Lapses in Long-Term Care Insurance

Leora Friedberg, University of Virginia
Wenliang Hou, Center for Retirement Research at Boston College
Wei Sun, Renmin University
Anthony Webb, The New School

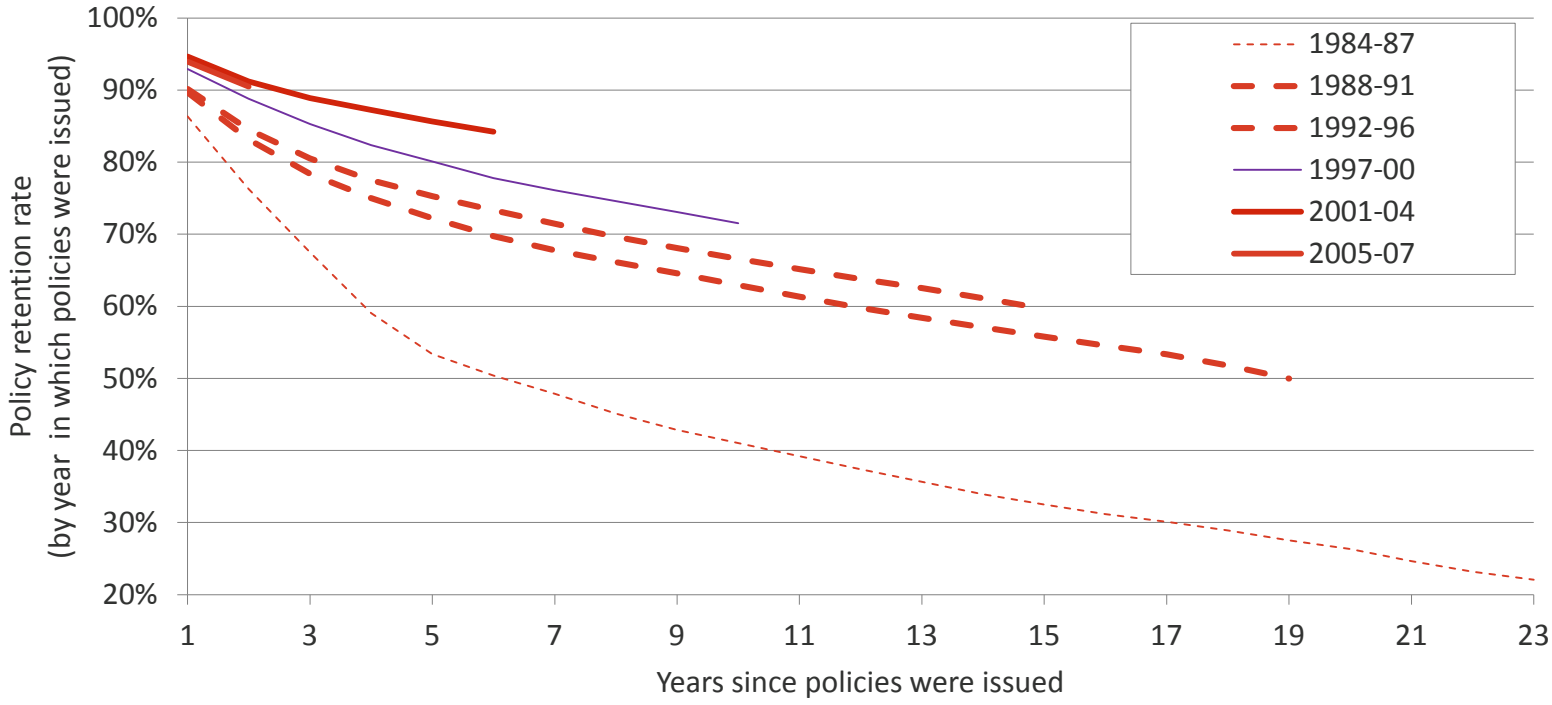
THE NEW SCHOOL
RELAB

National Bureau of Economic Research
Health Care/Insurance Meeting
December 8, 2017

Long-term care is a substantial financial risk for older Americans

- Nursing home use after age 65 is high
  - 44% of men, 58% of women
  - entrants stay on average for 0.85, 1.37 years
- Average annual cost is very high
  - $79,800, in 2012
- Limited government coverage
  - Medicare only pays for 100 days, in limited circumstances
  - Medicaid is subject to stringent means test

About a quarter of long-term care insurance policies held at age 65 lapse before death



HRS Summary Statistics

Has LTC insurance in 2002, aged 65+ (N = 891)	All	Non-lapsers	Lapsers

HRS Summary Statistics

Has LTC insurance in 2002, aged 65+ (N = 891)	All	Non-lapsers	Lapsers
LTC policy lapsed, 2002-2006	0.130	0	1

HRS Summary Statistics

Has LTC insurance in 2002, aged 65+ (N = 891)	All	Non-lapsers	Lapsers
LTC policy lapsed, 2002-2006	0.130	0	1
Entered nursing home, 2006-12 (N = 823)	0.323	0.310	0.416 ***

Overview of Paper

Overview of Paper

We evaluate evidence for three explanations for lapsing

- Strategic lapsing
  - individuals receive new information about their risk of needing care
- Financial lapsing
  - decline in wealth

    reduces ability to pay premiums
    reduces need to protect wealth from Medicaid
- Unintended lapsing
  - due to time-inconsistent preferences or loss of financial competence

We examine nursing home use among lapsers, non-lapsers

Overview of Paper

We evaluate evidence for three explanations for lapsing

Overview of Paper

We evaluate evidence for three explanations for lapsing

Simulation evidence:

- Policyholders build up "aging reserves"
  - at young ages, premiums exceed expected claims

- We build an intertemporal optimization model with Medicaid
  - consider role of changes in information, financial situation
  - **these would have to be implausibly large to make lapsing optimal**

Overview of Paper

We evaluate evidence for three explanations for lapsing

Overview of Paper

We evaluate evidence for three explanations for lapsing

Empirical evidence:

- **Lapse rates are significantly higher among the cognitively impaired**
  - HRS, 2002-06
  - suggests substantial unintended lapsing
  - significant but very small roles for strategic, financial lapsing

We examine nursing home use among lapsers, non-lapsers

- **Cognitively impaired are more likely to enter nursing home**
  - HRS, 2006-12
  - shows significant dynamic advantageous selection

Outline

Outline

1. Simulation evidence about lapsing explanations

2. Empirical evidence about lapsing explanations
   - with detour about HRS measures of insurance holding, lapsing

3. Empirical evidence about nursing home use
   - to gauge dynamic selection in insurance holding, as a result of lapsing

Outline

1. **Simulation evidence about lapsing explanations**

2. Empirical evidence about lapsing explanations
   - with detour about HRS measures of insurance holding, lapsing

3. Empirical evidence about nursing home use
   - to gauge dynamic selection in insurance holding, as a result of lapsing

Simulation Evidence about Lapsing

Simulation Evidence about Lapsing

To gauge explanations for/welfare cost of lapsing

Simulation Evidence about Lapsing

To gauge explanations for/welfare cost of lapsing

- Life cycle model
  - optimal wealth spend-down path, given Medicaid
  - unmarried retiree at age 65
- Assumptions
  - CRRA = 3, time discount rate = 3%
  - monthly care transition matrix, with five care states
    - Friedberg, Hou, Sun, Webb, Li (2016)
  - typical policy from Brown & Finkelstein (2007), updated

Simulation Evidence about Lapsing

To gauge explanations for/welfare cost of lapsing

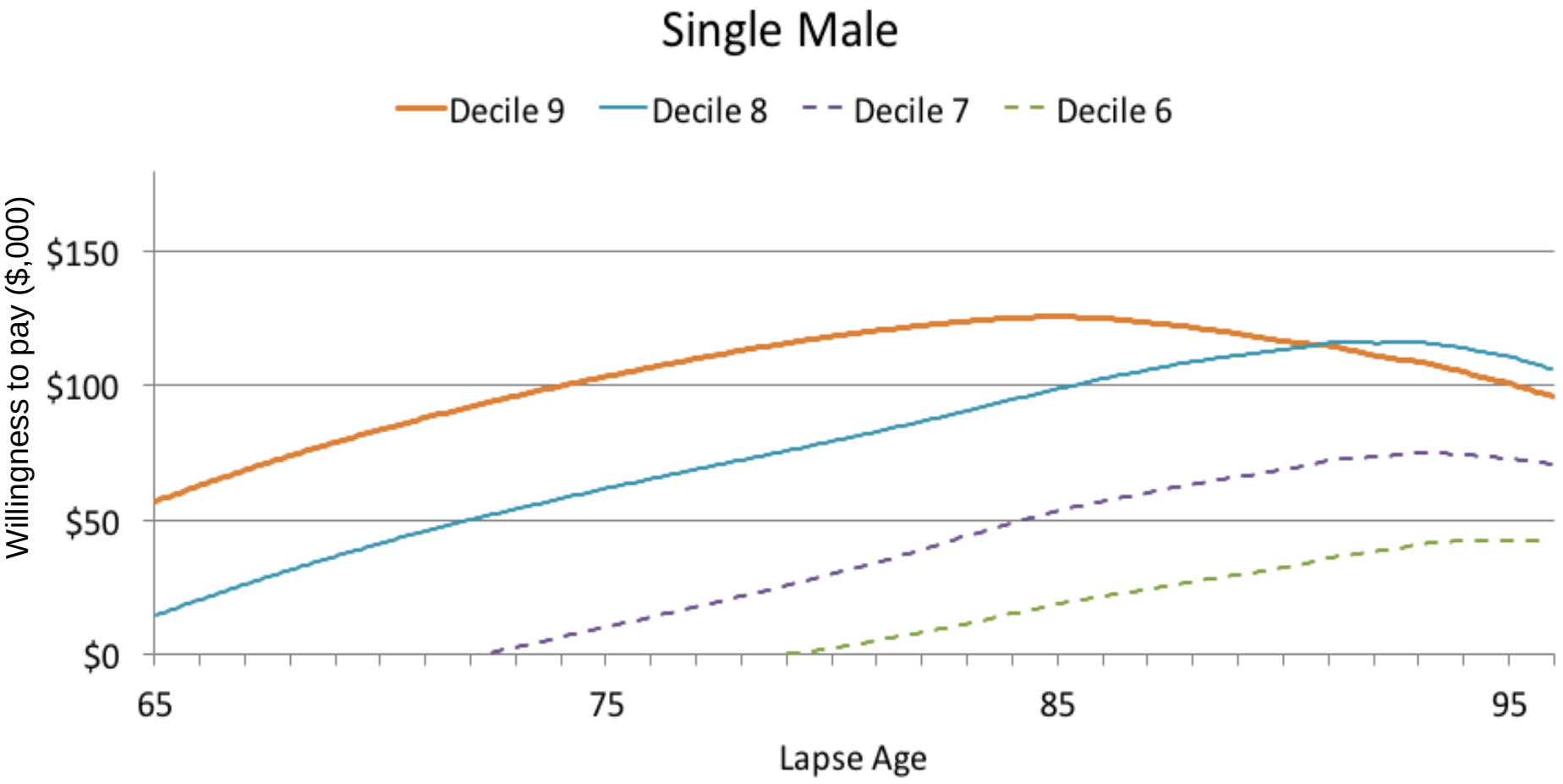
- Life cycle model
  - optimal wealth spend-down path, given Medicaid
  - unmarried retiree at age 65
- Assumptions
  - CRRA = 3, time discount rate = 3%
  - monthly care transition matrix, with five care states
    - Friedberg, Hou, Sun, Webb, Li (2016)
  - typical policy from Brown & Finkelstein (2007), updated
- Compute willingness to hold insurance at age-65 price
  - purchase at age 65, or hold on at later ages

Willingness to pay to avoid lapsing

(by wealth deciles)

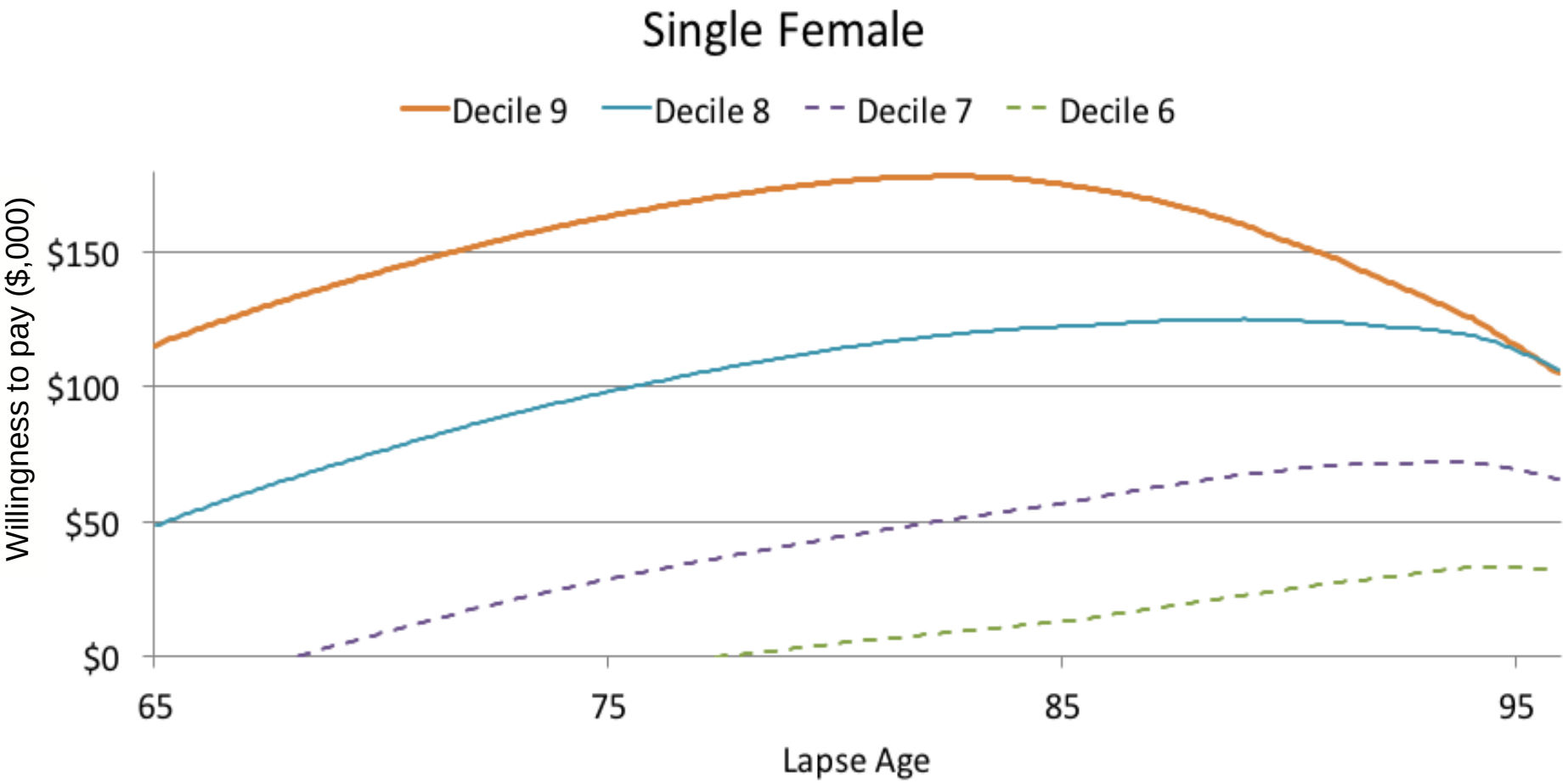
Willingness to pay to avoid lapsing

(by wealth deciles)



Willingness to pay to avoid lapsing

(by wealth deciles)



Simulation Evidence about Lapsing

Simulation Evidence about Lapsing

- **Optimal lapsing is unlikely**
  - requires very large change in beliefs, even when healthy
  - financial shock would also have to be substantial
- But if mis-sold policy in first place
  - lapsing may then be optimal
  - may explain early lapses

Outline

Outline

1. Simulation evidence about lapsing explanations

2. **Empirical evidence about lapsing explanations**
   - with detour about HRS measures of insurance holding, lapsing

3. Empirical evidence about nursing home use
   - to gauge dynamic selection in insurance holding, as a result of lapsing

Empirical Analysis

- Health and Retirement Study, 2002+

Empirical Analysis

- Health and Retirement Study, 2002+
- 1996-2002, participants asked:
  "do you hold any long-term care insurance"
  "have you ever been covered by any long-term care insurance that you cancelled or let lapse"

Empirical Analysis

- Health and Retirement Study, 2002+

- 1996-2002, participants asked:
  "do you hold any long-term care insurance"
  "have you ever been covered by any long-term care insurance that you cancelled or let lapse"

- 2002+, participants asked:
  "do you hold any long-term care insurance – is it one of the plans you told me about previously"
  - 23% of policies are eliminated by follow-up question
  - can compute wave-to-wave lapsing, not ever lapsing
  - but, wave-to-wave lapse rates are much more reasonable 2002+
  - and, this allows us to study proximate factors associated with lapsing

HRS Summary Statistics

HRS Summary Statistics

Has LTC insurance in 2002, aged 65+ (N = 891)	All	Non-lapsers	Lapsers
Age	75.6	73.2	75.7 ***
Self-assessed prob (nursing home, next 5 yrs) (1-100)	19.5	19.6	18.7
Cognitive Score	2.99	3.02	2.76 ***
Male	0.402	0.403	0.396
Less than high school education	0.084	0.079	0.114
Some college	0.574	0.585	0.503
Fair or poor health	0.135	0.125	0.205 *
Has limitations in Activities Daily Living	0.024	0.021	0.044
Has difficulty handling money	0.313	0.310	0.336
Log financial wealth	11.0	11.1	10.0 ***
Log household income	10.7	10.8	10.5 ***
Have children	0.926	0.931	0.895
Have daughters	0.763	0.781	0.643 ***
Log medical expenditure	7.13	7.14	7.06
Married or partnered	0.690	0.708	0.566 **
LTC policy lapsed, 2002-2006	**0.130**	**0**	**1**
Entered nursing home, 2006-12 (N = 823)	**0.323**	**0.310**	**0.416 *****

Overview of Paper

We evaluate evidence for three explanations for lapsing

- Strategic lapsing
  - individuals receive new information about their risk of needing care
- Financial lapsing
  - decline in wealth

    reduces ability to pay premiums
    reduces need to protect wealth from Medicaid
- Unintended lapsing
  - due to time-inconsistent preferences or loss of financial competence

We examine nursing home use among lapsers, non-lapsers

Empirical Analysis of Lapsing

$$Pr(LAPSE_i = 1) = \Phi\left(\beta_x strategic_i + \beta_f financial_i + \beta_u unintended_i + \beta X_i\right)$$

Empirical Analysis of Lapsing

$$Pr(LAPSE_i = 1) = \Phi(\beta_x strategic_i + \beta_f financial_i + \beta_u unintended_i + \beta X_i)$$

strategic	self-assessed probability of needing care, ADLs, log medical expenditures, self-reported health
financial	log financial wealth, log income
unintended	self-reported difficulty with handling money, cognitive score (based on Hurd et al *JAMA* 2013)

- HRS participants aged 65+, have long-term care insurance in 2002
- $LAPSE$ observed 2002-2006
- N = 891, 13.0% of policies lapse

Empirical Analysis of Lapsing

$$Pr(LAPSE_i = 1) = \Phi(\beta_x strategic_i + \beta_f financial_i + \beta_u unintended_i + \beta X_i)$$

strategic	self-assessed probability of needing care, ADLs, log medical expenditures, self-reported health
financial	log financial wealth, log income
unintended	self-reported difficulty with handling money, cognitive score (based on Hurd et al *JAMA* 2013)

- Note: we do not observe changes in these variables since policy was purchased
  - we rely on Hendren (2013): policies only sold to people in good financial, physical, mental condition
  - moreover, this approach allows us to be agnostic about timing: we don't know (and can't observe) *when* change in status may induce lapsing

Empirical Evidence about Lapsing

Probability of lapse 2002-2006 (mean = 0.130, N = 891)	Marginal effect	Standard Error
Age	0.0043	0.0020 **
Self-assessed prob (nursing home, next 5 years) (1-100)	-0.0012	0.0006 *
Cognitive Score	-0.0887	0.0265 ***
Male	0.0195	0.0244
Less than high school education	-0.0199	0.0343
Some college	-0.0038	0.0245
Fair or poor health	0.0484	0.0381
Has limitations in Activities Daily Living	0.0607	0.0839
Has difficulty handling money	-0.0016	0.0086
Log financial wealth	-0.0094	0.0034 ***
Log household income	-0.0277	0.0179
Have children	0.0245	0.0394
Have daughters	-0.1000	0.0360 ***
Log medical expenditure	-0.0016	0.0053
Married or partnered	-0.0202	0.0281

Empirical Evidence about Lapsing

Probability of lapse 2002-2006 (mean = 0.130, N = 891)	Marginal effect	Standard Error
Age	0.0043	0.0020 **
Self-assessed prob (nursing home, next 5 years) (1-100)	-0.0012	0.0006 *
Cognitive Score	-0.0887	0.0265 ***
Male	0.0195	0.0244
Less than high school education	-0.0199	0.0343
Some college	-0.0038	0.0245
Fair or poor health	0.0484	0.0381
Has limitations in Activities Daily Living	0.0607	0.0839
Has difficulty handling money	-0.0016	0.0086
Log financial wealth	-0.0094	0.0034 ***
Log household income	-0.0277	0.0179
Have children	0.0245	0.0394
Have daughters	-0.1000	0.0360 ***
Log medical expenditure	-0.0016	0.0053
Married or partnered	-0.0202	0.0281

Empirical Evidence about Lapsing

Probability of lapse 2002-2006 (mean = 0.130, N = 891)	Marginal effect	Standard Error
Age	0.0043	0.0020 **
Self-assessed prob (nursing home, next 5 years) (1-100)	-0.0012	0.0006 *
Cognitive Score	-0.0887	0.0265 ***
Male	0.0195	0.0244
Less than high school education	-0.0199	0.0343
Some college	-0.0038	0.0245
Fair or poor health	0.0484	0.0381
Has limitations in Activities Daily Living	0.0607	0.0839
Has difficulty handling money	-0.0016	0.0086
Log financial wealth	**-0.0094**	**0.0034 *** **
Log household income	**-0.0277**	**0.0179**
Have children	0.0245	0.0394
Have daughters	-0.1000	0.0360 ***
Log medical expenditure	-0.0016	0.0053
Married or partnered	-0.0202	0.0281

Empirical Evidence about Lapsing

Probability of lapse 2002-2006 (mean = 0.130, N = 891)	Marginal effect	Standard Error
Age	0.0043	0.0020 **
Self-assessed prob (nursing home, next 5 years) (1-100)	-0.0012	0.0006 *
Cognitive Score	**-0.0887**	**0.0265 *** **
Male	0.0195	0.0244
Less than high school education	-0.0199	0.0343
Some college	-0.0038	0.0245
Fair or poor health	0.0484	0.0381
Has limitations in Activities Daily Living	0.0607	0.0839
Has difficulty handling money	**-0.0016**	**0.0086**
Log financial wealth	-0.0094	0.0034 ***
Log household income	-0.0277	0.0179
Have children	0.0245	0.0394
Have daughters	-0.1000	0.0360 ***
Log medical expenditure	-0.0016	0.0053
Married or partnered	-0.0202	0.0281

Empirical Evidence about Lapsing

- Financial lapsing
  - 10% reduction in financial wealth, associated with 0.1% increase in probability(lapse)
- Strategic lapsing
  - self assessed prob (need care) is significant at 10%, effect is small
- **Unintended lapsing**
  - one standard deviation decrease in cognitive score, associated with 4.5 percentage point increase in lapse rate
  - relative to overall rate of 13%

Welfare costs of unintended lapsing are substantial

- We don't do full welfare analysis
  - would have to compute gain to non-lapsers from lower premiums
- Welfare loss to lapsers has two components
  - wasted premiums (loss if lapse is anticipated)
  - inappropriately optimistic wealth drawdown path (loss if lapse is unanticipated)

Welfare costs of unintended lapsing are substantial

- We don't do full welfare analysis
  - would have to compute gain to non-lapsers from lower premiums
- Welfare loss to lapsers has two components
  - wasted premiums (loss if lapse is anticipated)
  - inappropriately optimistic wealth drawdown path (loss if lapse is unanticipated)
- At 80th percentile wealth, cost of lapsing at age 75 is:

	Loss if anticipated	Loss if unanticipated
Men	$41,516	$56,978
Women	$90,708	$98,247

Outline

Outline

1. Simulation evidence about lapsing explanations

2. Empirical evidence about lapsing explanations
   - with detour about HRS measures of insurance holding, lapsing

3. **Empirical evidence about nursing home use**
   - to gauge dynamic selection in insurance holding, as a result of lapsing

Empirical Analysis of Care Use

$$Pr(CARE_i = 1) = \Phi\left(\beta_x strategic_i + \beta_f fin_i + \beta_u unintend_i + \delta lapse_i + \beta X_i\right)$$

- HRS participants aged 65+, have long-term care insurance in 2002
- $CARE$ = 1 if enter a nursing home at any time, 2006-2012
- N = 823, 32.3% enter nursing home at some point

- standard test of dynamic adverse selection:
  - those who learn that their risk is lower than expected are more likely to lapse, less likely to use care
  - $\delta \neq 0$ if other unobservable factors that induce lapsing (conditional on other controls) are correlated with later care use

Empirical Evidence about Care Use

Probability nursing home 2006-2012 (mean = 0.323, N = 823)	Marginal Effect	Standard Error
LTC policy lapsed, 2002-2006	-0.0253	0.0569
Age	0.0231	0.0036 ***
Self-assessed prob (nursing home, next 5 years) (1-100)	0.0012	0.0011
Cognitive Score	-0.2570	0.0565 ***
Male	-0.0258	0.0400
Less than high school education	-0.0346	0.0686
Some college	0.0705	0.0415 *
Fair or poor health	0.1130	0.0644 *
Has limitations in Activities Daily Living	0.3950	0.1320 ***
Has difficulty handling money	0.0414	0.0164 ***
Log financial wealth	0.0009	0.0067
Log household income	0.0019	0.0292
Have children	-0.1870	0.0959 *
Have daughters	0.0542	0.0512
Log medical expenditure	-0.0030	0.0101
Married or partnered	-0.0659	0.0474

Empirical Evidence about Care Use

Probability nursing home 2006-2012 (mean = 0.323, N = 823)	Marginal Effect	Standard Error
LTC policy lapsed, 2002-2006	-0.0253	0.0569
Age	0.0231	0.0036 ***
Self-assessed prob (nursing home, next 5 years) (1-100)	0.0012	0.0011
Cognitive Score	**-0.2570**	**0.0565 *****
Male	-0.0258	0.0400
Less than high school education	-0.0346	0.0686
Some college	0.0705	0.0415 *
Fair or poor health	0.1130	0.0644 *
Has limitations in Activities Daily Living	0.3950	0.1320 ***
Has difficulty handling money	0.0414	0.0164 ***
Log financial wealth	0.0009	0.0067
Log household income	0.0019	0.0292
Have children	-0.1870	0.0959 *
Have daughters	0.0542	0.0512
Log medical expenditure	-0.0030	0.0101
Married or partnered	-0.0659	0.0474

Empirical Evidence about Care Use

- Lapsers are more likely to use care in raw data
  - but this is explained by other covariates
  - so, no other unobserved factors related to lapsing generate selection among insurance holders
- **Cognitive impairment is associated with greater care use**
  - so, it generates dynamic advantageous selection
  - one standard deviation reduction in cognitive score, associated with 10.8 percentage point increase in nursing home entry
  - relative to overall rate of 32.3%

Implications

- As currently functioning, LTC insurance is not the solution to the problem of funding long-term care
  - for many reasons, including high lapse rates
  - generates especially pernicious form of advantageous selection
- How to address unintended lapsing
  - could be eliminated by paying premiums as a lump sum
  - deploy behavioral toolkit to develop effective, targeted nudges

Thank you

THE NEW SCHOOL
RELAB