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THE PUBLIC ECONOMICS OF LONG TERM CARE

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Abstract

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JEL Classification: I11, I12, I18, J14

Keywords: long term care, Social Insurance, Dependence, family solidarity

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The Public Economics of Long Term Care*

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Abstract

With the rapid increase in LTC needs, the negligible role of the market and the declining role of informal family care, one would hope that the government would take a more proactive role in the support of dependent elderly, particularly those who cannot, whatever the reason, count on assistance from their family. The purpose of this paper is to analyze the possibility of designing a sustainable public LTC scheme integrating both the market and the family.

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1 Introduction

Due to the ageing process, the rise in long term care needs constitutes a major challenge of the twenty-first century. Long term care (LTC) concerns individuals who are no longer able to carry out basic daily activities such as eating, washing, dressing, etc. Nowadays, the number of persons in need of LTC is substantial. According to Frank (2012), in 2010 nearly 10 million Americans required ongoing help through LTC. This number is expected to grow to reach 15 million by 2020. Similarly in Europe, the number of persons in need of LTC is expected to grow from 27 million in 2013 to 35 million by year 2060 (see EU 2015).

The expected rise in the number of persons in need of LTC raises the question of the provision of care. As stressed by Norton (2000), about two thirds of LTC is generally provided by informal care givers (mainly the family, i.e. spouses, daughters and step-daughters). Recent figures in Frank (2012) show that about 80 % of dependent individuals in the U.S. receive informal care from relatives and friends. The remaining of LTC is provided formally, that is, through services that are paid on the market. Formal care can be provided either at the dependent's home, or in an institution (care centers or nursing homes).

Whereas LTC services do not require high skills, they are nonetheless extremely expensive. The average "private pay" rate for a single room in a nursing home exceeds \$75,000 per year. Home-based LTC costs an average of \$18 per hour.¹ Those large costs raise the question of the funding of formal LTC. That question will become increasingly important in the future, where it is expected that the role of informal LTC provision will decrease. The implication of this is that financial risks associated with meeting LTC needs will grow and therefore the development of mechanisms for absorbing these risks will gain in importance.

Given that each person has a large probability (between 35 % and 50 %) to enter a nursing home when becoming old (see Brown and Finkelstein 2009), and given the large costs related to LTC, one would expect that private LTC insurance markets expand, in order to insure individuals against the - quite likely - substantial costs of LTC. However, although markets for private LTC insurance exist, these remain thin in most countries. According to Brown et al (2007), only about 9 to 10 % of the population at risk of facing future LTC costs has purchased a private LTC insurance in the U.S. This is the so-called "long-term care insurance puzzle".² Because of various reasons, lying both on the demand side (myopia, denial of LTC, crowding out by the family, etc.) and on the supply side of that market (high loading factors, unattractive reimbursement rules, etc.), only a small fraction of the population buys LTC private insurance. One can thus hardly rely only on the development of private LTC insurance markets to fund the cost of LTC.

In the light of the expected decline in informal care, and of the difficulties faced by the market for private LTC insurance, one would hope that the public sector plays a more important role in the provision and funding of LTC. Nowa-

¹See on this U.S. Department of Health and Human Services (2016).

²On this, see Cutler (1993), Brown and Finkelstein (2007, 2008, 2009, 2011) and Pestieau and Ponthiere (2011).

days, in most advanced economies, the State is involved either in the provision or in the funding of LTC services, but to an extent that varies strongly across countries. Note, however, that the involvement of the public sector in LTC is, in most countries, not as comprehensive and generous as it is for the funding of general health services. The LTC "pillar" of the Welfare State remains quite thin in comparison with other pillars of the social insurance system.

The goal of this paper is to examine some challenges raised by the design of a LTC social insurance system. In discussing the design of a social insurance scheme for LTC, we will follow the public economics approach that was initiated by Atkinson and Stiglitz (1980). This approach allows us to identify some important features of an optimal public LTC insurance, and, in particular, to pay attention to the articulation of efficiency and equity concerns in the design of such a public insurance system.

The rest of the paper is organized as follows. Section 2 briefly explains why informal care is expected to decline and why the private market fails to play a role in covering LTC needs. Then, Section 3 develops a simple model of two-sided altruism to identify some key features of the optimal LTC public insurance scheme. Section 4 examines some additional difficulties raised by the design of public LTC insurance. Section 5 concludes.

2 Informal care and LTC private insurance

Before considering the design of LTC social insurance, let us first examine the main reasons why it is necessary to develop some kind of social insurance for LTC. The motivations are twofold: on the one hand, the expected decline, in the future, of the role of the family in LTC provision; on the other hand, the expectation that the factors explaining the LTC private insurance puzzle will remain at work in the next decades.

Let us first consider the role of the family.³ It is expected that the family, which provides today the bulk of LTC, will be less active in the coming decades. A number of factors explain such a gloomy prospect. The drastic change in family values, the growing number of childless households, the increasing rate of participation of women in the labor market, and the mobility of children imply that the number of dependent elderly who cannot count on the assistance of either spouses or children is increasing.

At the same time, it is important to realize that, at least for heavy cases of dependence, informal care can be quite costly for caregivers.⁴ There exists a growing literature trying to assess the collateral costs that informal caring can represent for the caregivers. Several studies highlight that caregivers bear large opportunity costs because of care responsibilities (e.g. Van Houtven et al., 2013). Informal care may have adverse effects on multiple dimensions of the

³On the role of the family in LTC provision, see the survey by Cremer et al (2012).

⁴See Klimaviciute et al. (2016) for an attempt to test the relative prevalence of caring motives.

health of caregivers.⁵ The detrimental effects related to the physical aspect are generally less intensive than the psychological effects. Schultz and Sherwood (2008), Hirst (2005) and Burton et al. (2003) showed that moving into a demanding caregiving role (more than 20 hours per week of help for dealing with basic ADLs) led to an increase of depression and psychological distress, impaired self-care and poorer self-reported health. A conjecture that would need testing is that those costs depend closely on the motives underlying caring: altruism, exchange or norm. In other words, one could expect that informal care that rests on norm as opposed to altruism would involve more collateral costs. But in any case, we can expect, given the increasingly large literature on the costs of informal care provision, that the size of informal care will go down in the future.

If the importance of informal care is likely to decrease in the next decades, then an important issue concerns the extent to which the LTC private insurance market can develop so as to cover the costs of formal LTC. The literature on the LTC private insurance puzzle questions the capacity of the market to cover a large part of the population at risk of LTC costs. Actually, although LTC costs are high, and despite large probabilities to become dependent at the old age, the LTC private insurance market remains underdeveloped, in contradiction with basic theoretical predictions.

Various factors were introduced to explain that puzzle.⁶ First of all, empirical evidence show that individuals tend, because of either myopia or ignorance, to underestimate the risk of dependence, and thus do not feel the need to be insured against LTC. For instance, Finkelstein et McGarry (2006) show, on the basis of AHEAD data, that about 50 % of the people believe that they have a zero probability to enter a nursing home in the next five year (average age of respondents = 79 years). Another possible explanation if that LTC insurance exhibits high prices that can be the consequence of adverse selection or administrative costs; this also can explain the low demand for LTC insurance (see Brown and Finkelstein 2007). Third, a number of families prefer to rely on informal caring, which is generally warmer and cheaper. Parents can avoid insuring to force their children to assist them in case of dependence and children can incite their parents not to insure to increase their expected bequests (see Pauly 1990). Fourth, there is the Good Samaritan argument: some families know that they can rely on means tested social assistance such as Medicaid in the U.S. Even well to do families can resort to these programs through what has been called strategic impoverishment (see Brown and Finkelstein 2008). Fifth, many insurance contract have unattractive rules of reimbursement such as a monthly lump sum compensation that is insufficient and unrelated to the real needs of the dependent (see Cutler 1993). Finally, there is often a denial of severe dependence; it is so awful that one prefers not to think of it, and thus

⁵See Schultz et al. (1995), Pinquart and Sörensen (2003) and Vitaliano et al. (2003).

⁶We summarize here some of the main plausible explanations. Further details can be found in the surveys by Brown and Finkelstein (2011), Pestieau and Ponthiere (2011) and Cremer et al (2012).

does not consider purchasing a private LTC insurance.⁷

Whereas those different factors may explain why the coverage of the LTC private insurance is so low, a key question is whether or not these plausible causes of the LTC insurance puzzle will persist in the future. If the answer is positive, this means that the mounting needs of LTC will not be covered by the market, and that the construction of a social LTC insurance is definitely needed.

3 The design of LTC social insurance

The State plays already some role in most countries, but, as already mentioned, this role is still modest and inconsistent. In a recent report for the UK, Dilnot (2011) sketches the features of what can be considered as an ideal social program for LTC. This would be a two-tier program. The first tier would concern those who cannot afford paying for their LTC and do not benefit from family support. It would be a means-test program. The second tier would address the fears of most dependents in the middle class that they might incur costs that would force them to sell all their assets and prevent them from bequeathing any of them. These two concerns are not met by current LTC practices.

The design of a public LTC scheme is not an easy task. It depends on the objective of the government and the tools available; it also depends on the type of private insurance market that prevails and the structure of families involved. In particular, a key issue concerns the assumptions concerning the motivations behind the behavior of family members. For instance, children may serve as informal caregivers because of altruism, or because of a strategic motive (e.g. getting a bequest), or because of a social norm.⁸ Similarly, the dependent parent may either be altruistic towards his children, and purchase a LTC private insurance so as to minimize the cost imposed on his children, or, alternatively, behave in a more egoistic way and not purchase insurance, so as to force his children to provide informal LTC to him. Obviously, those different motivations lead to distinct behaviors at the *laissez-faire*, and, hence, invite different public interventions.⁹

To discuss these issues more formally, we focus here on a particular framework of two-sided altruism, based on Cremer et al (2016). We consider an economy composed of families wherein coexist a parent and a child. Parents are supposed to be purely altruistic, and thus care about the utility of the children, whereas the child is supposed to be imperfectly altruistic, and weights the utility of the parent by a coefficient $\beta \in [0, 1]$.

Individuals live two periods: young adulthood and old adulthood, during which dependence arises with a probability π . In period 1, individuals work,

⁷This explanation is close to the issue of denial of death explored by Kopczuk and Slemrod (2005).

⁸On the strategic bequest motive, see Bernheim et al (1985).

⁹Note that, in case of altruism, a key issue is also whether governments should take altruistic motives into account in their social planning problem.

consume and possibly provide an amount a of informal LTC to their parent in the case where the parent is dependent.¹⁰ In period 2, individuals consume, leave some bequests b to their children, and, in case of dependence, receive informal LTC from their children.

Individual utility functions are supposed to be state-dependent. In case of good health, the utility of consumption is given by the function $u(c)$, with $u'(c) > 0$ and $u''(c) < 0$. In case of dependence, the utility of consumption is given by $H(c)$, with $H'(c) > 0$ and $H''(c) < 0$. It is reasonable to suppose that, for a given c , we have $u(c) > H(c)$ and $u'(c) > H'(c)$.

Following the literature on the LTC insurance puzzle, we suppose that there is no private LTC insurance, and that dependence shock implies necessarily less inheritance and more care for children.

The utility of the child is:

$$U_c = \pi [u(w(1-a) + b) + \beta H(y + h(a) - L - b)] \\ + (1 - \pi) \left[u(w + \hat{b}) + \beta u(y - \hat{b}) \right] \quad (1)$$

while the utility of the parent is:

$$U_p = \pi [H(y + h(a) - L - b) + u(w(1-a) + b)] \\ + (1 - \pi) \left[u(y - \hat{b}) + u(w + \hat{b}) \right] \quad (2)$$

where w is the child's wage rate, b is the amount of bequest, y is the wealth of the parent, L is the cost of LTC, $h(a) \leq L$ is the product of informal care. We also use the $\hat{\cdot}$ symbol to denote the variables when the parent is healthy.

Let us now write down the problem of a utilitarian social planner, whose goal is to select all variables (consumptions and care) in such a way as to maximize the sum of the utility of the parents and the children. For that purpose, we deliberately abstract here from altruistic motivations, and carry out a laundering of preferences, in such a way as to avoid double counting.¹¹ The planner's problem can be written as:

$$\max_{m, c, \hat{m}, \hat{c}, a} \quad \pi [H(m) + u(c)] + (1 - \pi) [H(\hat{m}) + u(\hat{c})] \\ \text{s.t.} \quad (1 - \pi) (\hat{m} + \hat{c} - L) + \pi (m + c) \\ = y + (1 - \pi)w + \pi [w(1 - a) + h(a)]$$

where c and \hat{c} denote the consumption of the child (when the parent is, respectively, dependent and healthy), whereas m and \hat{m} are the consumptions of the parent (again when the parent is, respectively, dependent and healthy).

First-order conditions (FOCs) yield:

$$H'(m) = u'(\hat{m}) = u'(c) = u'(\hat{c}) = \mu \quad (3)$$

$$w = h'(a) \quad (4)$$

¹⁰The amount of informal care takes here the form of time. On the study of social LTC insurance under money transfers from children to parents, see Pestieau and Sato (2008).

¹¹That point is further discussed in Section 4.

where μ is the Lagrange multiplier associated to the resource constraint of the economy. Thus the first-best social optimum involves a full equalization of marginal utilities across all ages of life and all health states (dependent or not).

Let us now consider how that social optimum can be decentralized. For that purpose, we suppose the following timing. First, the government announces its policy; second, the state of nature is revealed (dependence or not of the parent); third, the parent chooses bequests (either b or \hat{b}); fourth, the child chooses informal care a . This timing amounts to consider the State as a Stackelberg leader, who plays first, anticipating the reactions of other players (here children and parents).

When children are imperfectly altruistic towards their parents, i.e. $\beta < 1$, the decentralization of the first-best optimum requires lump-sum transfers (\hat{D}, D) , a tax on labor τ_a and a tax on bequests τ_b such that:

$$\pi D = (1 - \pi)\hat{D} + \pi [\tau_a w(1 - a^*) + \tau_b b^*] \quad (5)$$

Those four policy instruments suffice to decentralize the utilitarian social optimum.

Let us now consider how that social optimum could be decentralized in a second-best setting, where families differ in terms of wages w_i and wealth y_i . The available policy instruments include here only a social LTC allowance g , a tax on labor τ_a and a tax on bequests τ_b . The second-best problem can be expressed by means of the following Lagrangian:

$$\max_{\tau_a, \tau_b, g} \mathcal{L} = \sum_i n_i \left\{ \begin{array}{l} \pi [H[y_i - L - b_i + g + h(a_i)] + u[(1 - \tau_a)w_i(1 - a_i) + (1 - \tau_b)b_i] \\ + (1 - \pi) [u(y_i - \hat{b}_i) + u[(1 - \tau_a)w_i + (1 - \tau_b)\hat{b}_i]] \\ - \mu [\pi g - \tau_a(1 - \pi a_i)w_i - \tau_b(\pi b_i + (1 - \pi)\hat{b}_i)] \end{array} \right\}$$

where μ is the Lagrange multiplier associated to the government's budget constraint. Let us denote $\Delta_i \equiv u'(c_i) - H'(m_i) \geq 0$ and $\hat{\Delta}_i \equiv u'(\hat{c}_i) - H'(\hat{m}_i) < 0$. From the FOCs of that problem, and assuming that crossed effects are negligible (i.e. $\frac{\partial \hat{a}^c}{\partial \tau_b} = 0$ and $\frac{\partial b^c}{\partial \tau_a} = 0$), we obtain the following two formulas for the optimal tax on labor and the optimal tax on bequests:

$$\tau_a = \frac{\left[\begin{array}{l} \pi(1 - \beta)E \left[H'(m)h'(a) \frac{\partial \hat{a}^c}{\partial \tau_a} \right] - \pi \text{cov}(\Delta, w(1 - a)) - (1 - \pi) \text{cov}(\hat{\Delta}, w) \\ - \pi E \Delta E w(1 - a) - (1 - \pi) E \hat{\Delta} E w \end{array} \right]}{\mu E w \frac{\partial \hat{a}^c}{\partial \tau_a}} \quad (6)$$

and

$$\tau_b = \frac{-\pi \text{cov}(\Delta, b) - (1 - \pi) \text{cov}(\hat{\Delta}, \hat{b}) - \pi E \Delta E b - (1 - \pi) E \hat{\Delta} E \hat{b}}{-\mu E \left[\pi \frac{\partial b^c}{\partial \tau_b} + (1 - \pi) \frac{\partial \hat{b}^c}{\partial \tau_b} \right]} \quad (7)$$

where the operator E is used to denote the sum over individuals, and where $\frac{\partial b^c}{\partial \tau_b} \equiv \frac{\partial b}{\partial \tau_b} + \frac{\partial b}{\partial g} \frac{\partial g}{\partial \tau_b}$ denotes the effect of a change in the tax on bequests on the

amount of bequests when this change is compensated by a variation in the LTC allowance g in such a way as to maintain the government's budget balanced.¹² In a similar way, $\frac{\partial \bar{a}^c}{\partial \tau_a} \equiv \frac{\partial \bar{a}}{\partial \tau_a} + \frac{\partial \bar{a}^c}{\partial g} \frac{\partial g}{\partial \tau_a}$ is the compensated effect of a change in the tax on labor leaving the government's budget balanced.

Those formulae summarize the various determinants of the optimal taxes on bequests and labor. Let us first interpret the tax on labor τ_a . In order to interpret the optimal tax on labor, let us first suppose that children are perfectly altruistic, so that $\beta = 1$. In that case, the first term of the numerator vanishes, and the tax formula includes an equity term at the numerator, and an efficiency term at the denominator, whose size depends on the extent to which increasing the tax on labor contributes, by reducing the opportunity cost of providing LTC, to make children raise their amount of informal aid to the dependent parents. Once we suppose that children are imperfectly altruistic, i.e. $\beta < 1$, another term is added at the numerator. That term is positive, and depends on how imperfect the altruism of children is. The less altruistic children are, and the larger the optimal tax on labor should be. Note, however, that the size of that additional term depends also on the extent to which children's informal care reacts a lot or not to a compensated change in the tax on labor.

Turning now to the formula for the optimal tax on bequests, we can see that its numerator is a standard equity term. That term supports taxing bequests to the extent that this reduces inequalities in well-being across individuals. The denominator is an efficiency term, which captures the incidence of τ_b on the fiscal revenues, through its impact on the level of bequests left by parents in case of dependence and in case of non dependence. That term is more or less large, depending on how strong parents react to a compensated change in the tax on bequests.

Those formulae identify some important determinants in the design of the optimal LTC social insurance. That insurance must be designed as a part of a global taxation system including also a taxation of bequests and a taxation of labor. The underlying intuition goes as follows. Taxing bequests is here necessary, in such a way as to redistribute from lucky families where the parent is healthy to unlucky families where the parent is dependent. Moreover, the decentralization of the social optimum also requires taxing labor, because of two distinct reasons. First, this is another way to reduce inequalities between lucky children having no dependent parent and unlucky children having dependent parents. Second, when children are imperfectly altruistic towards their parents, the laissez-faire amount of informal care is too low, and the tax on labor induces them to raise the amount of LTC by reducing its opportunity cost.

4 Discussion

While the simple optimal taxation model developed in the previous section casts some light on the design of a public LTC insurance, this framework relies on

¹² Similarly, we have $\frac{\partial \bar{b}^c}{\partial \tau_b} \equiv \frac{\partial \bar{b}}{\partial \tau_b} + \frac{\partial \bar{b}^c}{\partial g} \frac{\partial g}{\partial \tau_b}$

some simplifying assumptions, which may not be neutral at all for the issue at stake, and, as such, are worth being examined here.

First of all, on the normative side, the above approach relies on a utilitarian social welfare function. Although that approach is quite standard in public economics, it should be stressed, nonetheless, that this can be questioned in the present context of LTC, because, as we have seen, dependent parents do not have the same preferences as non dependent parents. Hence, at the first-best optimum, the equality $H'(m) = u'(\hat{m})$ implies, provided $H'(x) < u'(x)$ for a given x , that the optimal consumption of the healthy parent should be higher than the one of a dependent parent. This corollary is questionable. Obviously, the problems faced by utilitarianism in the context of heterogeneous preferences are not new (see Arrow 1971 and Sen 1973), but those problems are raised in an acute way when considering the design of LTC public insurance.

Still on the normative side, another issue that is raised concerns the treatment of altruistic motivations in the social planning problem. In the above formulation, the government deliberately rules out altruistic motivations, and takes these into account only insofar as these affect how parents and children react to fiscal instruments. We carried out this laundering of preferences in order to avoid any double counting, but one could argue that, from a welfarist perspective, those altruistic motivations would deserve to be taken into account. This would affect the design of the LTC public insurance scheme.

On the positive side, the above formulation relies also on some important assumptions, which can be questioned, and, as such, invite further developments.

First of all, we supposed, when considering the decentralization, that children and parents perfectly perceive the probability of old-age dependency, i.e. π . In the light of the existing literature (see Brown and Finkelstein 2009), this constitutes an obvious simplification. Introducing myopia would definitely affect the form of the optimal public intervention.¹³

Moreover, we considered here a simple framework where parents can, in case of dependence, rely for sure on the (imperfect) altruism of their children. This assumption is strong, since, in real life, there exists a deep uncertainty regarding whether parents can, in case of dependence, really rely on children's informal care. Thus, introducing uncertain altruism seems to lead to a more realistic setting, but also a more complex one, since this introduces another motive for public insurance: insurance against having non altruistic children.¹⁴

Still concerning children, our framework simplified the picture, by considering families including only one parent and one child. This allowed us to abstract from strategic interdependencies among children, which can, when the dependent's health is a public good, lead to coordination failures among children, and, hence, cause an underprovision of care to the dependent parent.¹⁵ Our focus on a one parent / one child framework allowed us also to ignore differences in LTC provision among children of the same family, due for instance to different time

¹³On the design of LTC public insurance under myopia, see Cremer and Roeder (2015).

¹⁴Optimal public policy under uncertain altruism is studied in Cremer et al (2012, 2015).

¹⁵On family games in the context of LTC, see Stern and Engers (2002) and Pezzin et al (2007, 2009).

constraints because of age differentials across children.¹⁶ We also abstracted here from the spouses, who are often informal caregivers.¹⁷ Moreover, it is increasingly frequent to introduce grand children in a sequential exchange game: grandparents take care of their grandchildren and when dependent they are assisted by their own children.¹⁸

Other important issues were not considered in the above framework. One of the concerns of the middle class is to avoid being forced to sell all their assets and thus to be unable to transmit anything to their heirs.¹⁹ Another important issue, which is not discussed here, is whether or not one can restrict public benefits to those who really need them because of too few resources or because they cannot count on the assistance of their children or spouses. Ideally, we should distinguish between the case in which the public benefit is restricted to those who are not helped by their children (opting out) and the case in which such a restriction is not possible (topping up).²⁰

Finally, a last simplification is that the above model was purely static. Although convenient, such a static approach involves several limitations. First, as the economy develops, wages and interest rates change as well, which modifies the opportunity costs of providing LTC.²¹ Moreover, the characteristics of individuals in the economy, including their degree of altruism, may change over time, and may potentially be influenced by public intervention.²²

5 Conclusions

This paper started with an observation: LTC needs are increasing rapidly and neither the market nor the family seem to be able to meet such a mounting demand. From there on, we analyzed the possibility of developing a full-fledge LTC public insurance scheme that would fulfil two objectives: redistribution and insurance, and that would rest, to the extent of possible, the market and the family.

Our model allowed us to highlight some important determinants of the design of such a LTC public insurance system, with a particular emphasis on efficiency and equity concerns, and on the articulation between public intervention and informal care provided by the family. But our discussions showed also that our model - as any model - cannot capture all dimensions at work in the context of LTC provision. As already mentioned, a major difficulty in studying LTC lies in the large numbers of agents playing a role in LTC: the dependent, informal caregivers (spouses and children), insurance companies, formal care givers,

¹⁶On the interactions between informal LTC provision and the timing of births, see Pestieau and Ponthiere (2015).

¹⁷See Pezzin et al (2009).

¹⁸See Kureishi and Wakabayashi (2007).

¹⁹On this, see Klimaviciute and Pestieau (2016).

²⁰On this distinction, see Cremer et al (2012).

²¹See Canta et al (2016).

²²On the impact of public LTC insurance on the prevalence of altruism in the population, see Ponthiere (2013), who develops a dynamic model of socialization.

nursing homes, etc. Another source of difficulty lies in the large heterogeneity, among agents, in resources and in motivations.

All those difficulties reinforce the need for more research on LTC. Admittedly, the current budgetary crisis makes it difficult to develop what has been called the fifth pillar of a modern social protection. But given the increasing prevalence of LTC needs, our societies will sooner or later have to build that fifth pillar. Our modest task in this paper was to highlight some important dimensions and challenges that arise in the design of a LTC public insurance system.

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