Institute of Insurance Economics

University of St.Gallen

On Consumer Preferences and the Willingness to Pay for Term Life Insurance

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DVfVW Annual Meeting 2015
Berlin, March 19, 2015

Consumer preferences for life insurance are not well understood to date

Motivation

- Empirical research on preferences and willingness to pay (WTP) for insurance is rare
- Issues of past studies can be tackled by state-of-the-art preference elicitation methods

Contribution

- Comprehensive study of consumer preferences and WTP for term life insurance
- Methodology: Choice-Based Conjoint (CBC) Analysis with Hierarchical Bayes' estimation
- Attribute importances, marginal WTPs (product adjustments), and max. WTP (products)
- Simulation of price and product competition in a hypothetical market setting

CBC attributes and levels for EUR 100’000 term life contract

No.	Attribute	Levels	Comment
1	Insurance Premium	5 levels from “very low” to “very high” Equally sized price steps	Different Euro amounts for 10 groups Based on market/cost aspects
2	Term Assured	10, 15, 20 years	-
3	Sales Channel	Human salesperson, online distribution	-
4	Medical Underwriting	Min. 1 year survival, questionnaire (3), questionnaire (10), medical examination	-
5	Brand	Well-known insurer, lesser-known insurer, noninsurance brand	-
6	Critical Illness (CI) Cover	Yes, No	50’000 EUR benefit if diagnosed with critical illness

+ option not to buy at all

Levels for attribute “premium” (tranched sample)

Nonsmoker	Price Levels				
Age	*Lower Limit*				*Upper Limit*
20-29	3.00	6.00	9.00	12.00	15.00
30-39	5.00	10.00	15.00	20.00	25.00
40-44	7.00	14.00	21.00	28.00	35.00
45-49	10.00	20.00	30.00	40.00	50.00
50-54	20.00	40.00	60.00	80.00	100.00

Smoker	Price Levels				
Age	*Lower Limit*				*Upper Limit*
20-29	5.00	8.75	12.50	16.25	20.00
30-39	10.00	17.50	25.00	32.50	40.00
40-44	20.00	35.00	50.00	65.00	80.00
45-49	30.00	52.50	75.00	97.50	120.00
50-54	60.00	105.00	150.00	195.00	240.00

Discrete choice experiments (pairwise comparisons)

Randomized design (example: nonsmoker 20-29 years)

Welches der beiden folgenden Produkte für eine Risikolebensversicherung würden Sie bevorzugen, wenn sich die beiden Risikolebensversicherungen nur in den angegebenen Merkmalen unterscheiden?

Laufzeit	15 Jahre	20 Jahre
Monatliche Prämie	12,00 Euro	6,00 Euro
Vertriebsweg	Im persönlichen Gespräch	Über das Internet
Gesundheitscheck	Medizinischer Fragebogen mit 10 Fragen	Ausführliche ärztliche Untersuchung
Marke	IKEA, ALDI, amazon.com	Debeka, Allianz, R+V, AXA, HANNOVERSCHE EINFACH. BESSER. DIREKT.
„Critical-Illness“ Option (Leistung von EUR 50.000 bei schwerer Erkrankung)	Nicht vorhanden	Nicht vorhanden
	○	○

Würden Sie das ausgewählte Produkt tatsächlich abschließen, wenn Sie jetzt eine neue Risikolebensversicherung abschließen könnten?

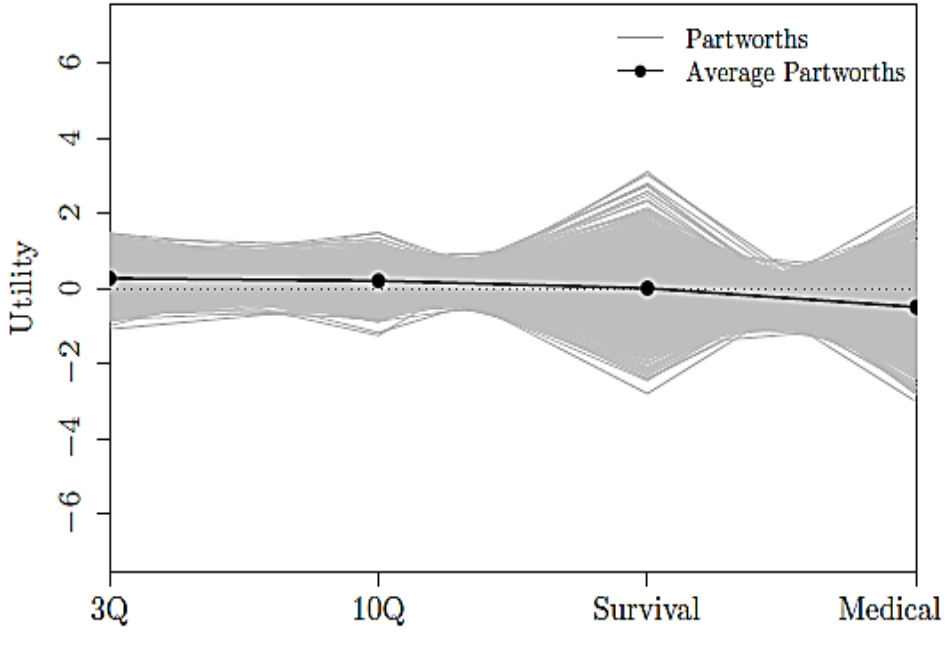
○ Ja
○ Nein

Based on the estimated preference structures, we can calculate key metrics and simulate consumer behavior in specific market settings

Individual-level part-worth utility profiles

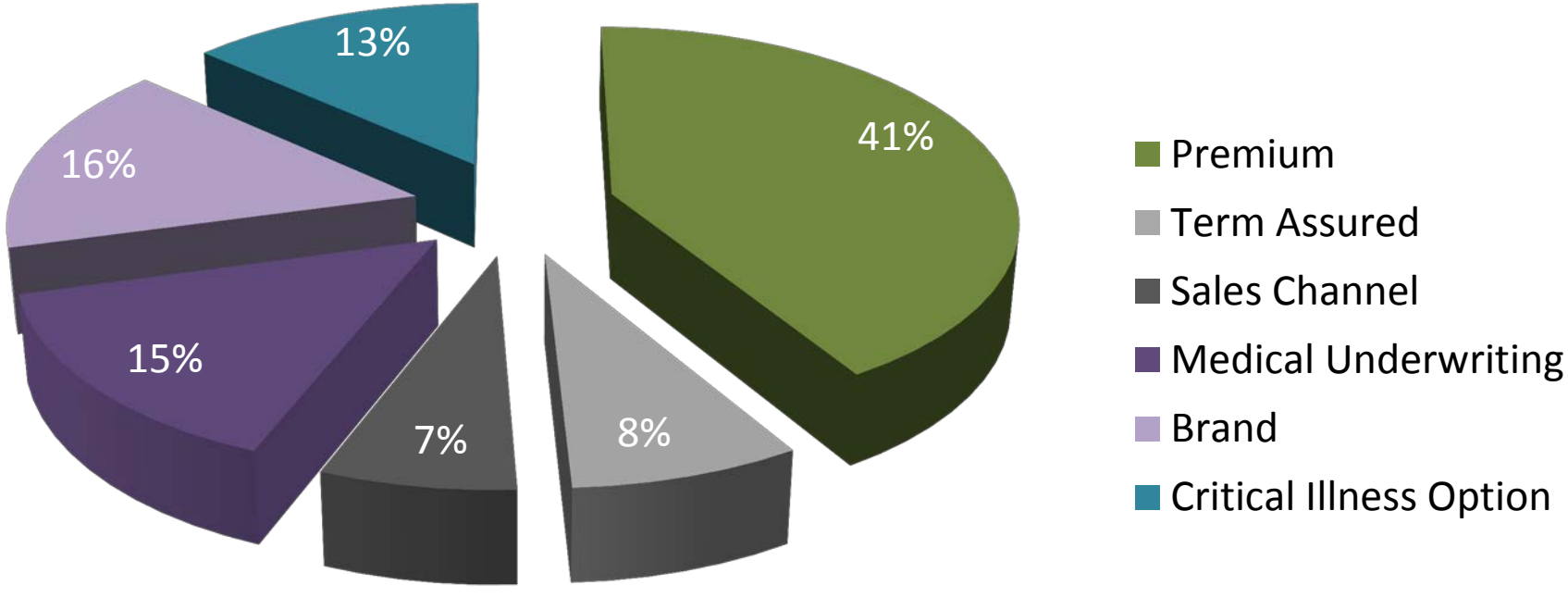
- 2’017 insurance decision makers from Germany, between 20 and 54 years old
- Population representative (domicile state and gender)

Example: attribute “medical underwriting”



Premium is the most important utility driver for the average respondent, followed by brand, medical underwriting, and CI rider

Mean relative importances

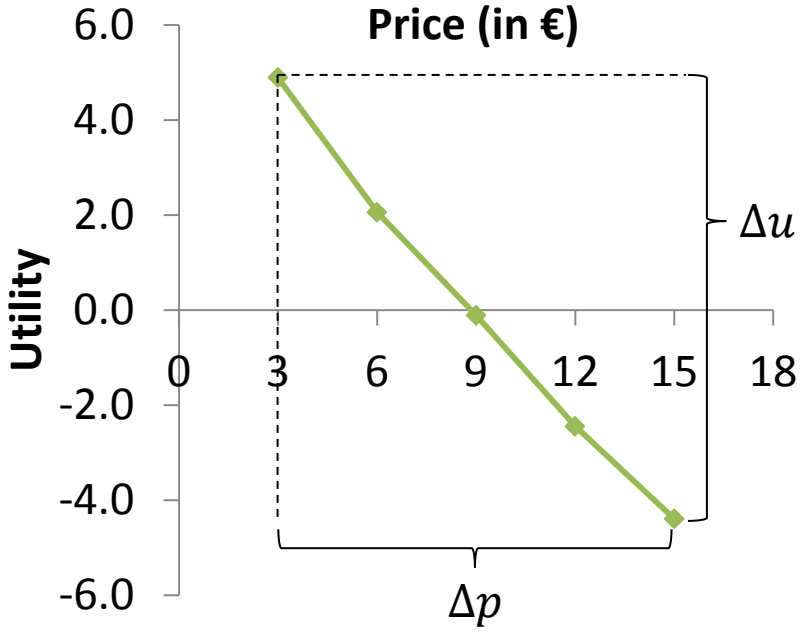


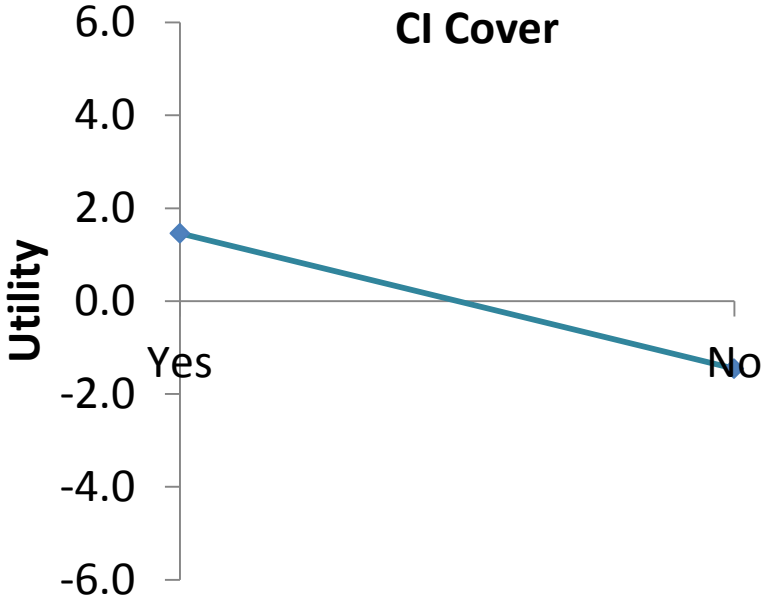
Exchange rate between utility and price

An example

$$\frac{\Delta p}{\Delta u} = \frac{€\,15\ - €\,3}{4.89 - (-4.39)} = 1.29\,{}^{€}/_{utile}$$

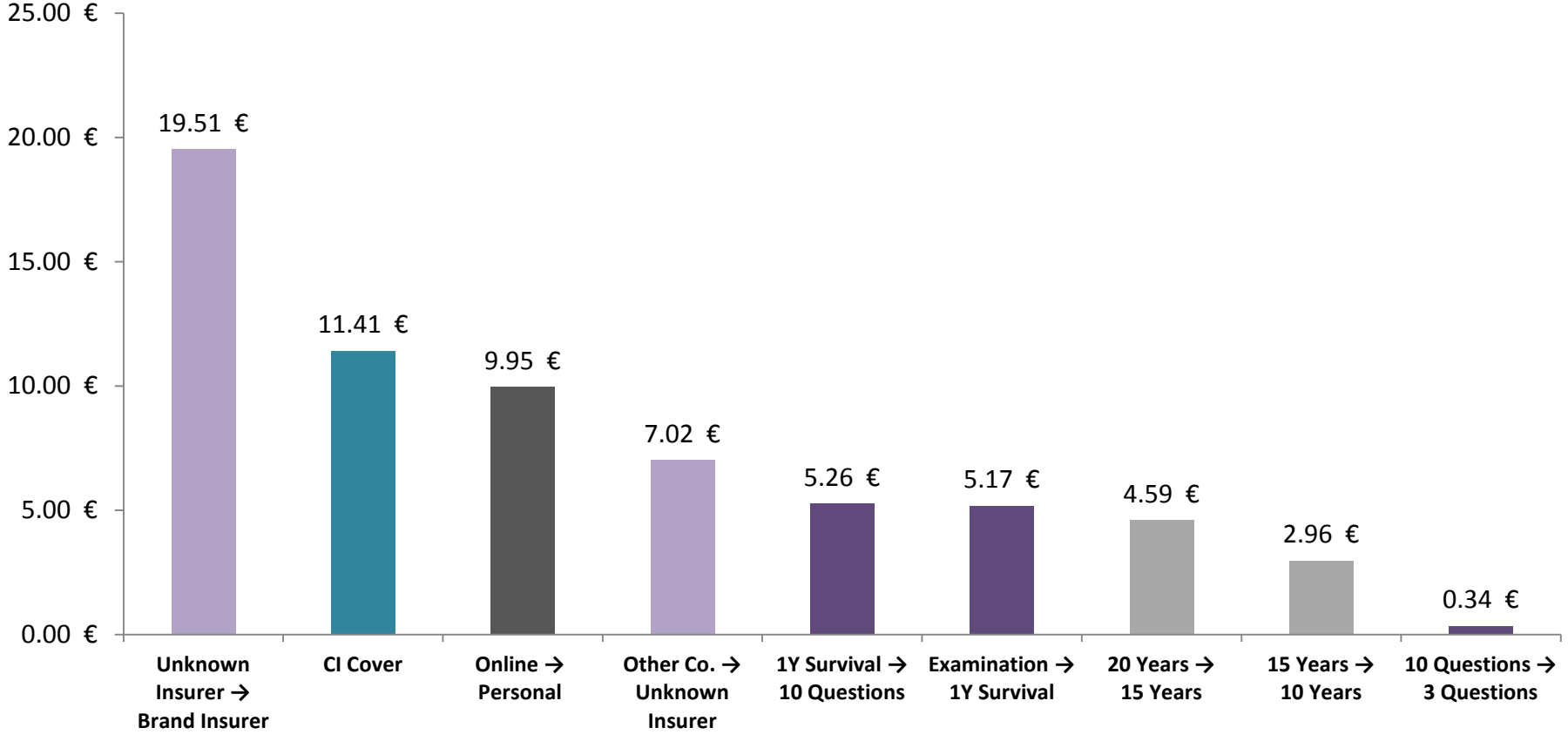
$$1.29\,{}^{€}/_{utile} \cdot (1.46 - (-1.46)) = €\,3.77$$





Brand and CI rider generate the highest markups in the WTP

Mean marginal WTP



The maximum WTP for a full product depends on its attribute levels

Four benchmark products

Budget Product	
Base Case Price:	Very Low
Term Assured:	15 years
Brand:	Noninsurance brand
Sales Channel:	Online
CI Cover:	No
Underwriting:	10 questions

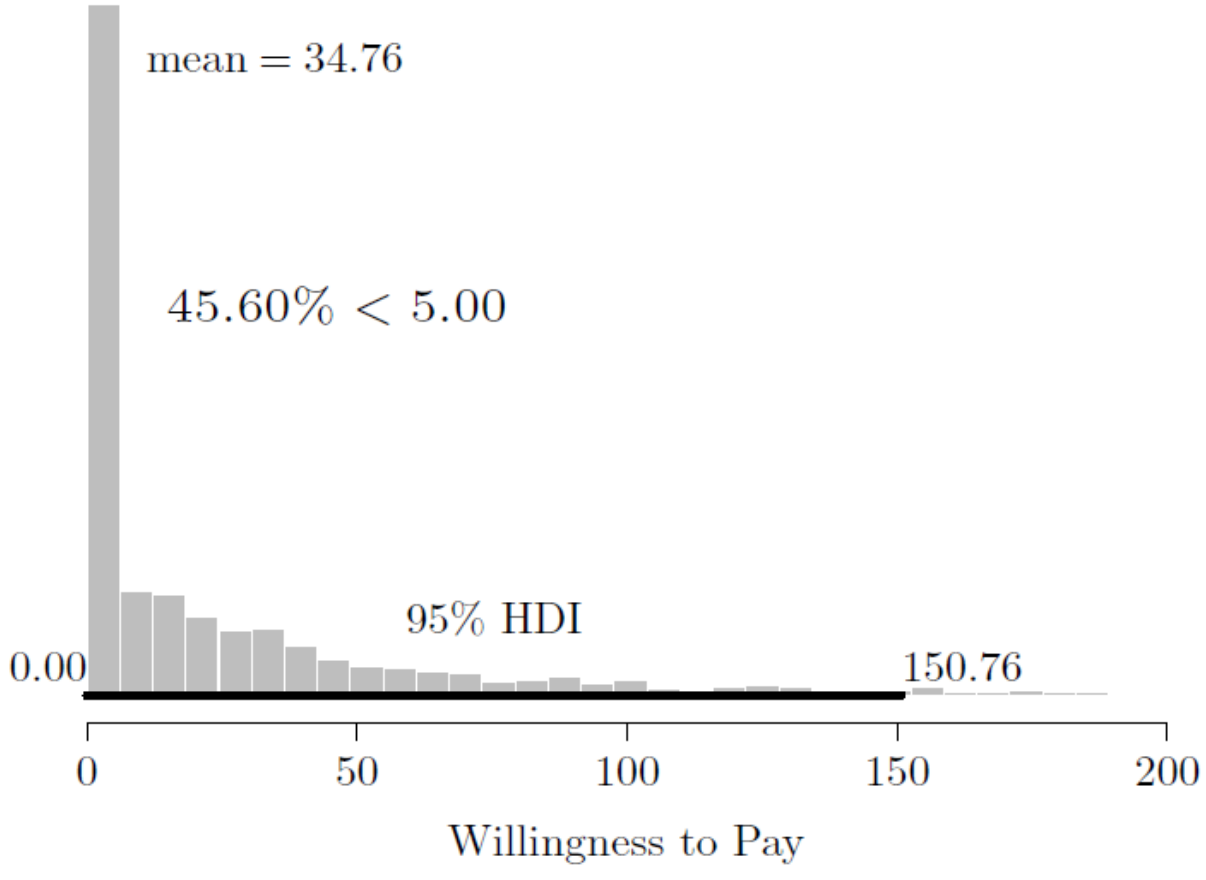
Classic Product	
Base Case Price:	Low
Term Assured:	15 years
Brand:	Well-known insurer
Sales Channel:	Human sales person
CI Cover:	No
Underwriting:	Medical examination

Innovative Product	
Base Case Price:	Low
Term Assured:	15 years
Brand:	Lesser-known insurer
Sales Channel:	Online
CI Cover:	Yes
Underwriting:	1 year survival

Premium Product	
Base Case Price:	Medium
Term Assured:	15 years
Brand:	Well-known insurer
Sales Channel:	Human sales person
CI Cover:	Yes
Underwriting:	3 questions

Roughly half of all respondents exhibit no WTP for all products

Posterior WTP distribution for the premium product



Product design improvements increase market shares

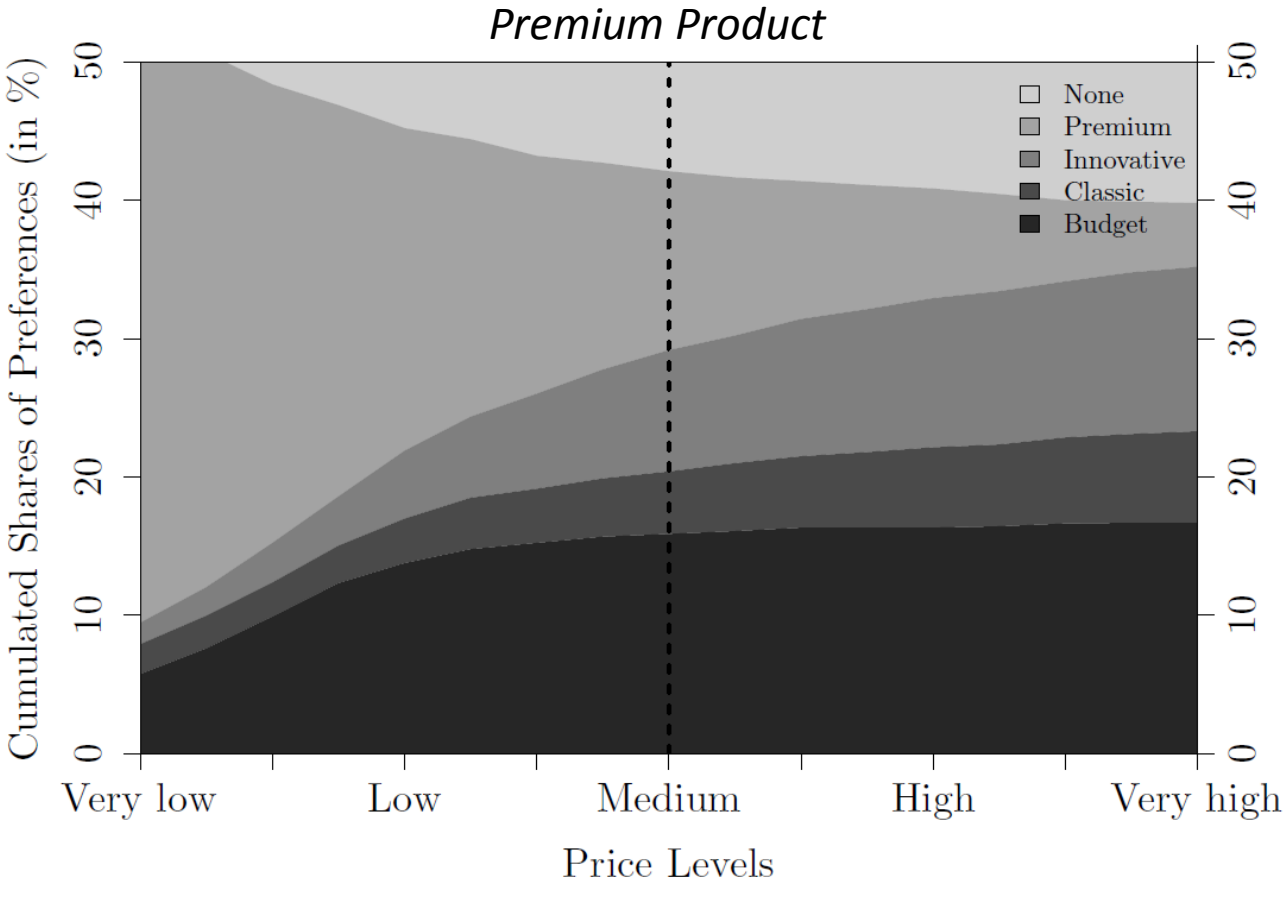
Product switching and market expansion effects

Panel A: Base Case	Budget (B)	Classic (C)	Innovative (I)	Premium (P)	None
Shares of Preference	**15.89**	**4.51**	**8.77**	**12.93**	**57.89**

Panel B: Changes		Budget (B)	Classic (C)	Innovative (I)	Premium (P)	None
(B)	[10y]	+1.00	0.00	–0.25	–0.10	–0.65
	[3Q]	+1.55	+0.20	–0.80	–0.35	–0.60
	[CI]	+12.48	+0.15	–5.06	–2.61	–4.96
	[Personal]	+0.45	–0.30	+0.35	–0.20	–0.30
	[Brand]	+5.86	–1.50	–0.90	–1.85	–1.60
(C)	[10y]	+0.05	+0.50	–0.15	+0.05	–0.45
	[1year]	+0.05	+0.95	–0.75	+0.10	–0.35
	[10Q]	–0.15	+0.45	–0.05	–0.20	–0.05
	[3Q]	–0.20	+1.40	–0.15	–1.05	0.00
	[CI]	–0.35	+6.77	–1.15	–4.11	–1.15
(I)	[10y]	–0.40	–0.05	+1.30	–0.10	–0.75
	[3Q]	+0.20	0.00	+0.90	–0.65	–0.45
	[Personal]	+0.20	–0.10	+1.10	–0.75	–0.45
	[Brand]	–1.45	–0.40	+6.12	–2.56	–1.70
(P)	[10y]	0.00	+0.70	–0.70	+0.55	–0.55

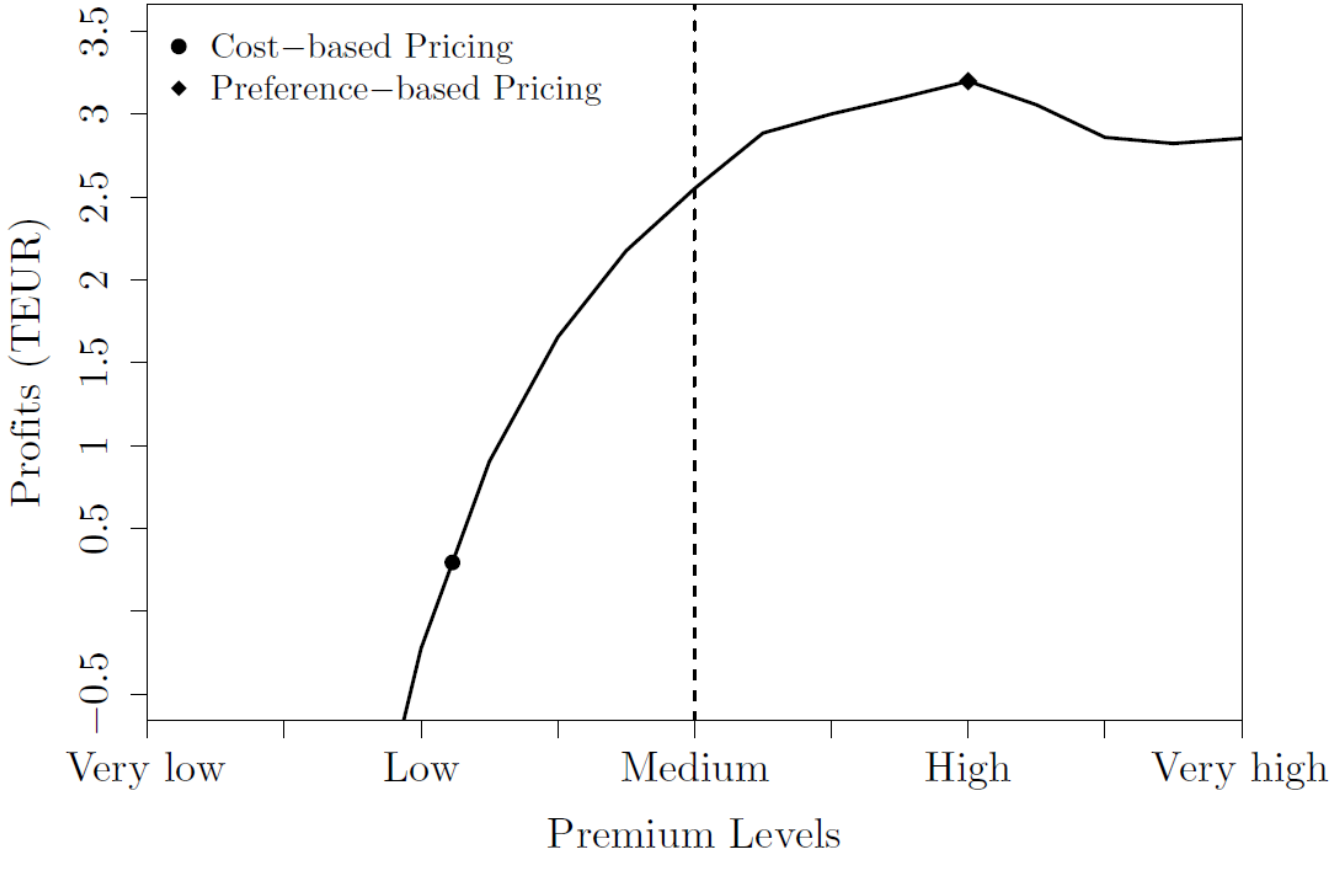
Price pressure can be avoided through product optimization

Product switching and market expansion effects



Preference-orientation renders cost-based pricing obsolete

Estimation of the profit-maximizing price



Summary and outlook

Key findings

- Premium, brand, CI cover, and underwriting are the most important product attributes
- Many individuals do not have a positive WTP for term life policies at all
- A preference-optimized product consistently dominates alternative offerings
- Cost-based pricing is inferior to preference-based pricing

Future research

- Benefit market segmentation (see Schreiber, 2014)
- Identification of nonproduct determinants of the WTP

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