast, satisfaction regarding price transparency increases for consumers with comprehensive insurance, and positively influences their purchase decision and loyalty. However, consumer WTPy does not increase on average as a consequence of perceived satisfaction.

However, when considering the results for consumers with a positive WTP in euro terms, the values obtained in our survey indicate that consumers with comprehensive insurance would pay significantly

more than those with partially comprehensive insurance. Moreover, consumers with a positive WTP have on average a fourfold higher level of WTP compared with the WTP of all consumers.

In addition, our transparency-based decision model reveals a highly significant impact of perceived satisfaction concerning cost-based price transparency upon consumers' purchase decisions. This resulted in a very strong significant effect on consumers' willingness to recommend the product after their purchase. This decision-making process has the lowest impact on consumers' WTP and their likelihood to recommend the motor insurance offer after purchase.

These results are important with regard to a possible mandatory disclosure of costs in non-life insurance. Our study findings indicate that consumers recognize the cost-based price presentation. However, not all consumers value the presented type of price presentation. This may be explained by the fact that consumers' expectations have not been fulfilled based on the specific presentation of cost components shown in the survey. Furthermore, consumers' WTP varies considerably, depending on whether consumers have a or average WTP.

It should be noted that a standardized mandatory cost disclosure for insurance companies would not take these aspects into account. Also, the examined differences in consumers' purchase behavior resulting from socio-demographic and psychographic characteristics are not considered. The implication of this is that policyholders who do not desire an additional cost presentation in insurance contracts are still required, to pay for this disclosure. Moreover, an implementation of this project leads to costs borne by insurance companies that results in cross-subsidization. That is, the insurance collective as a whole has to shoulder the resulting costs, independently of consumer transparency perceptions and WTP.

Thus, mandatory cost disclosure could be defined as insurance companies offering an additional cost presentation for insurance policies. However, each consumer can decide, expressly and voluntarily, if he wants a presentation of cost components in addition to the current price benefit information. Therefore, the general public demand for greater cost transparency in non-life insurance is taken into account in connection with the fact that each consumer can take an independent decision regarding whether or not he demanded the service offered.

**Future Research**

In addition to the analysis into how cost-based price transparency impacts consumers' purchase decisions, the topic of price transparency provides various directions for future research. Of great interest is how cost-based price presentation may appear so that all consumers recognize and value it, regardless of product category and business line. In this context, it is also of interest if another type of cost presentation would increase consumers' WTP. Another basis for further studies is the question of which additional factors influence consumers' WTP and, whether our transparency-based decision model is applicable to other industries in which price transparency is also an important issue.

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