

Uncertain altruism and the design of social LTC insurance

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Uncertain altruism

- Traditionally, informal care provided by the family has played central role in LTC provision
- However, the provision of informal care is subject to a number of risks
 - Death or absence of spouses and children
 - Evolution of norms
 - Uncertain altruism
- We focus on the latter source of uncertainty and look at the optimal design of public intervention in LTC provision

Research questions

- What is the optimal design of social LTC insurance when altruism of family members is uncertain?
- Two sources of risk: dependence and uncertain altruism
- We analyze and compare two regimes
 - Topping up
 - Opting out
- Is there a role for social insurance if fair private insurance is available?
- Can a combination of the two regimes do better?

Model overview

- Children can provide informal care for dependent parents because of ascending altruism
- We ignore other channels motivating informal care (bequests, norms...)
- Altruism parameter can take a continuum of values: social LTC regime has always an impact on informal care at the extensive margin
- Cremer et al (2016): look at similar scenarios, but with given level of altruism with possibility of default
- Here children's altruism is exogenous, and cannot be affected by the parents (Chhabakatri et al., 1993; Leroux and Pestieau, 2014)

Main results

- Under both Topping up and Opting out social LTC insurance reduces the probability of informal care from children
- Topping up is an inefficient way to insure against very selfish children
- However, it may lead to better coverage for the dependent with moderately altruistic children
- Under Topping up, social insurance is equivalent to private insurance
- Mixed regimes may be welfare improving

Outline

- 1 Motivation
- 2 The model
 - Laissez faire
 - First best
 - Topping Up
 - Opting out
- 3 Topping up versus Opting out
- 4 Private insurance
- 5 Mixed regime
- 6 Conclusion

The model

- Two groups of agents: parents and their single children
- Parents live two periods: young and old
- When young work, consume, pay taxes, save (and purchase private LTC insurance)
- When old: dependent with a certain probability
- Children internalize the utility of their parents. Altruism parameter $\beta \geq 0$
- Two sources of uncertainty
 - Risk of dependence. Probability $\pi \in (0,1)$
 - Degree of altruism of children is unknown by young parents. $\beta \sim F(\beta)$

The model

- Parents' expected utility

$$EU = c + (1 - \pi) U(d) + \pi E_{\beta} [H(m)]$$

— —————
Young Old

- Each young parent receives the same (exogenous) income w in the first period, pays taxes, and chooses the level of
 - Savings s
 - (Private LTC insurance i)
- Assume $U(\cdot)$ and $H(\cdot)$ strictly increasing and strictly concave. $H'(x) > U'(x)$ for all x .

The model

- Adult children's utility if the parent is not dependent is linear in consumption c_{child}
- Children's utility if the parent is dependent

$$u = c_{child} + \beta H(m)$$

- Each child receives the same (exogenous) income y and chooses level of help a to be provided to parent if latter is dependent
- Assume $F(\beta)$ strictly concave

The model

- The government levies a tax τ on parents during their young age to finance LTC transfers g
- The realization of β cannot be observed by the government
- We consider two regimes (and mix) depending on the potential role of the family:
 - **Topping up (TU)**: transfer g can be topped up with savings, (insurance benefits) and informal care
 - **Opting out (OO)**: transfer g is exclusive. To benefit from savings and informal care, parents have to opt out from the government program
- One could think of conditional transfers (TU) vs retirement homes (OO)

The model

TIMING

- **Period 0:** Government announces a tax τ to finance LTC insurance, and insurance regime.
- **Period 1:** Parents are young and have each one child. Choose s (and i)
- **Period 2:** Nature draws β . Parents are old and children are adult. If dependent, parents can receive help from the state, the market, and the family.

We will first consider a case where there is no private insurance, and then will turn to the case with private insurance.

Laissez faire

- Parents' expected utility

$$EU = w - s + (1 - \pi) U(s) + \pi E [H(m)]$$

with $m = s + a^*(\beta, s)$

- Adult children's utility if the parent is dependent

$$u = y - a + \beta H(m),$$

Laissez faire

- Period 2: children choose a . First order condition

$$-1 + \beta H'(s + a) = 0.$$

- Threshold β_0 such that $a \geq 0 \iff \beta \geq \beta_0$, given by

$$\beta_0 H'(m) = 1$$

- The threshold increases in s : the higher the parent's savings, the lower the probability of child helping
- Dependent parents' consumption $m = s + a^*$

$$m(\beta) \equiv \begin{cases} (H')^{-1} \left(\frac{1}{\beta} \right) & \text{if } \beta \geq \beta_0 \\ m_0 = s & \text{if } \beta < \beta_0 \end{cases}$$

- If $\beta \geq \beta_0$, $m(\beta)$ increases in β , and does not depend on s
- Informal care is crowded out one-to-one by savings

Laissez faire

- Period 1: Parents choose s anticipating β_0 . Expected Utility

$$EU = w - s + (1 - \pi) U(s) + \pi \left[H(s) F(\beta_0) + \int_{\beta_0}^{\infty} H(m(\beta)) dF(\beta) \right]$$

- First order condition

$$(1 - \pi) U'(s) + \pi F(\beta_0) H'(s) = 1$$

- When the dependent parent receive informal care, saving has no benefit because of crowding out.
- Less than full insurance

First best

- Social planner's objective: maximize expected utility of parent taking the aid behavior as given
- First best: β is observable
- FB allocation maximizes with respect to m , d , and β_0

$$EU = w - (1 - \pi)d - \pi F(\beta_0)m_0 + (1 - \pi)U(d) + \pi \left[H(m_0)F(\beta_0) + \int_{\beta_0}^{\infty} H(m(\beta))dF(\beta) \right]$$

- First order conditions

$$U'(d) = H'(m_0) = 1$$

$$H(m(\beta_0)) = H(m_0),$$

- Full insurance for individuals that do not receive informal care
- Children help only if $\beta > 1$

First best

- FB allocation can be easily decentralized under symmetric info with government transfers targeted to families with $\beta < 1$
- Transfer only to parents whose children's altruism is below 1
- The others will be taken care by their children (and receive more than full insurance)

- Generally, however, β is unobservable, as is the level of informal care
- Under asymmetric information, cannot use targeted transfers

Topping Up

- Transfer g can be topped up by savings and informal care
- Children's choice

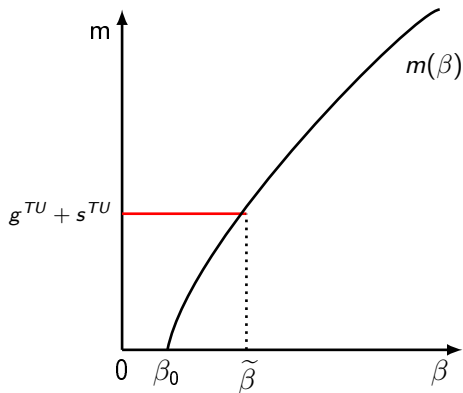
$$-1 + \beta H'(s + g + a) = 0$$

- Threshold $\tilde{\beta}(s + g)$ such that $a \geq 0 \iff \beta \geq \tilde{\beta}$, given by

$$1 = \tilde{\beta} H'(s + g)$$

- Threshold increases in s and $g \rightarrow$ public insurance reduces probability of informal care from children
- If $a > 0$, $m(\beta)$ is defined as at the laissez faire: full crowding out by government assistance

Topping Up



Topping Up

- Parents' choice

$$(1 - \pi) U'(s) + \pi F(\tilde{\beta}) H'(s + g) = 1$$

- Due to crowding out, government transfer is only relevant in case of no informal care
- Optimal s is decreasing in g .
- In case of no informal care, g reduces the need for self-insurance

Topping Up

- Period 0: optimal policy maximizes

$$w - \pi g - s(g) + (1 - \pi) U(s(g)) + \pi \left[\int_{\tilde{\beta}}^{\infty} H(m(\beta)) dF(\beta) + F(\tilde{\beta}) H(s(g) + g) \right].$$

- First order condition yields (for interior solutions)

$$H'(s(g) + g) = \frac{1}{F(\tilde{\beta})} > 1$$

- Substituting in the parents' FOC, we get $U' = 1$
- Also implies that $\tilde{\beta} = F(\tilde{\beta}) \rightarrow \tilde{\beta} \leq 1$
- Consumption at FB level if no dependence
- Less than full insurance for all individuals with $\beta < 1$

Topping Up: intuition

- g affects informal care both at the extensive and at the intensive margin
- Due to one-to-one crowding out, public LTC insurance can only insure against the risk of dependence with no informal care
- Since transfer received by all dependent, less than full insurance for parents receiving no informal care
- Parents receiving some informal care but whose children have $\beta < 1$ are also not fully insured

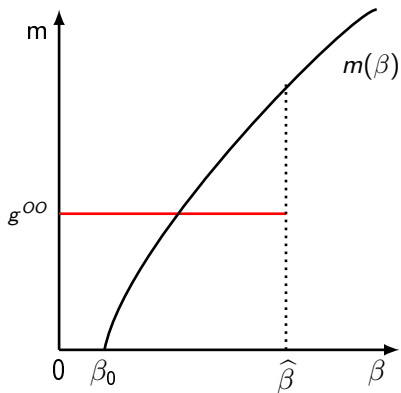
Opting out

- Transfer g cannot be topped up by savings and informal care
- Children choose whether to help or not, then parents decide whether to opt in or out the public program
- Assume $g > s$: parents with no informal care will always opt in
- If $a > 0$, $m(\beta)$ is defined as at the laissez faire
- Children provide care if

$$\beta [H(m(\beta)) - H(g)] - (m(\beta) - s) > 0$$

- Threshold $\hat{\beta}$ such that $a \geq 0 \iff \beta \geq \hat{\beta}$
- $\hat{\beta}$ decreases in s and increases in g

Topping up versus Opting out



Opting out

- Opting in the public program implies that savings are wasted \rightarrow Higher savings lead to a higher probability of informal care (differently from TU)
- Parents choice

$$(1 - \pi) U'(s) + \pi f(\hat{\beta}) = 1$$

MB if healthy

Impact on
prob. of help

- Savings are always irrelevant in case of dependence
 - Opt in: loose them
 - Opt out: fully crowd out informal care

Opting out

- s decreases as g increases
- Intuition: an increase in s increases the probability of help, but the impact is smaller the higher is g
- Period 0: optimal policy maximizes

$$w - \pi F(\hat{\beta})(g - s) - s + (1 - \pi) U(s) + \pi \left[\int_{\hat{\beta}}^{\infty} H(m(\beta)) dF(\beta) + F(\hat{\beta})H(g) \right]$$

- Transfer only to dependent with no informal care

Opting out

- First order condition yields (for interior solutions)

$$F(\hat{\beta})H'(g) - f(\hat{\beta}) [H(m(\hat{\beta})) - H(g)] \frac{\partial \hat{\beta}}{\partial g} - F(\hat{\beta}) \left(1 - \frac{\partial s}{\partial g}\right) - (g - s)f(\hat{\beta}) \frac{d\hat{\beta}}{dg} = 0$$

Insurance
against no help

Impact of g on
extensive margin (-)

Impact of g on
first period cons. (-)

- g affects informal help at the extensive margin, and this is taken into account when setting the optimal policy
- Distortions on g and $\hat{\beta}$ also affect gvt budget constraint
- Less than full insurance for parents receiving no informal care

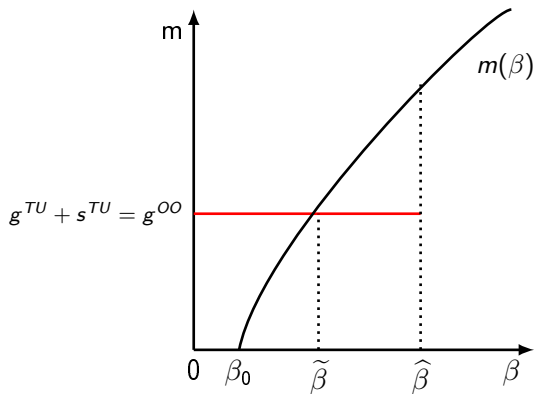
Topping up versus Opting out

- Cannot rank Topping up (TU) and Opting out (OO)

TRADE OFF

- Suppose g^{TU} is the optimal TU transfer, and in OO regime set $g^{OO} = s^{TU} + g^{TU}$
- Opting out regime is less expensive: only parents with no informal care receive the transfer
- ...but since in this case $\hat{\beta} > \tilde{\beta}$, parents whose children have $\beta \in (\tilde{\beta}, \hat{\beta})$ are worse off

Topping up versus Opting out



Topping up versus Opting out

- Sufficient condition: OO dominates TU if

$$\pi(1 - F(\hat{\beta}))g^{TU} - \pi \int_{\tilde{\beta}}^{\hat{\beta}} [H(m(\beta)) - H(g^{OO})]dF(\beta) \geq 0$$

- First term is positive and represents savings under OO
- Second term is negative and represents the fact that OO may hurt parents whose children are moderately altruistic

Private insurance

- Assume now that parents can purchase fair private insurance
- Private insurance is a perfect substitute of public insurance in TU regime
- In the OO regime, some public insurance may still be optimal, but only if OO dominates TU with no private insurance
- Intuition as above: private insurance is an inefficient way to insure against default of children

Mixed regime

- We consider a scenario where mixed scheme is available
- Transfer g^{TU} can be topped up (financial transfer)
- Transfer g^{OO} is exclusive (retirement home)
- In other words, opting out parents can benefit from transfer g^{TU}

Mixed regime

- Children help if $\beta \geq \hat{\beta}$, with $\hat{\beta}$ given by

$$\hat{\beta} \left[H(m(\hat{\beta})) - H(g^{OO}) \right] - \left(m(\hat{\beta}) - s - g^{TU} \right) = 0,$$

- Comparative statics

$$\frac{ds}{dg^{OO}} < 0$$

$$\frac{ds}{dg^{TU}} > 0$$

$$\frac{d\hat{\beta}}{dg^{OO}} > 0$$

$$\frac{d\hat{\beta}}{dg^{TU}} < 0$$

- g^{TU} and g^{OO} have opposing effects on savings and prob. of children's care

Mixed regime

- Extra instrument for the government
- Transfer g^{TU} is used to mitigate the effect of g^{OO} on the probability of informal care
- We still have less than full insurance
- However, a mixed policy can be welfare improving with respect to isolated policies

Conclusion

- We analyze two regimes of LTC insurance under uncertain altruism
- Altruism parameter continuously distributed
- Tradeoff: OO better instrument to insure against full default of children...
- ...but if children have "intermediate" altruism, parents may be better off under TU
- A mixed regime combining OO and TU can improve allocation
- Only OO can be welfare improving if parents can purchase insurance