The political economy of (in)formal long term care transfers

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May 14, 2015

Introduction (1)

- **LTC**: the care needed by people who are unable to perform alone activities of daily living or instrumental activities of daily living.

- **An important and growing problem for all rich countries**, mostly because of population aging.
  - Torjman (2013): the chances of requiring LTC in Canada are 1/10 by age 55, 3/10 by age 65 and 5/10 by age 75.
  - Statistics Canada, 2010: The number of dependent seniors is expected to triple over the next 50 years.

- **Importance of family help**, either help in time or through monetary transfers.

- **Small formal sector** (cash benefits or in-kind services): an average of 1.5% of GDP across 25 OECD countries in 2008.

Introduction (2)

Our research questions:

- Interaction between the different types of family help and the role of the income level of the care giver on the choice of help.

- Understand the possible crowding out effects between public LTC transfers and family help.

- Understand why so little social LTC transfers are provided in reality.

Introduction (3)

Litterature:

- **On the pattern of family help**: Pestieau and Sato (2006, 2008).

- Many **normative** papers on LTC: Jousten *et al.* (2005), Cremer and Roeder (2013).

- ... fewer papers using a **positive** approach: De Donder and Leroux (2013), De Donder and Pestieau (2015), Nuscheler and Roeder (2013).

The model (1)

- Continuum of agents who live two periods of length T.
- Families of 1 parent /1 child.
- π: probability of becoming dependent at the beginning of second period.
- Children are altruistic toward their parent *only* when they are dependent: can provide help in time e and /or a direct financial transfer f.
- They can also rely on a social LTC transfer system serving a lump sum amount b to all dependent agents.
- We concentrate on *instantaneous utility*: U_j^i with $i \in \{D, N\}$ and $j \in \{Y, O\}$.

The model (2)

- *Utility of the parent*:

$$
\begin{aligned}
U_O^N &= u(d), \\
U_O^D &= v(d, e)
\end{aligned}
$$

  with $d = \bar{p}$ if the parent is autonomous and $d = \bar{p} + f + b$ if he is dependent.

- *Utility of the child*:

$$
\begin{aligned}
U_Y^N &= u(c), \\
U_Y^D &= u(c) + \alpha v(d, e),
\end{aligned}
$$

  where $\alpha > 0$ is an altruism parameter, identical across children.

The model (3)

Consumption of the young:

- Young agents differ in their productivity w, which is distributed over $[w_-, w_+]$ according to the cdf $F(w)$, with $w_{med} < \bar{w}$.
- They supply one unit of labor time in return for w and are taxed at a rate $\tau \in [0, 1]$,
  .... which finances the lump sum transfer to all dependent agents :

$$b(\tau) = \frac{\tau \bar{w}}{\pi}.$$

- The remainder of their time, $T - 1$ is spent either helping their parent, $0 \leq e \leq T - 1$ or earning an income equal to their productivity and not taxed.

The model (4)

Consumption of the young (cont.):

- *The after-tax income* of a young agent of productivity w providing an amount e of informal help to his dependent parent is then equal to

$$w(1-\tau) + (T-1-e)w = w(T-e-\tau).$$

$\Rightarrow$ *Consumption* is then equal to:

$$c = w(T-\tau-e) - f.$$

The model (5)

Some assumptions:

- The market wage of a professional helper of dependent people is the numeraire
  $\Rightarrow e$ denotes also the market cost of this time, if it were spent by a professional care taker.

- **A1:** The instantaneous utility of dependent individuals has the form

$$v(d, e) = \phi\left(d + \beta e\right),$$

  with $\beta > 1$, *the intensity of the preference for help in time* and $\phi'(.) > 0,\ \phi''(.) < 0$.

- **A2:** The coefficient of relative risk aversion is lower than one for both autonomous and dependent agents

$$-\frac{u''(c)c}{u'(c)} \le 1, \ -\frac{\phi''(x)x}{\phi'(x)} \le 1.$$

The determination of private help and social LTC transfer (1)

Young agent with a dependent parent:

- They choose the form of help which provides the highest return, and never choose more than one form of help.

- The return from family help in time is β, from family help in money is w and from the public LTC system is $\bar{w}/\pi$.

- If $\bar{w}/\pi < \beta$, then no agent will ever prefer to have a public LTC system, they would rather give family help in time whose return is higher.

  $\Rightarrow$ **A large intrinsic preference for family help in time may then explain why we observe so little social LTC transfers.**

The determination of private help and social LTC transfer (2)

- From now on, we assume $\bar{w}/\pi > \beta$.
- Propositions 1 to 5 can be summarized by the following graphs.

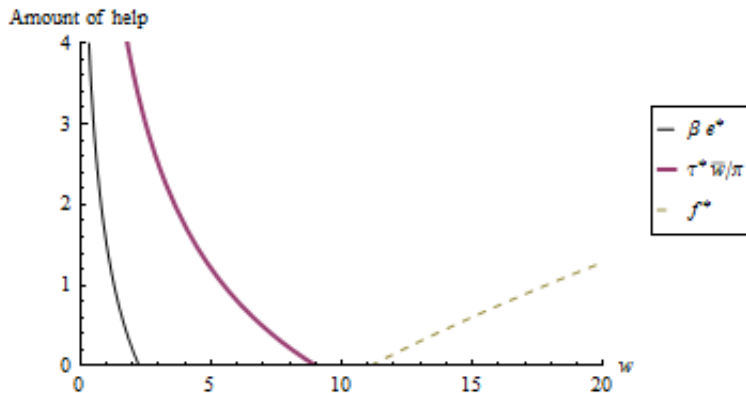# The determination of private help and social LTC transfer (3)

Figure: Formal, informal help and social LTC care transfers as a function of income, for $\alpha = 0.85$.

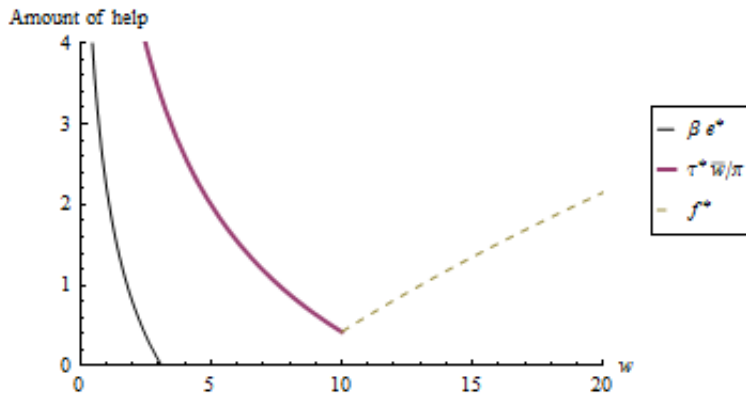# The determination of private help and social LTC transfer (4)

Figure: Formal, informal help and social LTC care transfers as a function of income, for $\alpha = 1$.

The determination of private help and social LTC transfer (5)

- For a given tax rate level, low-income agents with $w < \beta$ provide help in time while agents with $w > \beta$ provide help in money.
  Middle-income agents may not provide any help.
- Help in time decreases with w and help in money increases with w.
- When agents can choose their preferred tax rate financing a social transfer, and when $\beta < \bar{w}/\pi$, agents with $w < \bar{w}/\pi$ now prefer social LTC transfers,
  ... and the monetary value of help for these agents is higher with social transfers than with any other form of help.
  $\Rightarrow$ **Crowding out both at the intensive and at the extensive margins.**

The determination of private help and social LTC transfer (6)

Dependent parents

- The utility of a dependent parent is:

$$U_O^D = v\left(\bar{p} + f^*(\tau, w) + \tau \frac{\bar{w}}{\pi}, e^*(\tau, w)\right),$$

Proposition

Assume $\beta < \bar{w}/\pi$.

(a) Dependent parents of a low productivity child ($w < \beta$) most-prefer $\tau^* = 1$.

(b) Dependent parents of a child with income $w \in [\beta, \bar{w}/\pi]$ most-prefer $\tau^* = 1$.

(c) There exists a threshold productivity level $\breve{w} > \bar{w}/\pi$ such that dependent parents of a child with income $w \in [\bar{w}/\pi, \breve{w}[$ most-prefer $\tau^* = 1$ while those with a child with income $w \geq \breve{w}$ most-prefer $\tau^* = 0$.

The determination of private help and social LTC transfer (7)

To conclude on the preferences of dependent parents:

- They prefer the largest social LTC transfer system ($\tau^* = 1$), even at the cost of totally crowding out family help in time or in money, except if their child is rich enough ($w > \breve{w}$) that he transfers more money than the maximum social transfer available.

The majority voting equilibrium (1)

- Autonomous parents are indifferent as to the value of τ, so that we suppose that they abstain and do not vote.
- **3 groups:** young with dependent parents (π), young with autonomous parents $(1 - \pi)$ and old dependent agents (π).

Lemma

No group forms a majority by itself when voting provided that $\pi > 1/3$.

- Since children with autonomous parents prefer no social insurance transfers, **a necessary condition for a positive value of τ to emerge from majority voting is that $\pi > 1/3$.**
  $\Rightarrow$ From now on, we assume that $\pi > 1/3$.

The majority voting equilibrium (2)

Conditions under which the absence of social LTC transfers ($\tau = 0$) is a (global or local) Condorcet winner.

Proposition

When $\beta < \bar{w}/\pi$ and $\pi > 1/3$, $\tau = 0$ is
(a) the global Condorcet winner if

$$1 + \pi \left[1 - (F(\bar{w}/\pi) + F(\breve{w})) \right] \geq \frac{1 + \pi}{2}, \tag{1}$$

(b) a local Condorcet winner if

$$1 - \pi + 2\pi \left[1 - F(\bar{w}/\pi) \right] \geq \frac{1 + \pi}{2}. \tag{2}$$

The majority voting equilibrium (3)

- *Fraction of agents who prefer a zero tax rate:*

$$(1 - \pi) + \pi(1 - F(\bar{w}/\pi)) + \pi(1 - F(\breve{w})),$$

and condition (2):

$$(1 - \pi) + \pi(1 - F(\bar{w}/\pi)) + \pi(1 - F(\breve{w})) + \pi(F(\breve{w}) - F(\bar{w}/\pi)),$$

$\rightarrow$ The above conditions can actually be satisfied: for values of π slightly larger than $1/3$.

- **The absence of social LTC transfers can be a Condorcet winner even when $\beta < \bar{w}/\pi$.**
  The majority coalition is then made of children of autonomous parents together with rich families with a dependent elderly.

The majority voting equilibrium (4)

- It can also be a local Condorcet winner: $\tau^* = 0$ can be defeated by a value of τ large enough.

  For dependent parents of middle-range income children ($w \in [\bar{w}/\pi, \breve{w}]$), (i) formal help is totally crowded out, and (ii) the social LTC transfer is larger than the formal family help that would have been received in the absence of social LTC transfers.

The majority voting equilibrium (5)

- We can also have a interior solution for a global Condorcet winner, $\tau^{GCW} > 0$ when $\beta < \bar{w}/\pi$, and condition (1) is not satisfied.

- The main difficulty with proving the existence of a majority-voting equilibrium is due to the fact that the preferences of the old dependent with $w \geq \bar{w}/\pi$ are not single peaked.

- See Proposition 8 in the paper.

Conclusion (1)

- Our model generates a pattern of family help which conforms to what is empirically observed.

- We highlight several reasons why social LTC transfers may not be offered at the majority voting equilibrium.
  - if the intrinsic preference of dependent parents for help in time is large enough.
  - if the probability of becoming dependent when old is lower than 1/3.
  - even when none of the first two conditions is satisfied, the majority voting equilibrium may entail no social transfers, especially if the probability of becoming dependent when old is not far above one third.

- In particular, we identify conditions for the existence of a local Condorcet winner with no social transfers.
  This is empirically relevant whenever new programs have to be introduced at a low scale before being eventually ramped up.

Conclusion (2)

Possible extensions

- Individuals differing in income.
- If the probability of dependency is realized after the time of the vote.
- Distorsions in taxation.
- Differences in probability of becoming dependent and in altruistic children.