

The Price Sensitivity of Health Plan Choice
among Retirees:
Evidence from the German Social Health
Insurance

Amelie Wuppermann
LMU Munich, Germany

(joint with Sebastian Bauhoff, RAND, Markus Grabka, DIW)

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Motivation

- ▶ Consumer choice as core principle in insurance markets
- ▶ Idea: Competition between health plans leads to lower premiums and increases welfare
- ▶ Underlying assumption is that consumers choose well
- ▶ Earlier evidence suggests that consumers may have difficulties in making good choices for themselves (e.g. Abaluck & Gruber, AER 2011, Sinaiko & Hirt JHE 2011, Heiss et al. JHE 2013)
- ▶ These concerns might be particularly valid for older individuals (Buchmueller et al. HEcon, 2012, Besedes et al. Restat 2012)

Contribution

- ▶ Analyze determinants of price sensitivity of health plan choice among retirees in Germany
- ▶ Focus on two features of choice architecture:
 - ▶ Number of available choices
 - ▶ Saliency of price (premium) differences
- ▶ Advantages of analyzing choices in Germany:
 - ▶ Variation in these features in a real-life setting
 - ▶ Standardized provider networks, benefit design, and drug formularies for all plans, premium is main attribute to choose upon

Related Literature

- ▶ Frank and Lamiraud (JEBO, 2009) – size of choice set
 - ▶ Health insurance choice in Switzerland
 - ▶ Result: Probability to switch decreases with number of available options
- ▶ Schmitz and Ziebarth (IZA WP, 2013) – salience/framing of premiums
 - ▶ Analyze the same reform as we do but focus on employees
 - ▶ Results: Framing of premium differences affects probability to switch in German SHI

Preview of Findings

- ▶ Retirees react more sensitive to prices when there are fewer options
- ▶ Retirees react more sensitive to prices when price differences are more salient

Outline

- ▶ SHI
- ▶ Empirical Strategy
- ▶ Data
- ▶ Results
- ▶ Robustness
- ▶ Conclusion

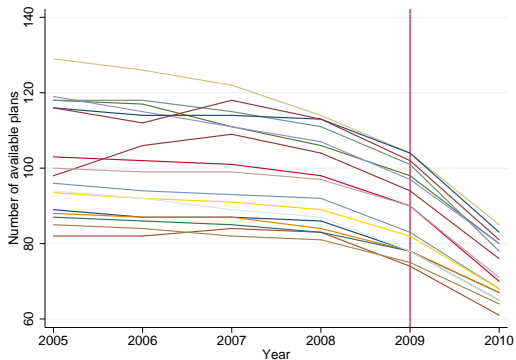
German Social Health Insurance (SHI)

- ▶ Public health insurance system in Germany
 - ▶ Covers ca. 90% of the German population
 - ▶ Individuals have free choice between a relatively large number of nonprofit health insurance plans
 - ▶ Switching between health plans is easy:
 - ▶ There is guaranteed issue, and premiums depend only on income
 - ▶ There are no provider networks
 - ▶ Copayments, deductibles, and 95% of services that plans cover are standardized
- Individuals should choose plan with lowest premium

Variation in Choice Architecture in the SHI I

Number of available health plans

Figure: Variation between regions over time



Variation in Choice Architecture in the SHI II

Saliency of Premium Differences – 2009 Reform

Table: Contribution Rates - Example

	Plan A	Plan B	Plan C
Prior to 2009	14.5%	16.0%	13.2%
2009 and later	15.5% + €0	15.5% + €8	15.5% - €5

► Prior to 2009:

Premium = contribution rate \times income/pension

► 2009 and later:

Premium = contribution rate \times income/pension \pm
supplemental fee/ rebate

Variation in Choice Architecture in the SHI II

Saliency of Premium Differences – 2009 Reform

Reform also changed how premiums are paid:

- ▶ Prior to 2009:
 - ▶ Premium was deducted from paycheck/pension income and paid by employer/pension fund to health insurance
- ▶ 2009 and later:
 - ▶ Uniform premium is still deducted from paycheck/pension income
 - ▶ But: Supplemental fees/rebates are paid directly by/to enrollee to/from health plan

→ Changes in how premiums are **framed** and in how they are **paid** increase saliency of premium differences.

Estimation Strategy

- ▶ We are interested in how the price sensitivity of demand changes with
 - ▶ size of choice set
 - ▶ salience of premium differences
- ▶ Price sensitivity:
Relationship between probability to switch plan and **potential savings** from switching [▶ figure](#)
- ▶ Investigate how this relationship changes with changes in the two features

Model

$$\begin{aligned} Pr(\text{switch}_{irt} = 1 | \mathbf{X}) &= \alpha PS_{irt} + \beta \mathbf{CE}_{irt} + \gamma (PS_{irt} \times \mathbf{CE}_{irt}) \\ &\quad + \delta \mathbf{x}_{it} + \xi \mathbf{r}_{rt} + \mu_r + \theta_t + c_i \end{aligned}$$

for individual i , in region r , and year t

PS potential savings from switching

CE choice environment (# plans, post 2009 indicator)

x individual characteristics

r regional characteristics

μ region dummies

θ year dummies

c individual fixed effects

Identification and Inference

- ▶ Compare individuals along the continuum of potential savings pre/post 2009
- ▶ Accounting for time, region and individual fixed effects
- ▶ Accounting for potential endogeneity of size of choice set by using administratively set hospital payment rates (multiplied with number of cases) as instruments
- ▶ Instruments are relevant according to Angrist and Pischke F-statistic
- ▶ Standard errors are clustered at individual and regional level, adjusting for the small number of clusters (18) by using a t-distribution with 16 degrees of freedom

Data Sources

- ▶ Main source: German Socioeconomic Panel (SOEP) → long-running panel of individual socioeconomic characteristics, health plan choice, region of residence
 - ▶ [descriptives](#)
- ▶ Augmented with information for years 2005-2011 on
 - ▶ plan premiums
 - ▶ regional plan availability
 - ▶ regional health/economic indicators

Table: Probability to Switch Health Plans

	(1) Controls		(2) FE		(3) IV	
	coeff	(se)/[p]	coeff	(se)/[p]	coeff	(se)/[p]
Potential Savings (PS)	0.1004	(0.075) [0.202]	0.2246	(0.174) [0.216]	0.2326	(0.160) [0.166]
Post 2009	3.6115	(2.849) [0.224]	4.3886	(1.325) [0.005]***	6.5786	(1.496) [0.001]***
# Plans	0.1985	(0.085) [0.034]**	0.2540	(0.090) [0.013]**	0.3415	(0.079) [0.001]***
PS × Post 2009	0.8194	(0.253) [0.005]***	0.5531	(0.253) [0.045]**	0.5424	(0.266) [0.059]*
PS × # Plans	-0.0015	(0.001) [0.281]	-0.0042	(0.003) [0.185]	-0.0045	(0.003) [0.142] ⁺
Ind. F.E.	No		Yes		Yes	
Year F.E.	Yes		Yes		Yes	
Region F.E.	Yes		Yes		Yes	
Add controls	Yes		Yes		Yes	
<i>N</i>	10684		10684		10684	

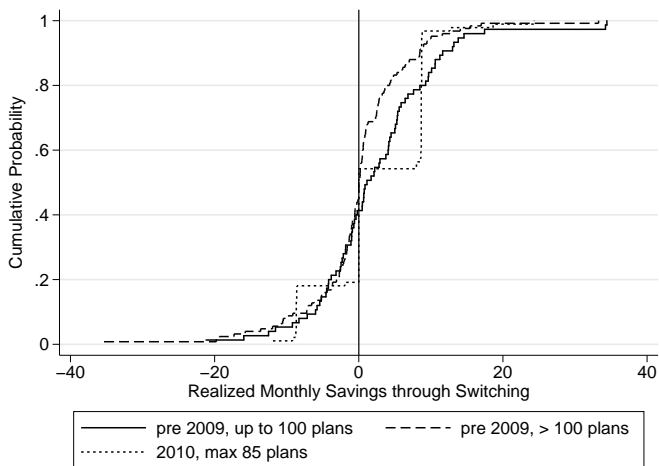
Interpretation of results

- ▶ Effect of number of plans only marginally significant
- ▶ But we can reject the hypothesis of a positive effect at 10% significance level
- ▶ Probability to switch to new plan 0.5 percentage points higher with one additional Euro in monthly savings post 2009
- ▶ Salience of price differences matters!
- ▶ But: Is it framing or payment modalities that matter?

Framing vs. Payment modalities

- ▶ Difference-in-difference analysis to separate the channels
 - ▶ Treatment group: retirees who never paid directly to health plan before
 - ▶ Control group: retirees who already paid part of their premium directly to their plan
- ▶ Assumption: both groups were equally affected by framing
- ▶ Results: We don't see a difference in how the groups react to the reform
- ▶ Implication: Framing seems to be key!

Do retirees save by switching?



Sensitivity Analyses

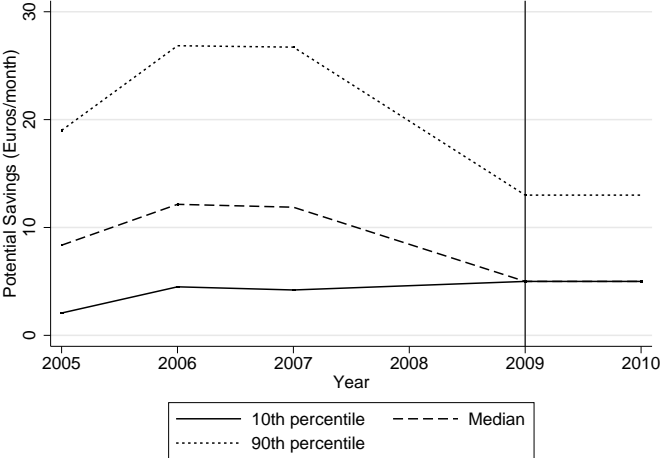
We have explored robustness w.r.t.

- ▶ Excluding uncertain health plan matches
- ▶ Excluding those with alternative health plan
- ▶ Using categories for number of plans
- ▶ Using only plans with market share $> 1\%$
- ▶ Using SD of premiums instead of individual potential savings
- ▶ Restricting time periods

Summary

- ▶ Retirees are more likely to react to potential savings by switching health plans
 - ▶ if fewer plans are available
 - ▶ since premium differences have become more salient in 2009
 - ▶ effect seems to be through framing of price differences
- ▶ Descriptive analysis of benefits from switching also suggest that more among those who switched chose better post 2009 and with fewer plans.
- ▶ Suggests that retirees benefit from simplifying health plan choices

Potential Savings from Switching



Descriptives I

Table: Retirees in SOEP

	Entire sample		Allowed to switch	
	(1)	(2)	(3)	(4)
	mean	sd	mean	sd
Switches plan	0.028	0.16	0.028	0.16
Months at risk	11.9	1.40	11.9	1.40
Allowed to switch	0.99	0.092	1	0
# Plans	100.0	17.9	100.0	17.9
# Plans with market share > 1%	13.7	1.47	13.7	1.47
Plan merges	0.084	0.28	0.084	0.28
Potential savings Euros/month	12.0	10.6	12.0	10.5
Age (years)	73.2	6.20	73.2	6.20
Female	0.53	0.50	0.53	0.50
Education (years)	11.2	2.28	11.2	2.28
German national	0.89	0.31	0.89	0.31
Eastern German	0.33	0.47	0.33	0.47
# kids in household	0.01	0.11	0.01	0.11
Household size	1.79	0.62	1.79	0.62
<i>N</i>	10776		10684	

Descriptives II

Table: Estimation Sample

	Entire sample		Allowed to switch	
	(1)	(2)	(3)	(4)
	mean	sd	mean	sd
Married	0.64	0.48	0.64	0.48
Bad or very bad health	0.34	0.47	0.34	0.47
Household income (in Euros 1000)	25.6	16.4	25.6	16.4
Supplemental private insurance	0.14	0.34	0.14	0.34
Voluntary SHI	0.039	0.19	0.039	0.19
Retires this year	0.01	0.076	0.01	0.076
Direct payer pre 2009	0.15	0.35	0.15	0.35
Low cognition (N=3074)			0.27	0.45
Regional variables - lagged				
Doctors per 1000 inhabitants	1.91	0.61	1.91	0.61
Hospitals per 1000 inhabitants	0.02	0.004	0.02	0.004
Hospital beds per 1000 inhabitants	6.36	0.57	6.36	0.57
GNP/capita	33265.7	16784.9	33241.9	16760.3
Instruments - lagged				
Administrative payment rate	2728.9	118.3	2729.0	118.2
# Hospital cases (in 1000)	1417.9	763.1	1417.1	763.2
N	10776		10684	