Insurance as Anxiety Antidote?

Preference for Uncertainty Resolution and Insurance Demand

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From insight to impact.

Why do people buy (too much / too little) insurance?

- "Standard" risk aversion, probability distortions, loss aversion (e.g., Barseghyan et al. 2013)

- Delay dependency of risk preferences (Epper & Fehr-Duda 2024)

- Contract non-performance risk (e.g., Biener et al. 2019)

- Still, a large fraction of the variation in consumer choice in insurance is often attributed to "confusion" (Ericson & Sydnor 2017)

→ hard to learn anything about individual preferences / welfare from choices if it's simply "confusion"

→ Contribution: add theoretical and empirical support on a novel dimension of preferences ("peace of mind")

«Peace of mind» in insurance is a common theme in real markets

By concluding an insurance contract, insureds receive:

- a contingent claim, addressing "standard" (i.e., risk, time) and non-standard (i.e., loss aversion) preferences and beliefs

<p style="text-align:center">AND</p>

- "peace of mind" during a period of uncertainty that pertains to individuals with an aversion to anxiety (Caplin & Leahy 2001).

In a nutshell: we show that «peace of mind» might be an additional determinant of insurance demand

Theoretically we show that (*ergo* Hypotheses):

- A DM that maximizes psychological expected utility (Caplin & Leahy 2001) with an aversion to anxiety exhibits higher demand for "perfect" insurance compared to EUT preferences

- If insurance is not "perfect" (i.e., has contract nonperformance risk), a DM maximizing psychological expected utility does not exhibit higher insurance demand or even has lower insurance demand

→ *See WP for details*

Empirically (incentivized + admin data, *N*=1,595) we find:

- A positive association between an incentive-compatible measure of aversion to anxiety and real insurance demand among a population with high confidence in their insurance company

- A negative association between an incentive-compatible measure of aversion to anxiety and real insurance demand among a population with low confidence in their insurance company

→ *Focus of this talk*

How can we model «peace of mind»?

- If *Early* ≻ *Late* a DM has a preference for early resolution of uncertainty (PERU)

- Generally early resolution can also be preferred under standard models (e.g., EUT), since DMs can "act" upon information received earlier (i.e., instrumental value)

- In the absence of such instrumental value, standard models imply indifference to the timing of uncertainty resolution → *Early* ~ *Late*

- "Perfect" insurance implies early resolution of uncertainty, so a DM with PERU gains utility from insurance as it removes a period of anxiety

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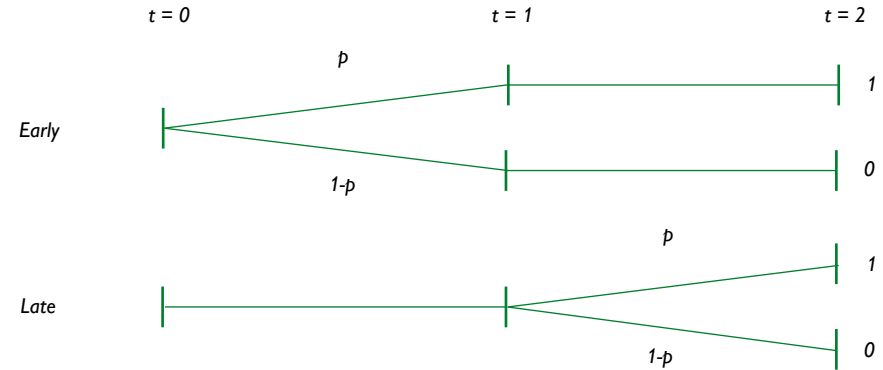
Why the assumption of insurance being perfect is crucial

- Even under EUT, contract non-performance risk reduces insurance demand (e.g., Doherty & Schlesinger 1990, Biener et al. 2019)

- Under PERU, perceptions of high contract non-performance risk reduces "peace of mind" resulting from insurance and the model predicts even higher reductions in insurance demand

- Our data shows large heterogeneity in contract non-performance perceptions of <u>own</u> insurer

mean = 18.69 %
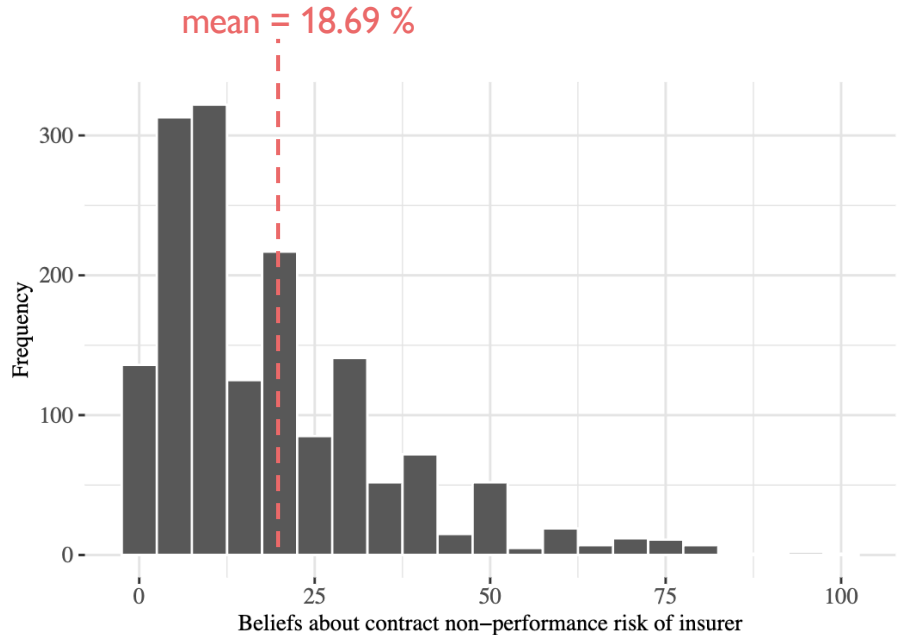
Data & methodology: incentive-compatible preference and belief data combined with real-world administrative data

Administrative data

- Random conditional (i.e., household, motor, liability) subsample of customers of large Swiss primary insurer
- Detailed policy-level and claims data on each individual

Experimental data

- Incentive-compatible measures for PERU, risk preferences, beliefs about loss probabilities and contract non-performance risk
- A large range of non-incentivized control variables

	Early resolution			Late resolution			
Variable	N	Mean	SD	N	Mean	SD	Test
Age	537	46.2	13.3	1,093	46.9	13.1	F= 0.938
Marital status	537			1,093			$\chi^2 = 5.062$
... divorced	80	15%		122	11%		
... partner	232	43%		480	44%		
... separated	15	3%		36	3%		
... single	200	37%		436	40%		
... widowed	10	2%		19	2%		
Gender	537			1,093			$\chi^2 = 0.53$
... female	206	38%		401	37%		
... male	330	61%		689	63%		
... other	1	0%		3	0%		
Employment	537			1,093			$\chi^2 = 3.688$
... employed (less 90%)	95	18%		208	19%		
... employed (more 90%)	328	61%		682	62%		
... in education	6	1%		17	2%		
... other	21	4%		40	4%		
... pensioner	66	12%		116	11%		
... stay at home	9	2%		11	1%		
... unemployed	12	2%		19	2%		
Educational level	537			1,093			$\chi^2 = 9.892$
... academic school	55	10%		130	12%		
... high school	190	35%		402	37%		
... limited	23	4%		28	3%		
... no degree	1	0%		0	0%		
... other	6	1%		4	0%		
... skilled	90	17%		177	16%		
... university	172	32%		352	32%		
Income bracket	537			1,093			$\chi^2 = 12.29^*$
... 5,001 - 9,000	240	45%		550	50%		
... 9,001 - 12,000	95	18%		137	13%		
... above 12,001	45	8%		87	8%		
... below 5,001	138	26%		296	27%		
... don't share	19	4%		23	2%		
Wealth	537	639.9	3,101.2	1,093	527.6	1,273.7	F= 1.068
Young child	537	0.7	0.5	1,093	0.7	0.5	F= 0.112
Size housing	537	130.1	73.2	1,093	270.4	4,539.1	F= 0.513
Car value	537	38.9	25.3	1,093	35.8	20.2	F= 7.219**
Risk aversion	537	5.1	2.1	1,093	5.3	2.1	F= 6.084*

Statistical significance markers: * $p<0.05$; ** $p<0.01$; *** $p<0.001$

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Empirical model

$$\text{Coverage} = \beta_0 + \beta_1 \cdot \text{beliefsLP} + \beta_2 \cdot \text{riskAversion} + \beta_3 \cdot \text{PERU}$$
$$+ \beta_4 \cdot \text{beliefsCNP} + \beta_5 \cdot (\text{PERU} \times \text{beliefsCNP}) + \beta_j \cdot X_j + \epsilon$$

- Coverage = real insurance coverage from administrative data
- beliefsLP = incentivized measure of beliefs about loss probabilities
- riskAversion = incentivized measure of "standard" risk aversion (from lottery choices)
- PERU = incentivized measure of preference for early resolution of uncertainty
- beliefsCNP = incentivized measure of beliefs about contract non-performance risk
- X = a range of individual-level control variables

Insurance coverage index (admin data)

- The main dependent variable is an insurance coverage index inspired by Armantier et al. (2023)

- We combine all policy-level coverage dimensions in a *Coverage* variable, weighting each dimension equally

- The insurance demand index contains coverage dimensions such as supplementary coverage, sums insured, and deductibles
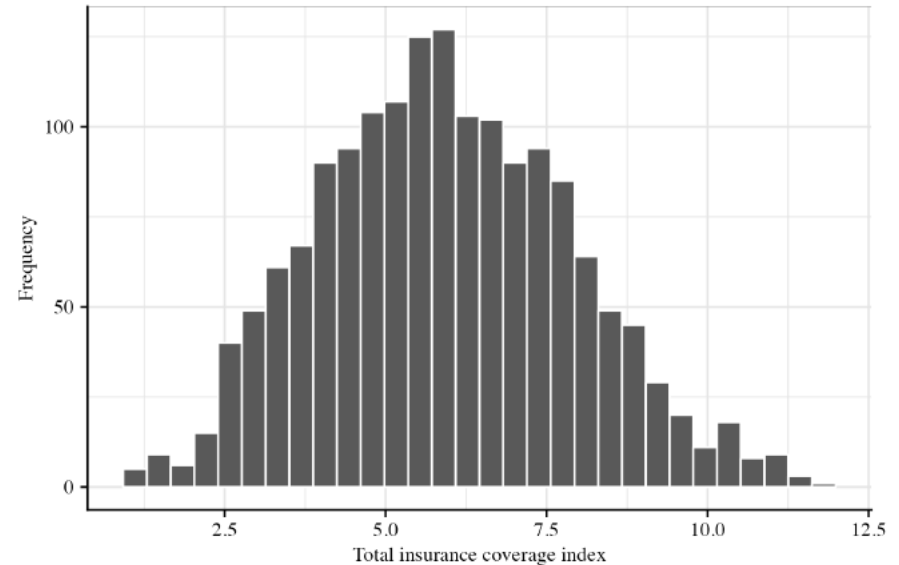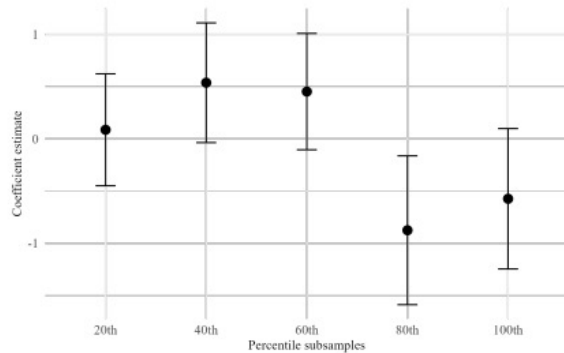
PERU measure (experimental data)
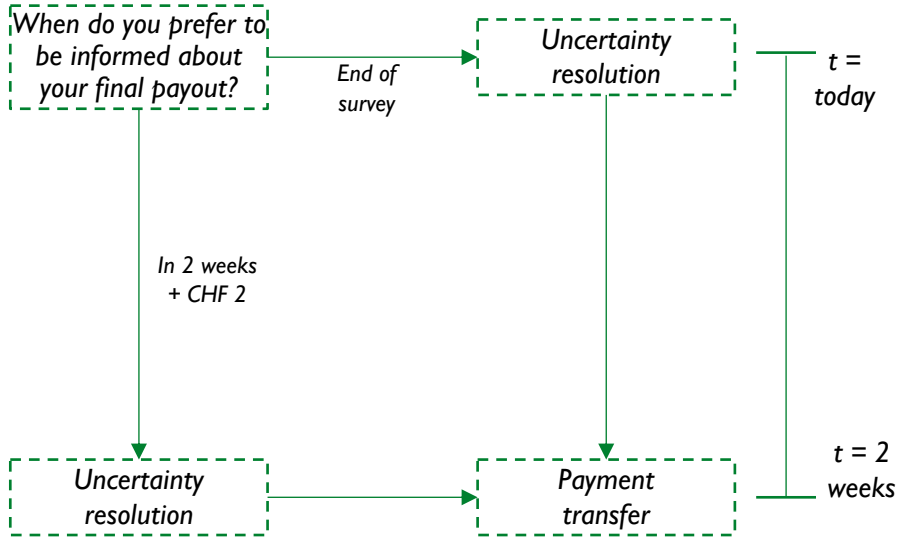
- At the end of the experiment, participants have the option to resolve uncertainty about their payout *early* or *late* (avg. payout CHF 38)

- Late resolution incentivized by CHF 2

- Time preferences irrelevant, since payment date is identical

Main results

- Consistent positive association of "standard" risk aversion on insurance coverage when CNP is believed to be low

- PERU is positively (negatively) associated with insurance coverage when CNP is believed to be low (high) → support for our main hypotheses

	Total insurance coverage index			
	Total	Low	High	Interaction
	(1)	(2)	(3)	(4)
PERU	0.04	0.26*	−0.56**	0.34*
	(0.10)	(0.12)	(0.18)	(0.15)
Risk aversion	0.05*	0.07**	−0.02	0.05*
	(0.02)	(0.03)	(0.04)	(0.02)
BeliefsCNP				0.002
				(0.004)
PERU*BeliefsCNP				−0.02**
				(0.01)
Constant	4.19***	4.03***	4.10***	4.13***
	(0.58)	(0.70)	(1.04)	(0.58)
BeliefsLP	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Observations	1,595	1,108	487	1,595
R^2	0.19	0.21	0.21	0.19
Adjusted R^2	0.17	0.19	0.15	0.17
Note:			*p<0.05; **p<0.01; ***p<0.001	

Conclusion

- We show theoretically and provide first empirical evidence from real administrative data that **"peace of mind"** (i.e., PERU) during periods of uncertainty might provide an additional and separate motive for insurance demand

- PERU might provide an answer to the contract non-performance puzzle in insurance (i.e., why premium discounts demanded for low levels of CNP are so much higher than expected under EUT)

- Cave: PERU individuals may seek to avoid exposure to risk so we would underestimate the effect, causal approaches needed

Thank you.

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