ESG UQÀM

Département des sciences économiques
École des sciences de la gestion
Université du Québec à Montréal

The Long-Term Care Insurance Puzzle: Evidence from Québec and Ontario

Philippe De Donder (ESG-UQAM)

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Presentation based on 3 papers

- "Long Term Care Insurance: Knowledge Barriers, Risk Misperception and Adverse Selection"

- "A Canadian Parlor Room-Type Approach to the Long Term Care Insurance Puzzle"

- "Long Term Care Misperceptions"

co-authored with

Martin Boyer (HEC)

Claude Fluet (U Laval)

Marie-Louise Leroux (UQAM)

Pierre-Carl Michaud (HEC)

Caveat: My subjective choice of results and interpretations...

1. Introduction

- Long Term Care (LTC): Care needed for Activities of Daily Living (ADL) such as bathing, dressing, eating, continence, over a prolonged period of time.

- Differs from illness and from disability.

- Concerns especially elderly (80+).

- Given demographic projections, importance should increase.

The LTC insurance puzzle

On face of it, poster child for insurance:

- Risk is sizeable: Near retirement, probability of ever needing LTC in nursing home in range [35%, 50%] (U.S.)

- Amount as well: The annual cost of a private nursing home ranges between 40,000\$ and 60,000\$ in Canada. Despite public intervention, still important out-of-pocket expenditures.

- But very little insurance: - In the US, only 10.8% of those 60 years and older hold a private insurance policy
  - LTC spending covered by private insurance is less than 2% in 2011 (OECD, 2011)

- Everybody says should have more LTC insurance: (Manulife, 2007)

"Canada's aging population, increased life expectancy and need for elder care all suggest Canadians should account for long term care costs when they're planning for retirement"

- Manulife, 10 years later:

"Manulife is discontinuing sales of new individual long-term care insurance in Canada effective 5 p.m. EST on Nov. 30, 2017, due to limited market acceptance of the product and new federal laws that restrict insurer access to medical information"

- Why is there is so little insurance, then?

Demand and supply reasons given by the literature

　Demand Side:

- Importance of family support (Van Houtven and Norton, 2004; Bonsang, 2009),

- **Misperceptions** (Zhou-Richter et al., 2010; Finkelstein and McGarry, 2006),

- Housing as substitute for insurance (Davidoff, 2010)

- Bequest motives (Lockwood, 2014),

- Lower marginal utility from consumption if dependent (Ameriks *et al.* 2015 find opposite)

- **Lack of knowledge** (Lusardi and Mitchell, 2014, Lusardi et al. 2017) including of true LTC costs as well as institutional settings

Supply Side:

- Loading factors (Brown and Finkelstein, 2009),

- **Adverse selection** and moral hazard (Sloan and Norton, 1997),

- Crowding-out from social insurance and other public programs (Pauly, 1990; Brown and Finkelstein, 2008),

PLAN

1 Introduction

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3 Our survey

4 Descriptive evidence

5 Misperception of risks

6 Stated-Preference: Adverse Selection and Knowledge Barriers

7 Conclusion

2. The situation in Canada

- Canada Health Act does not include LTC in dedicated establishments, and no federally mandated standards $\Rightarrow$ lot of heterogeneity across provinces, including for subsidy programs.

- Maximum daily copay in residential care: from $40 (Alberta) to $200 (Nova Scotia)

- Private supply of beds: less than 10% (Saskatchewan) to 53% (Ontario)

- Private LTC insurance conditional on help needed for ADL, not on use of formal services.

Québec

- Basic service in public nursing homes, means-tested with maximum fee of $20,000 per year, but

  – Basic service!

  – Waiting list of 10 months on average

  – Private nursing home: $40,000 to $60,000 per year

  – On average, 5 year stay in nursing home

- Home care: from $20 to $80/hour

- Less of a puzzle than in the US, say, but still a puzzle.

3. Our survey

- We partnered with *Asking Canadians*, an online panel, to ask 2000 Canadians, aged between 50 to 70 years old, from Quebec and Ontario.

- Socio-demographic characteristics (age, gender, province, educational attainment, marital status, kids, savings, income, retirement status)

- Health status (heart disease, stroke, lung disease, diabetes, cancer, mental illness, hypertension, smoking now and ever)

- Reasons for (not) having purchased LTCI

- Knowledge of LTC institutions, risk perceptions and preferences regarding the type of LTC they would like to receive.

- Stated-preference experiment

We match agents from our panel in COMPAS, a health microsimulation model which can predict lifetime exposure to mortality, disability, nursing home and formal care in Canada.

Individuals' characteristics in survey same as those used by COMPAS: socio-demographic characteristics, diseases, risk factors (smoking, obesity), etc.

4. Descriptive evidence

No LTCI		LTCI	
Fraction (%)	88.2	**Fraction (%)**	11.8
Knowledge of LTCI (%)		**Knowledge of LTCI (%)**	
A lot	7.2	*A lot*	29.3
A little	52.9	*A little*	65
None at all	39.9	*None at all*	5.7
Why don't you have LTCI? (%)		**How did you come to purchase LTCI? (%)**	
Never offered one	43.6	*Offered*	53
Not yet made decision	7.7	*Searched myself*	9.6
Used to have one	0.6	*Other*	37.4
Too expensive	19.3		
Doesn't cover my needs	2.2	**LTC policy**	
Don't need such a policy	14.4	*Premium*	$ 125
Don't know what it is	8.2	*Benefit*	$ 2,415
Other	4.1		
Do you have life insurance? (%)		**Do you have life insurance? (%)**	
Yes	67.4	*Yes*	75
No	31.8	*No*	22.2
Don't know	0.77	*Don't know*	2.8

Table 2: Holding of Long-Term Care and Life Insurance

5. Misperception of LTC and longevity risks

- Three measures of risk:

  - Probability of needing help for at least one ADL

  - Probability of entering a nursing home at some point

  - Probability of living to be 85 years old

- We contrast "objective" value given by COMPAS (p_{ADL}, p_{NH}, π) and "subjective" value given by agents $(\tilde{p}_{ADL}, \tilde{p}_{NH}, \tilde{\pi})$.

- We assume that the difference between subjective and objective values is misperception.

	mean	sd	min	p25	p50	p90	max
$\tilde{p}_{ADL}$	47.77	33.65	0.00	15.00	50.00	100.00	100.00
p_{ADL}	55.80	6.97	34.00	50.75	55.50	65.25	76.75
$\tilde{p}_{ADL} - p_{ADL}$	-8.03	33.94	-72.50	-38.75	-7.25	39.75	59.00
$\tilde{p}_{NH}$	35.41	30.16	0.00	10.00	30.00	80.00	100.00
p_{NH}	26.35	11.25	5.50	17.25	25.00	42.00	52.25
$\tilde{p}_{NH} - p_{NH}$	9.06	32.45	-48.75	-18.75	6.25	55.75	92.50
$\tilde{\pi}$	67.73	28.68	0.00	50.00	75.00	100.00	100.00
π	63.22	13.70	6.25	54.75	65.25	78.75	87.50
$\tilde{\pi} - \pi$	4.51	28.26	-83.25	-12.50	8.75	35.75	93.75

Variables with tilda refer to subjective responses while those without refer to objective risks (from COMPAS).

p25, p50 and p90 refer to the 25, 50, and 90 percentiles respectively.

Table 2: Descriptive Statistics on Subjective, Objective Risks and Misperceptions (in %).
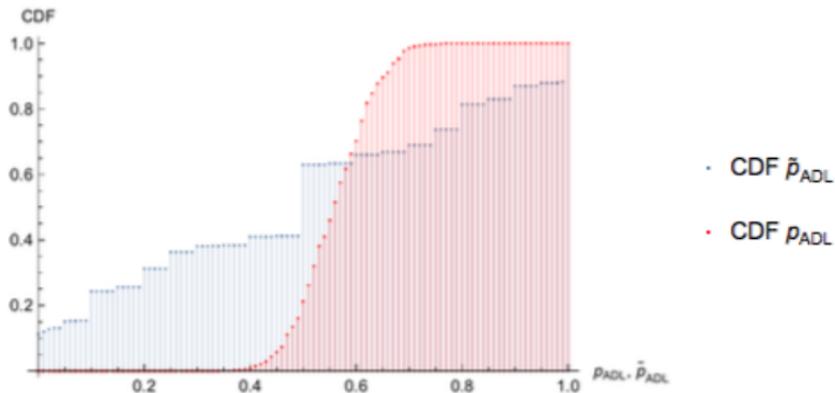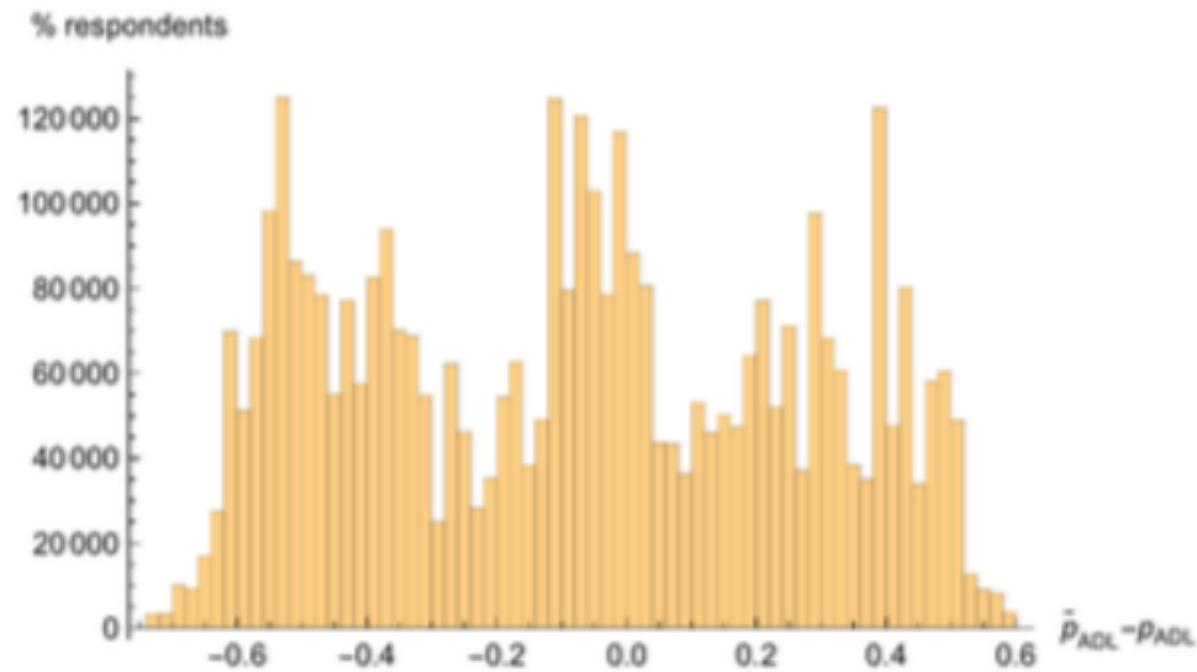
(a) CDF
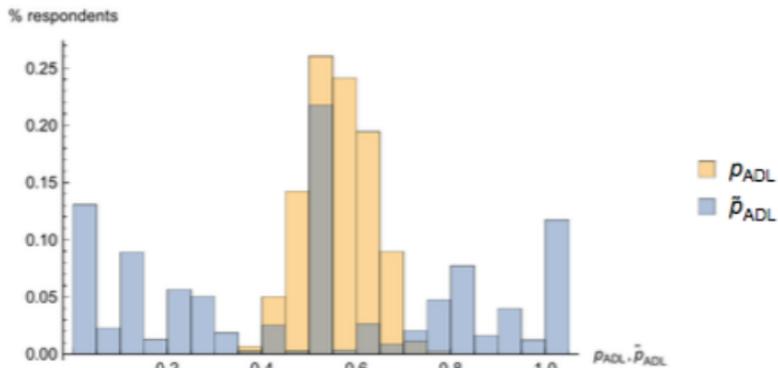
(b) Histogram

Figure 2: CDF and Histogram of objective and subjective probabilities of needing help for ADL
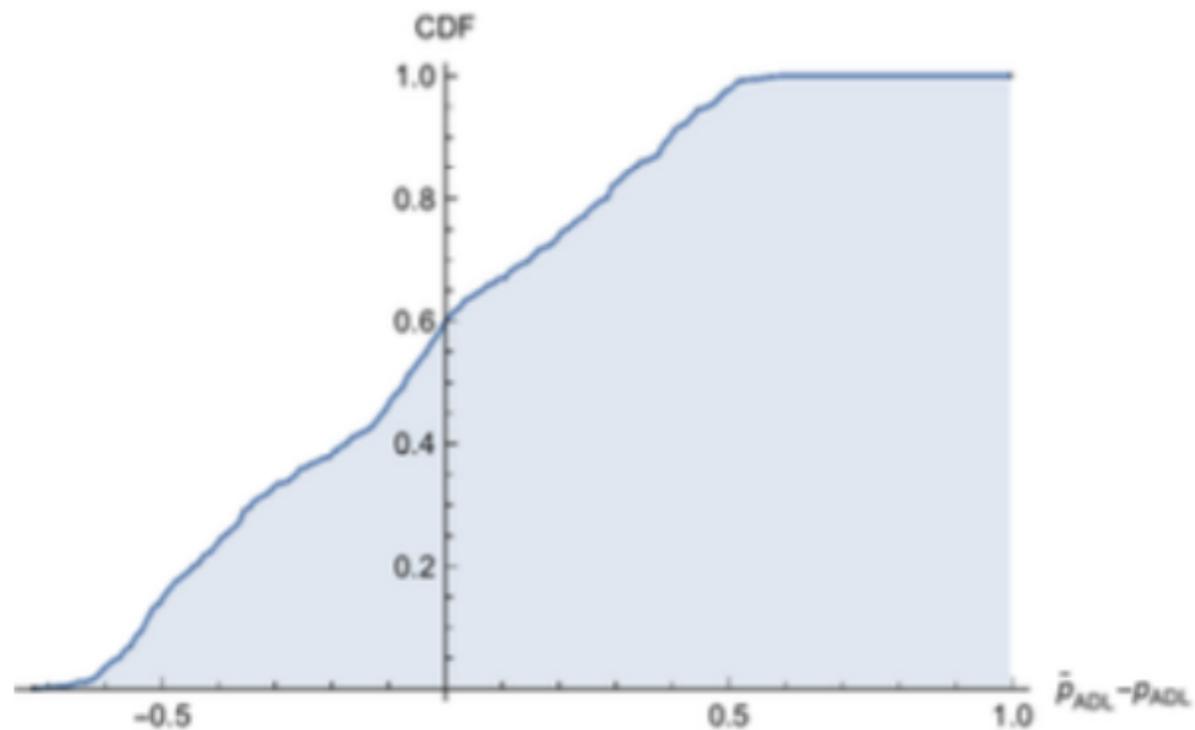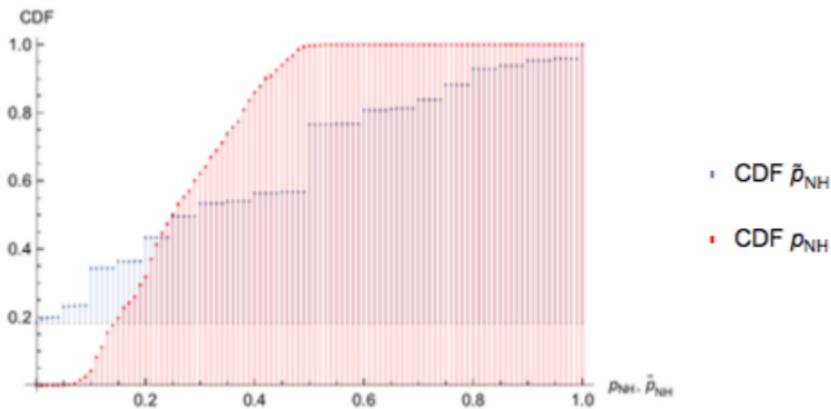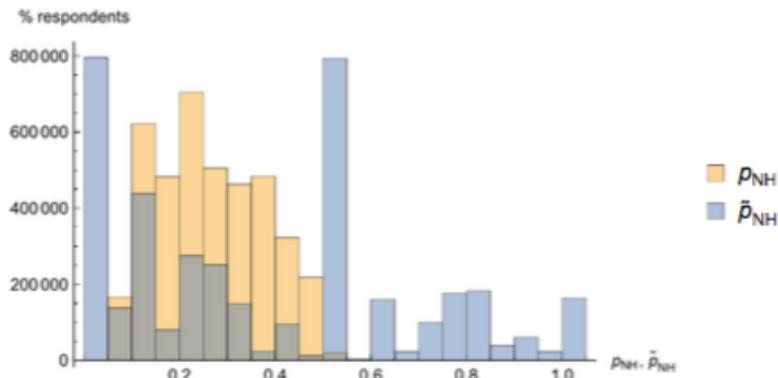
(a) CDF

(b) Histogram

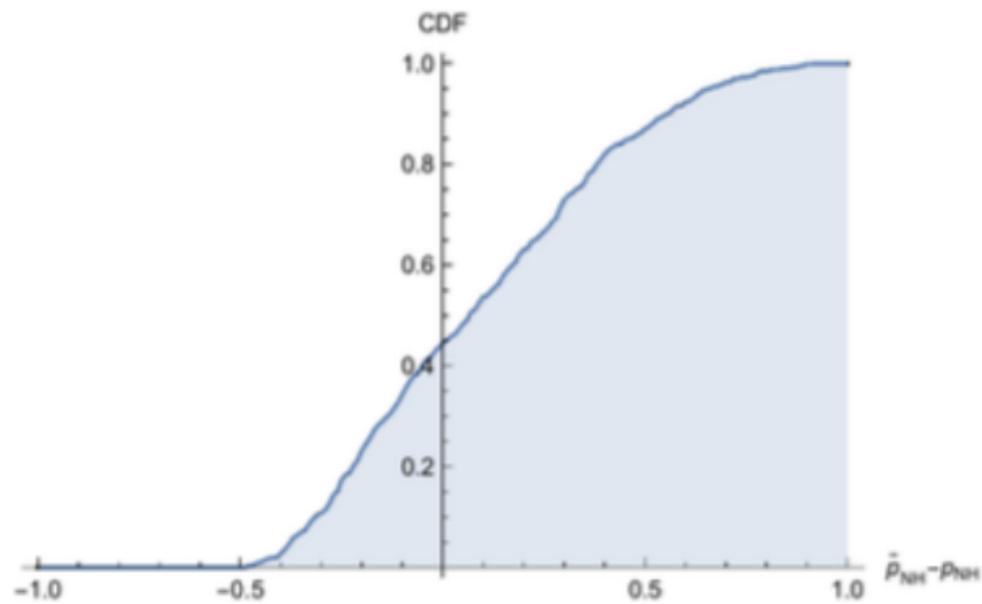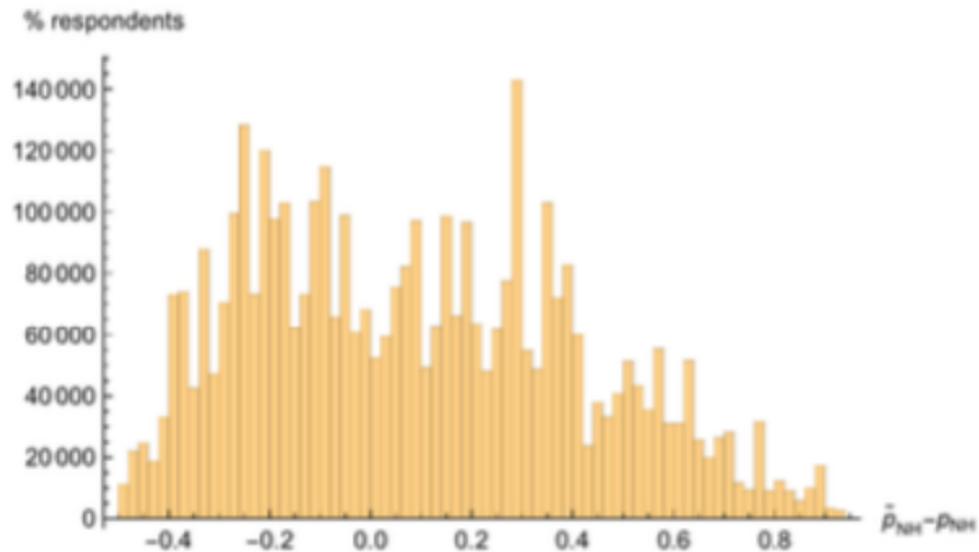Figure 3: CDF and Histogram of $(\tilde{p}_{ADL} - p_{ADL})$

(a) CDF

(b) Histogram

Figure 5: CDF and Histogram of subjective $\tilde{p}_{NH}$ and objective nursing home probability p_{NH}.
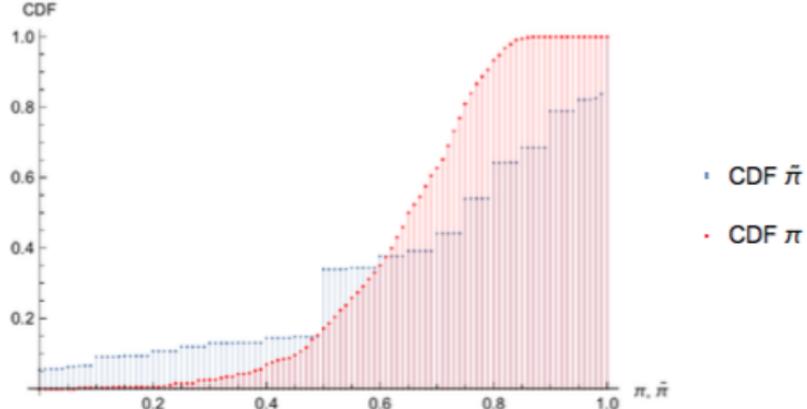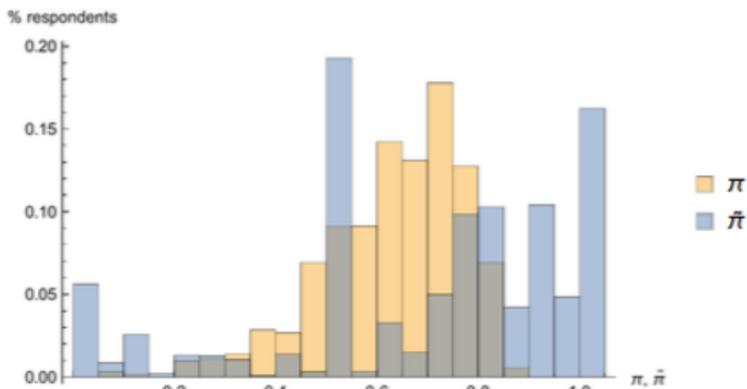
(a) CDF

(b) Histogram

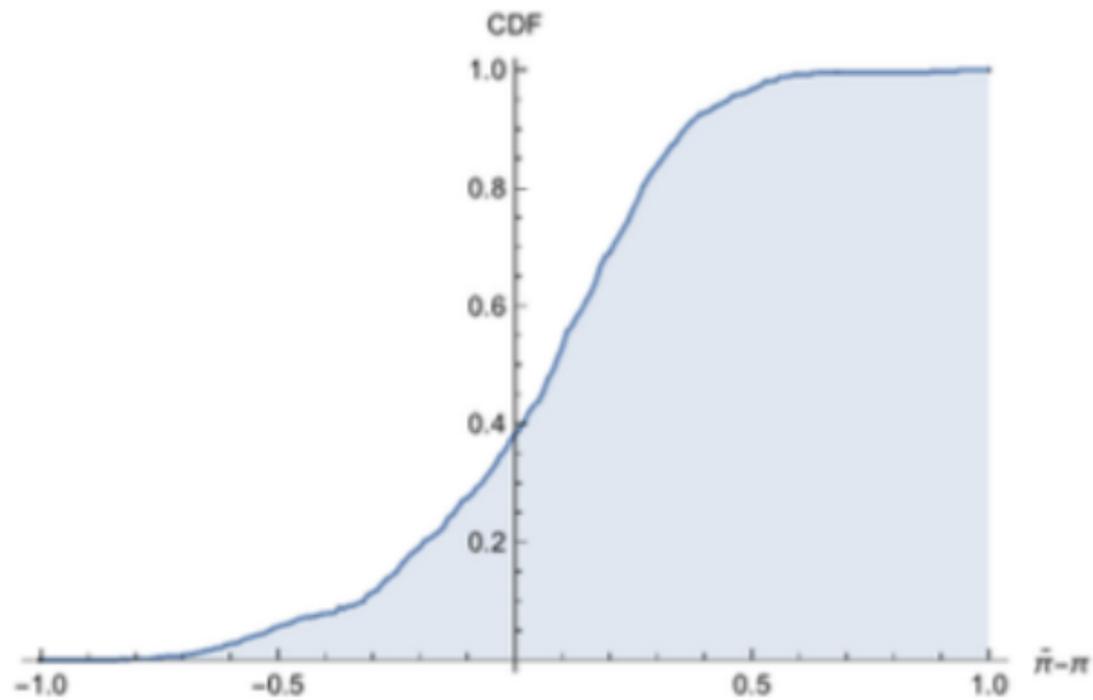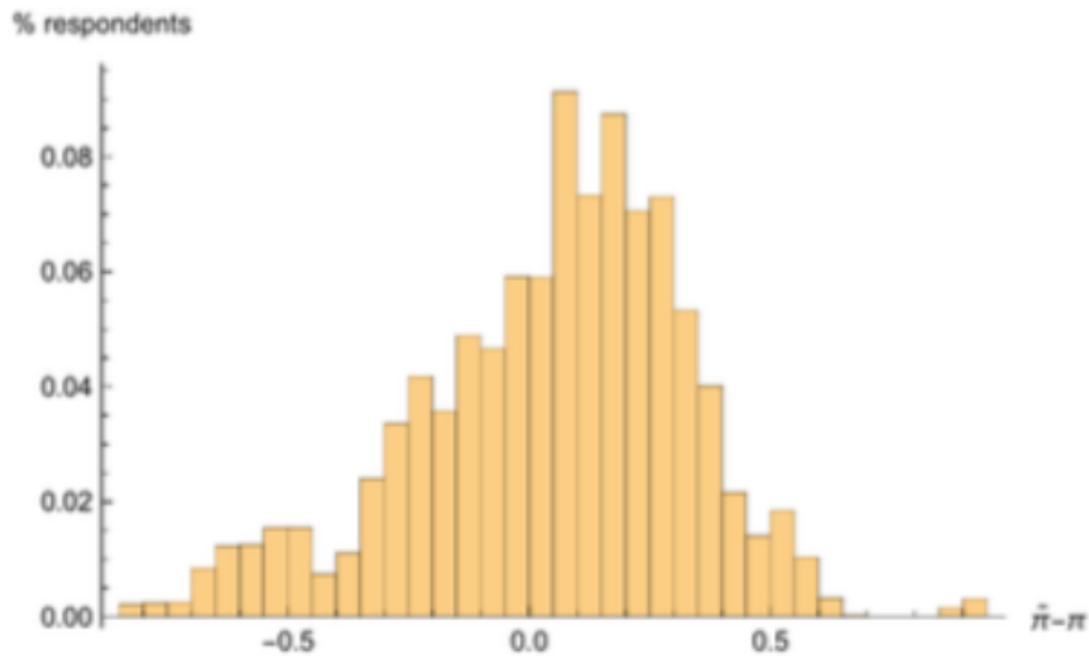Figure 6: CDF and Histogram of $\tilde{p}_{NH} - p_{NH}$.

(a) CDF

(b) Histogram

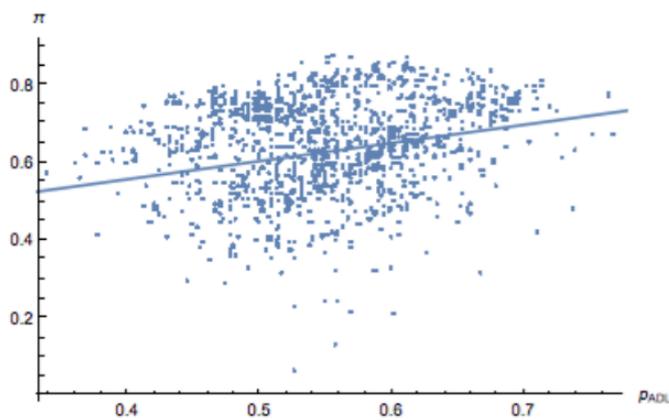Figure 7: CDF and Histogram of subjective and COMPAS survival probability
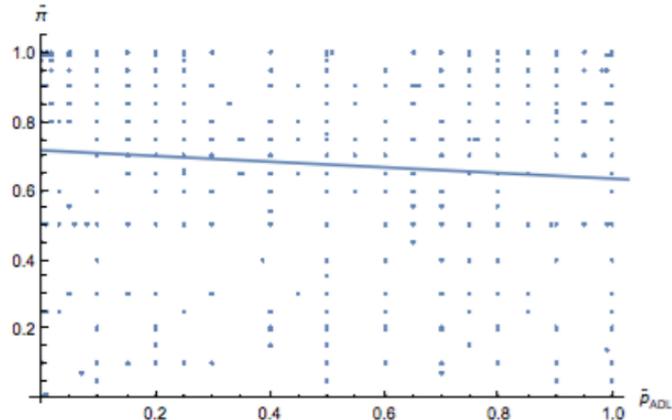
(a) CDF

(b) Histogram

Figure 8: CDF and Histogram of $\tilde{\pi} - \pi$
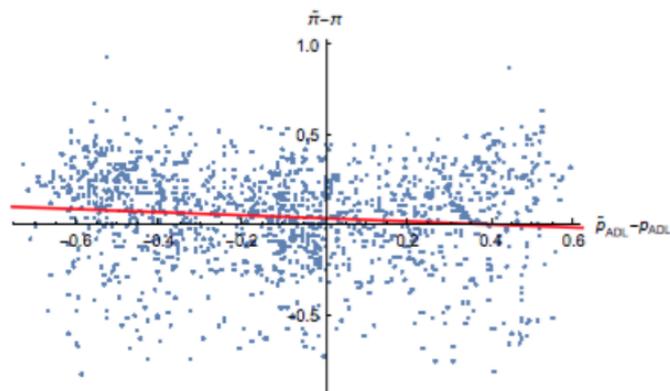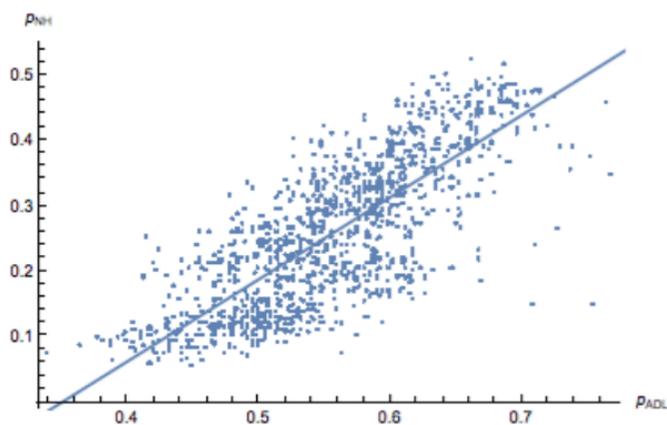
(a) π and p_{ADL}

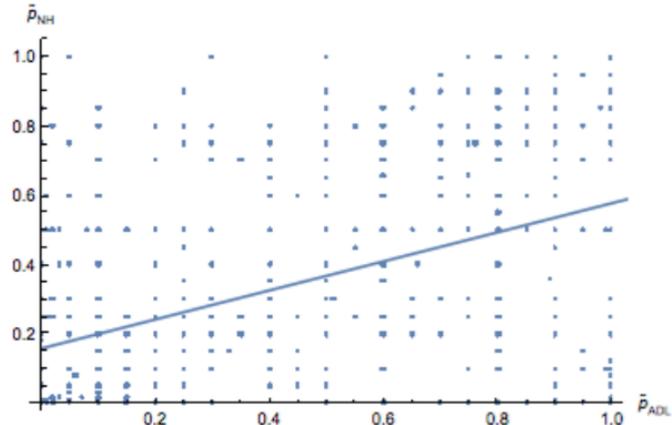(b) $\tilde{\pi}$ and $\tilde{p}_{ADL}$

(c) $\tilde{p}_{ADL} - p_{ADL}$ and $\tilde{\pi} - \pi$
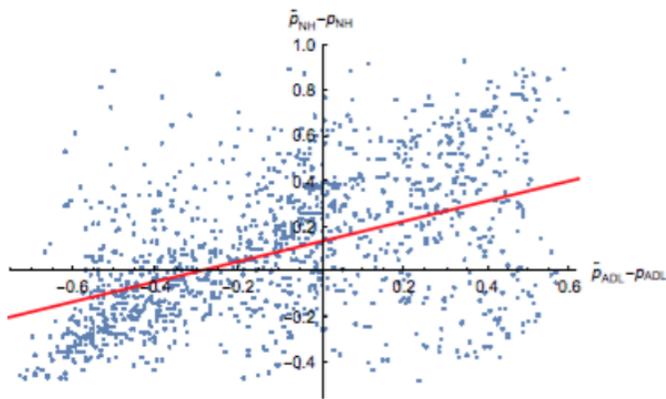
Figure 9: Relationship between Survival and ADL risks

(a) p_{NH} and p_{ADL}

(b) $\tilde{p}_{NH}$ and $\tilde{p}_{ADL}$

(c) $\tilde{p}_{NH} - p_{NH}$ and $\tilde{p}_{ADL} - p_{ADL}$

Figure 10: Relationship between Nursing Home and ADL risks

	(1)	(2)	(3)
	Intentions	Purchase (All)	Purchase (Probable)
$\tilde{p}_{ADL} - p_{ADL}$	.09***	-.027	.0269**
	(.0229)	(.0287)	(.0134)
$\tilde{p}_{NH} - p_{NH}$	.0563**	-.105***	-.034**
	(.025)	(.0312)	(.0145)
$\tilde{\pi} - \pi$	.0403*	-.0235	-.0000577
	(.0227)	(.0284)	(.0133)
$\tilde{p}_{ADL}$ unknown	-4.33***	.674	-.804
	(1.67)	(2.08)	(.979)
$\tilde{p}_{NH}$ unknown	.606	-2.02	-2.21**
	(1.69)	(2.12)	(.997)
$\tilde{\pi}$ unknown	1.97	2.78	1.54
	(3.55)	(4.43)	(2.07)
allmiss	-3.5	-1.28	.104
	(3.84)	(4.79)	(2.24)
p_{ADL}	.437**	-.0829	-.000474
	(.178)	(.223)	(.104)
p_{NH}	-.0804	.103	-.063
	(.0995)	(.124)	(.058)
π	.383***	.00908	-.135**
	(.102)	(.127)	(.0585)
N	1819	1819	1635
r2	.0984	.0722	.0663

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Regression estimates of intentions and actual purchase decisions on misperceptions

Conclusion

Misperceptions can't explain LTCI puzzle, mainly because no systematic bias towards optimism (but also because low impact of misperceptions on LTC insurance demand)

6. Stated Preference : Adverse Selection, Awareness and Knowledge

"We are going to show you some simple insurance policies and ask you to rate those. You can assume that if you were to have two or more limitations in activities of daily living, the insurance company offering you this product would pay the benefits no matter what the circumstances. Once you receive benefits, you do not pay any premiums."

While healthy	Once you have at least 2 ADL	When you die
You pay π	You receive b_{ltc}	Your survivors receive b_{life}

"What are the chances, 0% meaning no chance and 100% for sure, that you would purchase the policy if it were offered to you by a trusted insurance company?"

- 5 scenarios (π, b_{LTC}, b_{life}) are presented to each respondent.

- **Benefits** are drawn independently as follow:

  – Monthly LTCI benefit b_{ltc} from the distribution $[2000, 1/3; 3000, 1/3; 4000, 1/3]$.
  – Life insurance benefit b_{life} from the distribution $[0, 3/5; 10000, 1/5, 25000, 1/5]$

- **Premiums** are age-gender actuarial premium π_h with a price adjustment factor τ which is randomized

$$\tau = [0.6, 1/5; 0.8, 1/5; 1.0, 1/5; 1.2, 1/5; 1.4, 1/5].$$

The premium is given by $\pi = \tau \pi_h$.

We build a model that allows to

- construct demand from the preference for products we offer (as a function of price)

- construct supply by computing average cost of those who purchase insurance at a given price

- Determine in equilibrium the fraction insured and the price of insurance

- Allows to compute welfare loss from adverse selection and imperfect knowledge

Results (1) Demand Elasticities (Price sensitivity of demand)

contract	estimate	std error
(2,0)	-.686	.0839
(2,10)	-.677	.120
(2,25)	-.481	.128
(3,0)	-.768	.092
(3,10)	-.788	.139
(3,25)	-.702	.134
(4,0)	-1.165	.100
(4,10)	-.808	.142
(4,25)	-1.053	.149

Table 1: Demand Elasticities by contract (in thousand $).

Results (2): Benchmark Case - No Life Insurance
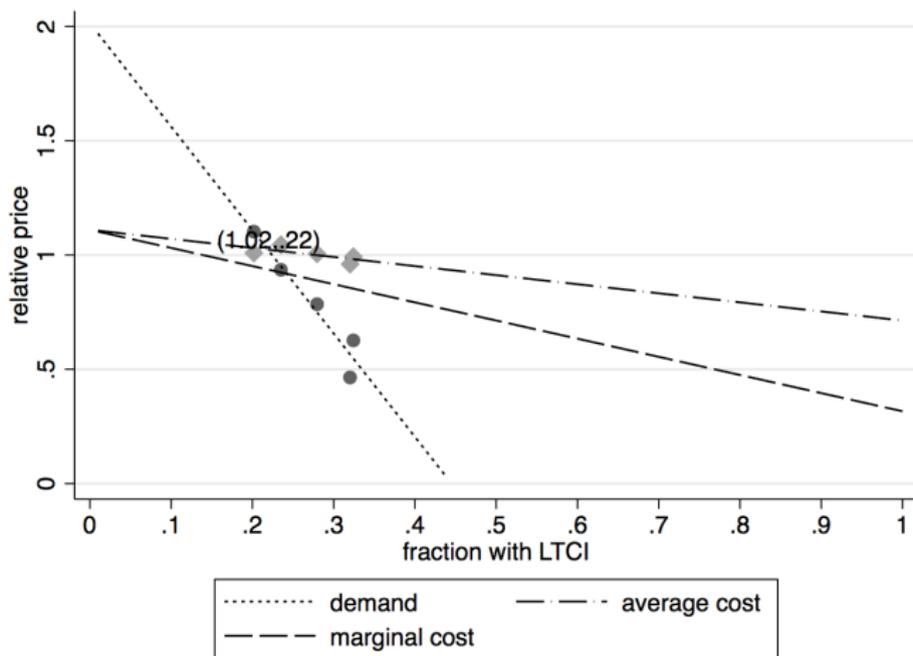
(a) $b_{ltc} = 2000$

Figure: Predicted Equilibrium for Contract without Life Insurance Benefits
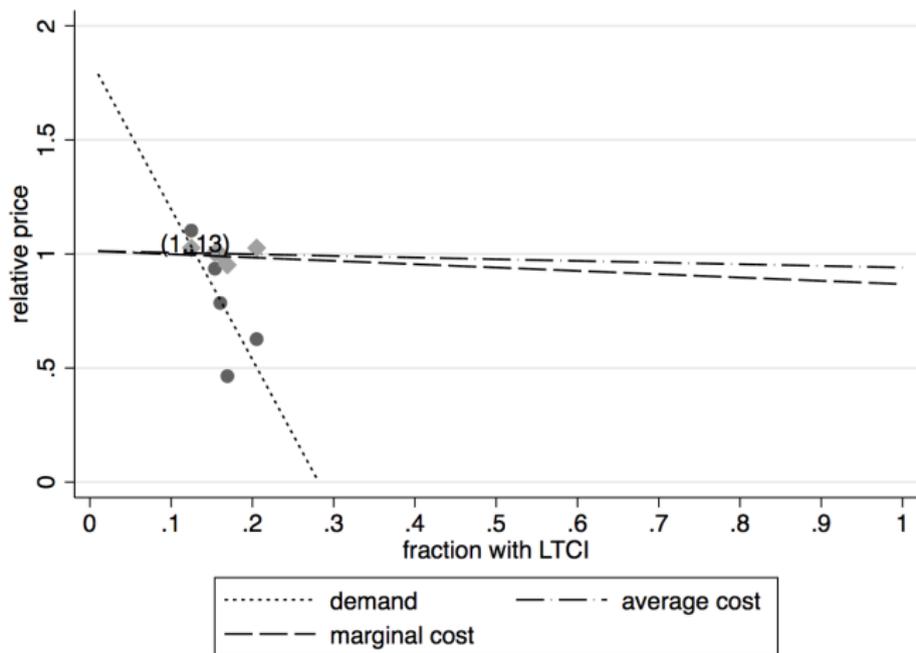
Results (4): Awareness Constraint

Figure: Predicted Equilibrium for Contract with 2,000$ Monthly LTC benefit with Awareness Constraint

Demand Factors

- We regress demand on characteristics and investigate in equilibrium how the fraction insured varies if we change characteristics of the population

- Example: what happens if everyone knows the product exist, etc.

Demand Factors (2) include:

- Socio-economic background: Age, gender, whether the respondent lives in Quebec, educational attainment, the number of kids, and marital status; Savings and income, DB plan retirement status

- Vector of health status variables

- Home ownership $(-)$

- Preferences:

  - bequest motive $(+)$
  - responsibility of the family, when feasible, to take care of parents
  - preference regarding formal $(+)$ and informal care
  - willingness to take risk $(+)$

Demand Factors (3)

- Probability that family takes care $(+)$

- Misperceptions:

  - deviation between subjective and objective expectations for survival, disability and nursing homes $(+)$

  - indicator variable about whether respondents not to know the answer $(-$, significant only for disability risk)

- Knowledge of the institutions (not significant except for subjective waiting times: $+10$ months leads to an increase of 1.7 %point in demand)

- Little general knowledge about LTCI (-)

- Financial literacy $(-)$

- Income (replacement rate, workplace pension and DB plan) (not significant)

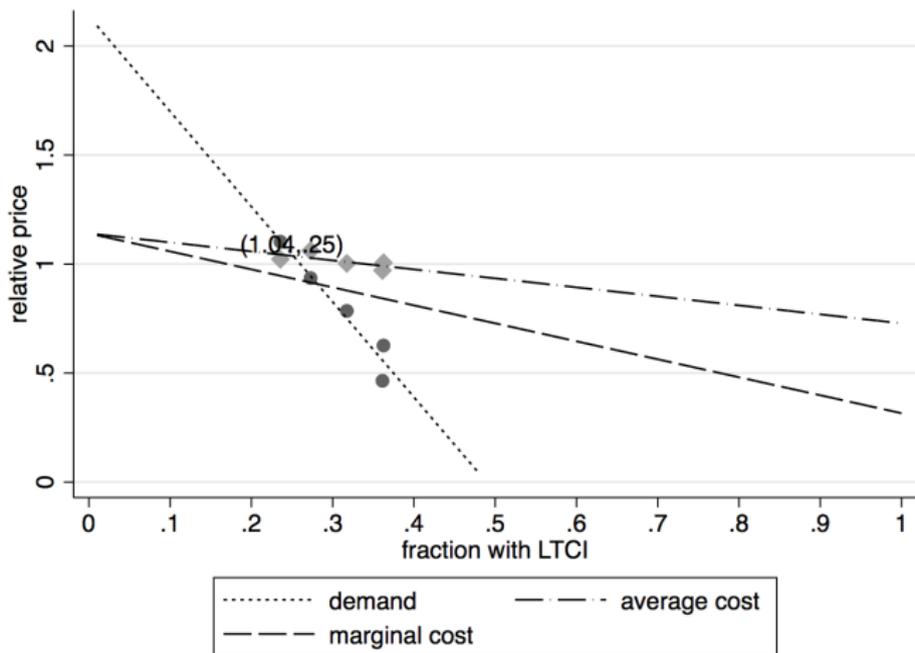# Demand Factors (4) - Counterfactual analysis

Figure: Predicted Equilibrium for Contract with 2,000$ Monthly LTC benefit without Misperception and Knowledge Barriers

Welfare Change

Contracts	Welfare Loss (% of consumer surplus)		
	Awareness	Knowledge	Adverse Selection
(2,0)	49.3	27.7	0.9
(2,10)	63.9	34.6	0.6
(2,25)	71.1	47.4	2.1
(3,0)	49.0	44.2	0.1
(3,10)	63.3	22.6	0.0
(3,25)	18.0	39.2	0.1
(4,0)	3.5	66.3	2.5
(4,10)	55.9	46.4	0.2
(4,25)	30.2	81.8	1.5

7. Conclusions

- Very little adverse selection (mainly because of inelastic demand).

- Not optimism but more lack of awareness that product exists, and lack of knowledge about LTC in general.

- Kicks the can down the road: why aren't insurers pushing more these products?

  - Reinsurers leave the market, because systemic risk (longevity, but also risk that definition of LTC gets enlarged)

  - Difficult to talk about these issues with clients

  - Narrow window to buy these contracts (neither too early nor to late). Idem for children who would like to buy for their parents.

  - Information is a public good.