

# Private, Social and Self Insurance for Long term Care A Political Economy Analysis

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## Introduction

**Dependency:** inability to perform some activities of daily life (eating, dressing, etc.).

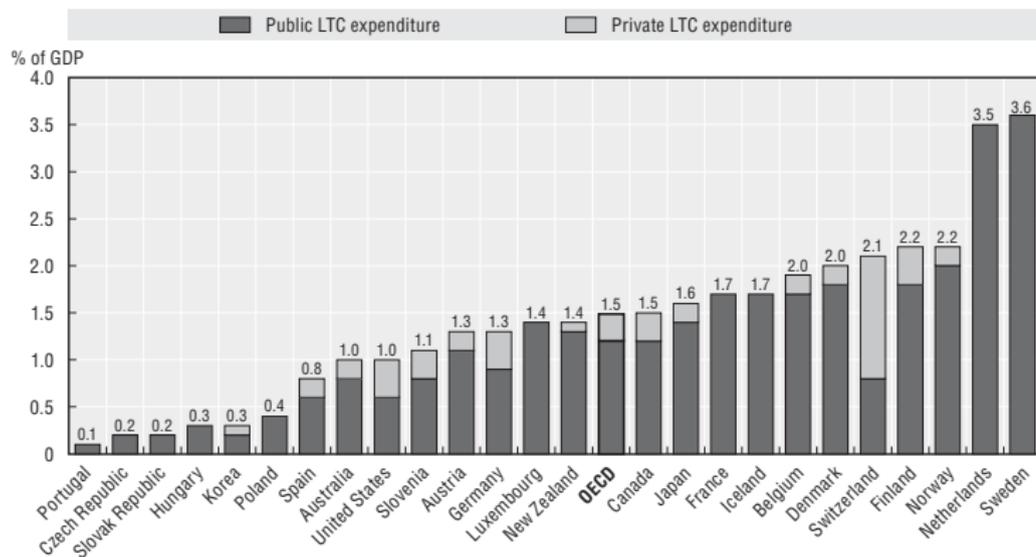
Several differences between health and long-term care (LTC) expenditures:

- Health care services aim at restoring health, while LTC aims at making the condition more bearable;
- Dependency concentrated mainly among very old people (80+), and risk patterns differ: for instance, richer people live longer and have a higher chance of needing LTC.

Three main actors: State, family and private sector:

- Family (informal help) is by far biggest provider. For instance, 80% of elderly dependent live at home.
- Public and private insurance: see OECD (2011) graph:
  - Very little private insurance.
  - No obvious correlation between amounts of public and private insurance. Does this mean there is no crowding out between the two?

# Public and Total Spending on LTC



OECD, Help Wanted? Providing and Paying for Long-Term Care, 2011

- Many changes in perspective:
  - increase in prevalence as people live longer;
  - less family help;
- Not much literature on LTC, and mostly focuses on normative issues (such as: is there a role for social LTC insurance? how should reimbursements be made (cost plus, lump sum)?)
- Main questions here:
  - Why so little private insurance? Crowding out between public and private?
  - How will demographic changes affect the political support for social LTC insurance, and the demand for private insurance as well?

- Need to build political economy model, where people differ in risk, income and family help.

## The model without private insurance

- Individuals live two periods.
- When young, they earn a wage, pay income taxes, save and make a transfer to their parents conditional on the parents needing LTC.
- When old, they live out of their saving, plus the social transfer if they need LTC, plus a transfer from the family if they have children and they need LTC.
- Three sources of heterogeneity among individuals  $i$ :
  - exogenous income,  $w_i$ ;
  - probability of needing LTC,  $\Pi_i$ ;
  - probability of having (caring and close) children when needing LTC,  $p_i$ .

- Individuals choose privately how much to save and decide by majority voting the size of the public program.
- A social norm defines the level  $d$  of transfer to needy parents. No explicit altruism.
- Timing: people vote first over social LTC insurance, observe the result of the vote, and then decide on their private saving.
- Only young people vote, once and for all.

Young individual  $i$ 's lifetime utility function is

$$U_i = w_i(1 - \tau) - s_i - l_i d \\ + (1 - \Pi_i)u(s_i) + \Pi_i [p_i H(c_c) + (1 - p_i)H(c_n)],$$

- $s_i$  is saving,
- the utility function is  $u(\cdot)$  when in good health and  $H(\cdot)$  when needing LTC. We assume that  $u(c) > H(c)$  but that  $u'(c) < H'(c)$  for all  $c$ . For instance,  $H(c) = u(c - L)$ .
- $c_c = s_i + b + d$  is the consumption level of parents in LTC who have children;  $c_n = s_i + b$  otherwise;

- $b$  is the lump sum public transfer paid to all people in LTC. It is financed by a linear tax on young people's income at a rate  $\tau$ ;
- The government's budget constraint is given by

$$\tau\bar{w} = b\bar{\Pi}, \quad (1)$$

where  $\bar{w}$  is the average income,  $\bar{\Pi}$  is the average probability of needing LTC.

## Individually optimal saving and social insurance contribution rate

**Result 1** *Savings (Self-Insurance) Decision  $s_i^*$  given by*

$$(1 - \Pi_i)u'(s_i^*) + \Pi_i [p_i H'(s_i^* + b + d) + (1 - p_i)H'(s_i^* + b)] = 1.$$

- Optimal saving independent of income (thanks to quasi-linearity in first period) but depends on risk & family help.
- Both social insurance and family care crowd out self-insurance.

**Result 2** *Social Insurance*  $\tau_i^*$  given by

$$\Pi_i [p_i H'(s_i^* + b + d) + (1 - p_i) H'(s_i^* + b)] \left( \frac{\bar{w}}{\bar{\Pi}} \right) = (<) w_i.$$

**Comparative statics of the most-preferred (interior) bundle**  
 $(s_i^*, \tau_i^*)$ :

- Public provision redistributes
  - from rich to poor: richer agents substitute self-insurance (larger  $s_i^*$ ) to social insurance (lower  $\tau_i^*$ ).
  - from low-risk to high-risk: riskier agents prefer more social insurance (larger  $\tau_i^*$ ) but not always less self-insurance.
- Informal care crowds out social insurance.

## Correlations

**Result 3** (i) *Positive correlation between income and risk: both have opposite effects on  $\tau^*$ !*

(ii) *Correlation between income and family help. Reinforcing impacts on  $\tau^*$  if positive correlation (micro data), opposite if negative correlation (macro data - “South-North gradient”).*

## Corner solutions for $\tau$

**Result 4** (i) *Richer people want no social insurance: there exists a threshold value of  $w$  above which individuals prefer  $\tau = 0$ .*

(ii) *Non risky people want no social insurance: there exists a threshold  $\Pi_i$  below which  $\tau_i^* = 0$ .*

(iii) *No such thresholds for family help  $(p_i, d)$ .*

- If people are rich enough, they will finance their LTC needs with their own private savings, even if this results in oversaving when they do not need LTC.
- If no risk, no need for LTC insurance!

## Introducing private insurance

- We now introduce a private insurance scheme which is actuarially fair: the premium does not depend on income but is based on the individual risk  $\Pi_i$  (which is assumed to be observable by the insurer).
- We assume that insurers do not condition the payment on the transfer made by children (for instance because they cannot observe it).
- Individuals can choose the quantity of private insurance that they buy, as measured by the insurance premium  $a_i$  paid in the first period of life. In case they need LTC, they then receive an actuarially fair amount

$$x_i(a_i) = \frac{a_i}{\Pi_i}.$$

The utility of individual  $i$  is then given by

$$\begin{aligned}
 U_i &= w_i(1 - \tau) - s_i - l_i d - a_i \\
 &+ (1 - \Pi_i)u(s_i) \\
 &+ \Pi_i [p_i H(c_c) + (1 - p_i)H(c_n)],
 \end{aligned}$$

with

$$\begin{aligned}
 c_c &= s_i + b + d + x_i, \\
 c_n &= s_i + b + x_i, \\
 b &= \tau \frac{\bar{w}}{\bar{\Pi}}, \\
 x_i &= \frac{a_i}{\Pi_i}.
 \end{aligned}$$

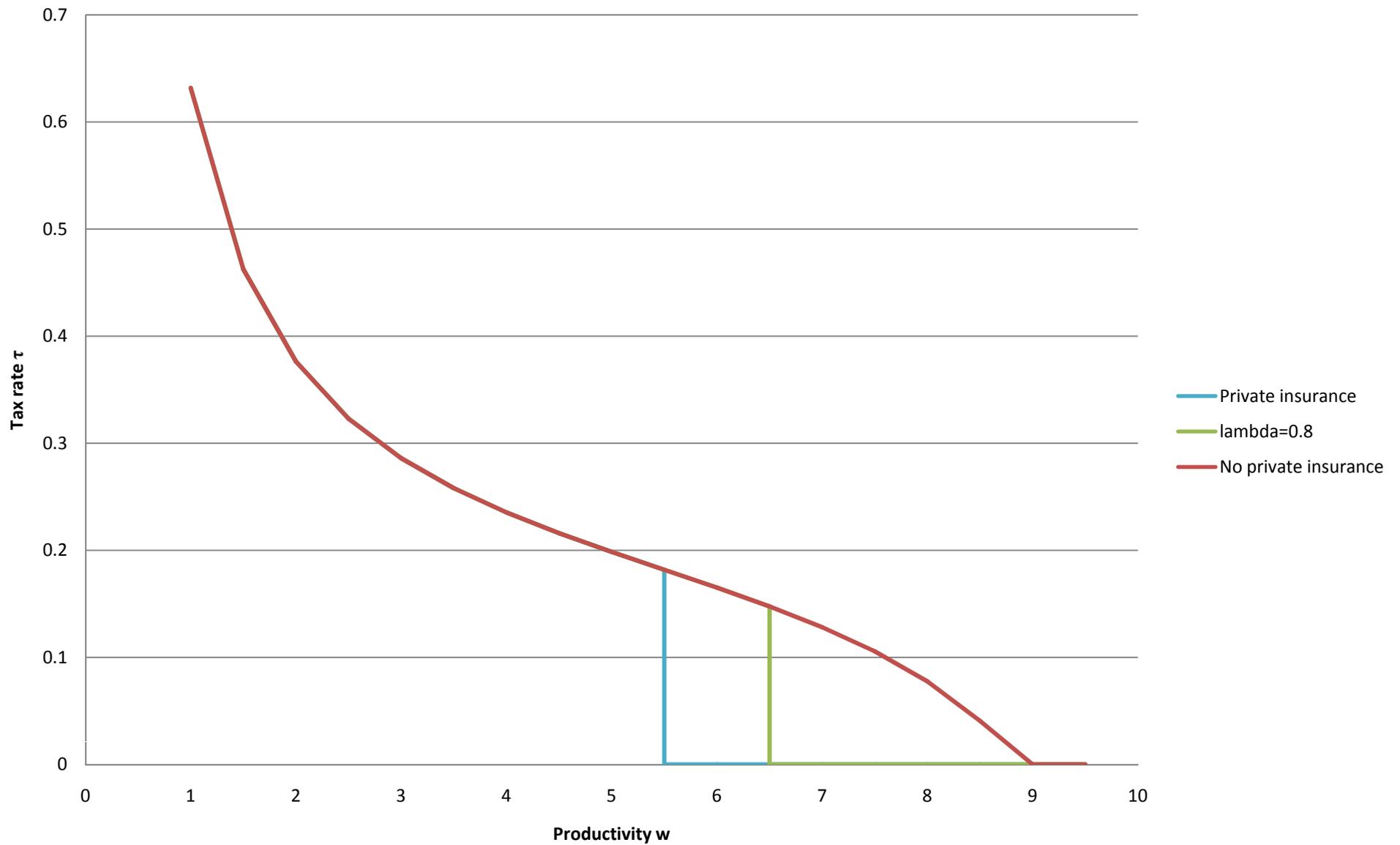
## Heterogeneity in productivity alone

- We assume that  $\Pi_i = \Pi$ ,  $d = 0$ .
- If no private insurance ( $a_i = 0$ ):  $\tau_i^*$  decreases with  $w_i$ , and is zero for  $w > \tilde{w}$  with  $\tilde{w} > \bar{w}$  (Intuition: social insurance as the only targeted way to transfer consumption towards bad state of world). Majority chosen  $\tau^V = \tau^*(w_{med})$ .

**Result 5** *Allow for private insurance. At most-preferred allocation, we have that  $(\tau_i^* > 0, a_i^* = 0, s_i^* > 0)$  if  $w < \bar{w}$  and  $(\tau_i^* = 0, a_i^* > 0, s_i^* > 0)$  if  $w > \bar{w}$ .*

- Same  $\tau_i^*$  if  $w < \bar{w}$ , then drops to zero for  $w > \bar{w}$ .
- Graph of  $\tau_i^*$  as a function of  $w_i^*$ , with and without private insurance.
- Interestingly, no change in  $\tau^V$  provided that  $w_{med} < \bar{w}$ !

Figure 4:  $\tau^*$  as a function of  $w$



If loading factor on private insurance, so that  $x_i(a_i) = \lambda a_i / \Pi_i$  with  $\lambda < 1$ , then :

- threshold above which  $\tau_i^*$  is zero is  $\bar{w} / \lambda$ ,
- as  $\lambda$  decreases, demand for private insurance decreases both at the extensive and intensive margins,
- if  $\lambda$  low enough, demand for private insurance is nil.
- Empirically confirmed: Finkelstein and Brown (2011).

## Heterogeneity in $(w_i, \Pi_i)$

**Result 6** *Assume that  $d = 0$ . We obtain:*

$$(i) \text{ if } \frac{w_i}{\Pi_i} < \frac{\bar{w}}{\bar{\Pi}} \text{ then } \tau_i^* > 0 \text{ and } a_i^* = 0,$$
$$(ii) \text{ if } \frac{w_i}{\Pi_i} > \frac{\bar{w}}{\bar{\Pi}} \text{ then } \tau_i^* = 0 \text{ and } a_i^* > 0,$$

- Does NOT mean that  $w_i/\Pi_i$  determines  $\tau_i^*$  when  $a_i^* = 0$ . We show that if  $\frac{w_i}{\Pi_i} = \frac{w_j}{\Pi_j}$  with  $i \neq j$ ,  $w_i < w_j$ , then  $s_i^* > s_j^*$  and  $\tau_i^* < \tau_j^*$ .
- Those with  $\frac{w_i}{\Pi_i} > \frac{\bar{w}}{\bar{\Pi}}$  all have the same  $s^*$  (so that  $u'(s^*) = 1$ ) but buy less private insurance as their risk  $\Pi_i$  increases (because of a lower return).
- As for private insurance loading factor, same conclusions as above, substituting  $w/\Pi$  to  $w$ .

## Reintroducing family help

Assume that  $d > 0$  with same  $p$  for all

**Result 7** *If  $d$  and  $p$  are low enough:*

- (i) the threshold  $\bar{w}/\bar{\Pi}$  that separates those preferring private or social insurance is not affected.*
- (ii) saving is not affected by  $p$  or  $d$ .*
- (iii) both  $\tau^*$  and  $a^*$  decrease with  $p$  and  $d$ .*

There are only intensive margin impacts on (social and private insurance), up to the point where  $\tau^* = a^* = 0$  for  $\bar{w}/\bar{\Pi}$ .

**Result 8** *If  $d$  and  $p$  are large enough:*

*(i) the threshold that separates those preferring private or social insurance decreases with  $p$  and  $d$ .*

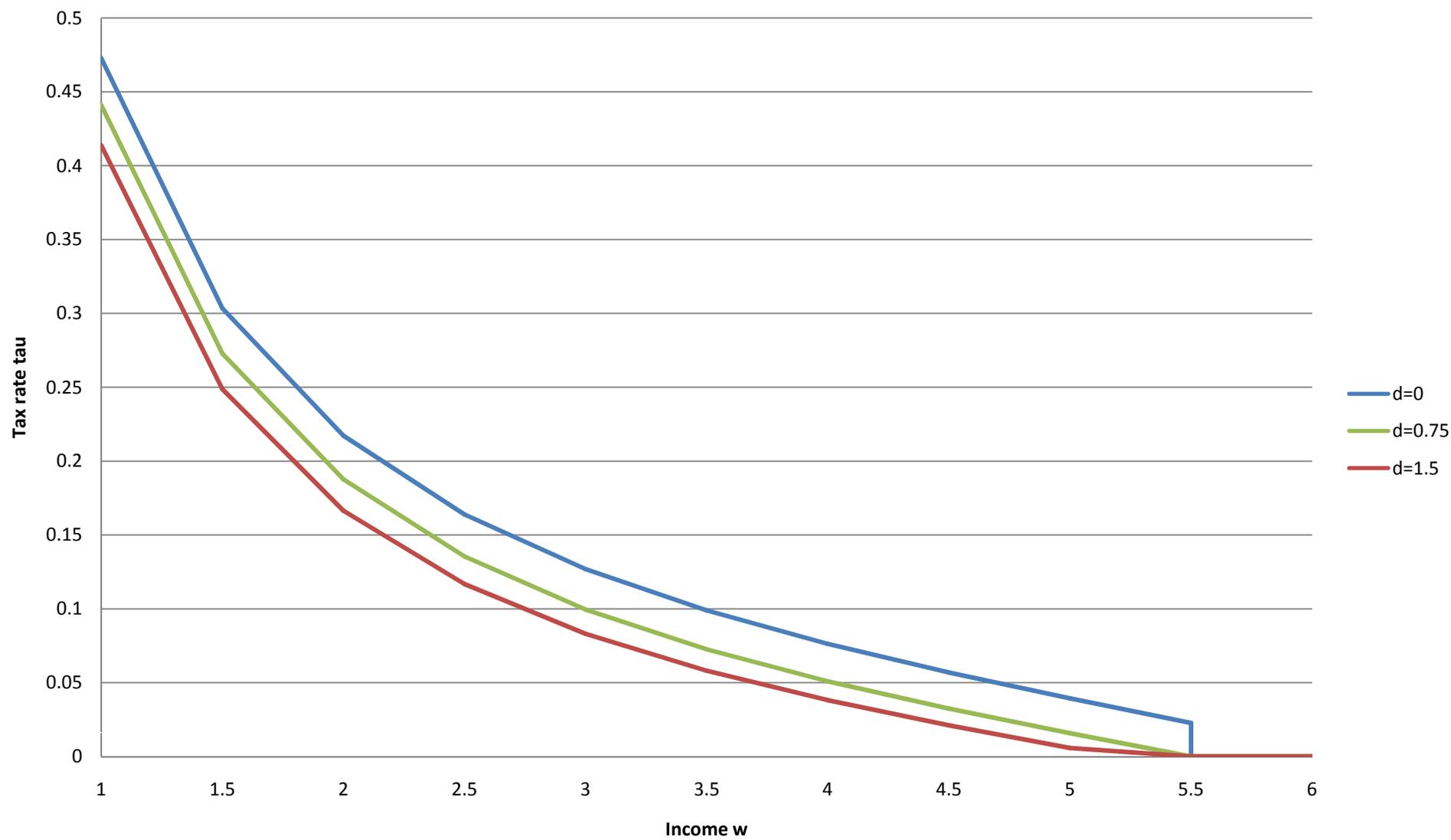
*(ii) no one buys private insurance*

*(iii)  $\tau^*$  decreases with  $p$  and  $d$ .*

*(iv) saving is not affected by  $p$  or  $d$  below the threshold, but decreases with  $p$  and  $d$  above.*

- There are both extensive and intensive margin effects of family help on social insurance.
- Social insurance fares better than private insurance thanks to income redistribution.

Figure 5:  $\tau^*$  as a function of income and of family help



## Conclusions

- Model well behaved, with intuitive comparative statics results.
- Why is there so little private insurance, while there is sizeable social insurance in some OECD countries?
  - Loading factor on private insurance decreases demand both at intensive and extensive margins;
  - Family help decreases demand for both social and private insurance, but especially the latter (because support for social insurance in part due to redistribution);

- Why is there no clear correlation between amounts of social and private insurance in OECD countries?
  - Although there is crowding out of social by private, in our model offering private insurance does not decrease majority-chosen level of social insurance because the crowding out is concentrated on agents who already wanted less social insurance than the majority-chosen level!
- All three dimensions (distributions of income, risk and family help) may explain heterogeneity among OECD countries.

- As for predictions, lower family help should benefit both social and private insurance.
- Impact of general increase in  $\Pi$  (thanks to increased longevity) more difficult to ascertain (more needs, but lower insurance return). Importance of correlations.
- Next step: behavioral political economy.