

Policy Dilemmas in Financing Long-term Care in Europe

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Abstract

Long-term care (LTC) is the largest insurable risk facing the elderly in most western societies. Paradoxically, institutional responses to the need to insure **ex-ante** (before the contingency occurs) the financial risks of needing LTC (by means of social and private insurance and self-insurance) exhibit limited development. In contrast, mechanisms to finance LTC **ex-post** continue to develop, primarily those supported by the public sector (by means of subsidies or tax deductions) and the family (by means of intergenerational transfers). Both ex-ante and ex-post types of financing mechanisms are found to be subject to shortcomings which give rise to dilemmas for public policy. Governments confront these dilemmas in different ways, causing a great deal of heterogeneity in the financing and provision of LTC services across Europe.

Keywords: long-term care, old age dependency, long-term care insurance, subsidies, tax deductions for providing formal care.

1. INTRODUCTION

Long-term care (LTC) is defined as “*a range of services required by persons with a reduced degree of functional capacity, physical or cognitive, and who are consequently dependent for an extended period of time on help with basic activities of daily living*” (Colombo *et al.*, 2011).

The ageing of populations (or the expansion of the probability of survival to older age) is expected to be accompanied by an increase in the need for LTC services¹. Demand expansion takes place in a gradual way, but expenditure on LTC has been rising even faster than that on health care. More specifically, while spending on LTC in Organization for Economic Cooperation and Development (OECD) member countries averaged 1.5% of GDP in 2008, this share is predicted to more than double by 2050 given current trends (Colombo and Mercier, 2012). This pace of growth cannot be explained only by the increasing demand due to population ageing alone. Rather, other social determinants are at play, more specifically, there has also been a decline in the supply of informal caregiving caused by changes in family structure and higher female labor-market participation (Pezzin and Steinberg Schone, 1999).

Given that ageing and social change are unlikely to follow different trends than today, one should expect a growing reliance on formal LTC comprising personal care, community care, institutional care in nursing homes, as well as assisted living facilities. Although planning of old age dependency is not always something individuals wish to do when young and healthy, if they fail to pre-fund these services before the need arises (*ex-ante*), they themselves, their family, or the state end up facing their (often catastrophic) cost *ex-post*. Among alternative ways to pre-fund LTC risks, one can identify the following: insurance, public welfare, individual saving, and family support. In Europe and in OECD countries generally, the cost of LTC has traditionally been borne by the elderly and their families themselves or by the public purse (either universally or as a payer of last resort). However, insurance has exhibited very limited development (see Costa-Font and Courbage (2012) for a survey of financing arrangements).

In view of predicted growth of LTC expenditure combined with pressure to stabilize government expenditure, a growing interest in private LTC insurance as a source of complementary finance or as an alternative to self-insurance or public subsidization might be expected. However, some observers point to the problem of adverse selection (meaning that those with a high risk of being in need of LTC services typically buy LTC coverage). They advocate an extension of social insurance (Barr, 2010), which however is ill suited to control

¹ In OECD countries, the average share of LTC recipients among the oldest age bracket is over five times that among those aged between 65 and 79 years old (Colombo *et al.*, 2011).

moral hazard (meaning that insurance coverage tends to encourage utilization of the service covered). A major problem with private insurance is that people think they cannot afford it at an age it would be optimal to purchase it (Costa-Font and Font-Vilalta, 2009). This causes many to rely on public support or to self-insure (i.e. to accumulate extra savings to cover the cost of LTC). This is in sharp contrast with the risk characteristics of LTC, which make it a paradigmatic case for insurance. With 35 to 50 % of the elderly population using LTC during their lifetime (Frank, 2012), it can be argued that loss probability is relatively low. This should translate into low premiums per unit of coverage provided loadings for administrative expense, moral hazard and profit are reasonable. On the other hand, the loss can be high when it occurs. For instance, those who enter a nursing home in the United States spend more than three years there at a cost of US\$ 20-50,000 per year. Absent insurance coverage, those affected suffer a substantial wealth loss that may attain even catastrophic dimensions. Almost, one out of six persons in need of LTC have almost catastrophic expenses in the United States (Stevenson *et al.*, 2010). Finally, there exists a financial product called reverse mortgage, a loan secured on a value of a property, which can be used to supplement income during retirement or to finance LTC needs. However, demand for reverse mortgages has been limited and failed to develop even in European countries where housing exhibited a significant bubble (Costa-Font *et al.*, 2010). Hence, it appears that welfare improvement can result from insurance compared to self-insurance (Frank, 2012).

Paradoxically, the uptake of private LTC insurance has been slow even in the United States, where only the ‘relatively poor’ can rely on public welfare (the Medicaid program), which typically has means-tested benefits. This raises several dilemmas for public policy. For instance, should private saving be encouraged, enabling citizens to self-insure against LTC risk while earning interest? However, as shown by Zweifel and Strüwe (1996b) this may induce children to provide less informal care, causing an increase in the cost of formal LTC (e.g. through earlier admission to a nursing home). Since nursing homes are heavily subsidized in many countries, the current status quo is likely to be burdening the public purse both by tax revenue forgone (through tax breaks for savings) and by increased public expenditure (on nursing homes). Alternatively, one may opt for extending social insurance to cover also LTC, as Germany did in 1995. However, at the time of inception the contribution rate was 1% of wage income; at present it is 2.05% (Gesetz zur Neuausrichtung der Pflegeversicherung, 2012). During the same period, the average contribution rate for social health insurance increased from 13.2% to 15.5% (Statistisches Landesamt Baden-Württemberg, 2013). Evidently, social LTC insurance has triggered a cost explosion dwarfing

that associated with health care. While not falling on the public purse, it does curtail net wage incomes, creating a problem especially for the working poor.

This paper addresses the policy dilemmas in financing LTC in Europe. It starts in Section 2 by expounding the case for insurance as a way to finance LTC expenditures. The following section provides a characterisation of the funding schemes in existence. As one would expect, government of (European) OECD countries have responded in different ways to the challenge of rapidly increasing LTC expenditure, resulting in considerable heterogeneity that seems to reflect differences in national attitudes towards the funding of LTC (as shown in Section 4). This paper is rounded off by a few conclusions in Section 5.

2. THE CASE FOR LONG-TERM CARE INSURANCE

The literature has expounded several factors explaining the sluggishness in the development of the market for LTC insurance in the United States, and its near nonexistence in most European countries. Evidence points towards important demand-side factors (Brown and Finkelstein, 2009) that impose significant limits on the expansion of private insurance. Supply-side factors (such as the design of LTC insurance) cannot be disregarded either. In particular, public insurance schemes have the potential of crowding out private insurance and savings. Also, the increasing importance of the elderly as a voter group in several European countries may help to shift LTC higher up in the agenda for public insurance programs.

Other issues include the demand for more responsive, innovative, and high-quality services, typically resulting in increased LTC expenditures. This pressure is compounded by a fall in the relative size of the working-age population which creates competition for attracting social workers, that translates into salary increases. At the same time, the supply of informal care is dwindling due to higher female labor-market participation, declining family size, and changing family values. All these influences point to an expansion of people's use of and reliance on LTC services, even when they may be counterbalanced somewhat by a process of de-institutionalisation, as pointed out by some scholars (Lakdawalla and Philipson, 2002).

To protect against the financial risk of LTC, various mechanisms exist or could be made available, respectively. One set of mechanisms is of the *ex-ante* type, comprising measures that are taken before the onset of dependency. At the level of the individual, one possibility is prevention which has two components. The probability of needing formal LTC can be reduced by creating incentives for family members and friends to provide informal care. By the same token, the future cost of LTC can be lowered to the extent that informal care may delay admission to a nursing home. Alternatively, individuals may accumulate savings

designed to finance future LTC expenditure. The dilemma confronting them, however, is that potential caregivers (in particular children) may adversely respond to these measures, exhibiting so-called intergenerational moral hazard. One variant of intergenerational moral hazard is the weakening of social norms. Potential caregivers, seeing that their recipients of care have income to afford the payment of LTC insurance premiums or to generate the necessary savings, may be less inclined to sacrifice their time and savings to provide support (Fehr and Schmidt, 2006; Costa-Font, 2010). The other variant is through bequests. Especially children as heirs know that bequeathable wealth declines when the parent has to rely on costly formal care. Through their efforts, they can avoid or at least postpone e.g. admission to a nursing home. However, LTC insurance has the side effect of protecting the bequest, thus undermining children's incentive to make this effort (Zweifel and Strüwe, 1996a, 1998)². This side effect is absent from trust saving designed to provide for the cost of LTC (Zweifel and Strüwe, 1996b).

Another set of mechanisms for funding LTC is of the *ex post* type. They are activated after the onset of old-age dependency, comprising family bailout, the use of housing equity for financing LTC ('reverse mortgages'), and the subsidization of informal and formal LTC. Again, intergenerational moral hazard looms large. At a time when the younger generation has to struggle to make ends meet, fairness does not dictate participation in a family bailout. As to reverse mortgages, they are viable only in highly developed capital markets and given reasonably stable housing prices – conditions not satisfied notably in southern European OECD countries. Moreover, reverse mortgages permit potential recipients of LTC services to continue living independently. This serves to preserve their non-housing wealth in which children as heirs may be especially interested. Therefore, their incentives work both ways: on the one hand, providing some informal care keeps the parent in her home; on the other hand, non-housing wealth is protected by the insurance provided by the reverse mortgage.

Subsidisation of informal care may trigger intergenerational moral hazard too because it has the potential of crowding out care that would have been provided voluntarily by family members and friends. However, intergenerational moral hazard is likely to have maximum effect when the government subsidises formal LTC services. First, the element of social control that facilitates support within the family is absent now. Second, however, potential recipients of LTC are likely to exhibit moral hazard as well. Knowing that they can expect a public subsidy, they have little reason to pay the premium of LTC insurance. Indeed, Brown

² Actually, children rather than parents might have an interest in the purchase of LTC insurance. Courbage and Eeckhoudt (2012) study the conditions for this to happen.

and Finkelstein (2008) found evidence suggesting that the extension of U.S. Medicaid to cover nursing home care crowded out private LTC insurance.

However, there may be an additional parental response, reflecting intergenerational moral hazard once again. As argued by Courbage and Zweifel (2011), parents can count on child effort designed to prevent the need for formal LTC (in particular admission to a nursing home). Anticipating this, they have less incentive to take up LTC insurance. Using survey information from Sanghai, Xu and Zweifel (2013) are able to test four of the predictions derived from Courbage and Zweifel (2011). They find preliminary supporting evidence in three cases, while the fourth is not contradicted. Indeed, public provision and subsidization of LTC might induce this type of bilateral intergenerational moral hazard, with unfavorable consequences for the public purse in most instances (Courbage and Zweifel, 2011).

In sum, moral hazard turns out to constitute a major challenge to private LTC insurance. However, as argued by Zweifel (2013), social insurance is less capable of confronting this challenge, being bound to the solidarity principle. This principle calls for equal contributions regardless of future risks and past loss experience, preventing a social LTC insurer from offering lower contributions in return for an increased degree of cost sharing or loss-free years. In automobile insurance e.g. these instruments are used to reign in moral hazard effects; they could be used by a private (but hardly a social) LTC insurer. In turn, imposing monopolistic scheme, social insurance does not have to deal with the adverse selection problem of private insurance (meaning that a competitor is able to skin off the favorable risks from an incumbent, who may be driven out of the market).

Still, whilst the determinants of private LTC insurance uptake are well understood (Brown and Finkelstein, 2007), the relationships between the different *ex ante* and *ex post* alternatives for ensuring the provision of LTC are as complex but have received less attention.

3. CHARACTERIZING THE SCHEMES

The financial schemes designed to protect individuals from the cost of LTC can be characterised along several dimensions. One distinction is between the *type of care* covered (formal care provided by institutions versus formal care provided by day persons). Another distinction is between the financing of services *in kind and cash* payments. Typically, cash payments provide for choice but can be used for informal care only, as e.g. Austria, France, Italy and the Czech Republic. Some countries follow the example of the United Kingdom by fixing budgets reflecting the degree of dependency while letting beneficiaries allocate the funds (e.g., Netherlands, Germany, Italy, and Spain). Differences also exist in the *extent of coverage*. Some schemes limit their coverage to services provided by (public) nursing homes

and similar institutions such as day care centres. In several Nordic countries, the return to the private home and purchase of auxiliary devices is also paid for. Another distinction that could be made is the one between *catastrophic and non-catastrophic risks*. Frank *et al.* (2013) report that 5% of Americans incur LTC expenditure of US\$260,000, while average household wealth after retirement is about US\$200,000. Catastrophic risks, involving low frequencies (hence low loadings for administrative expense) but high loss amounts could be covered by private LTC insurance on favorable terms. Non-catastrophic risks might be covered by health insurance, serving to avoid the awkward combination of generous health coverage with often scant LTC coverage. On the other hand, integration in health insurance entails the risk of “medicalisation” of LTC, which may already have happened in view of the LTC cost explosion in Germany (see Section 2 again).

A distinction of limited importance is between upfront payment by the insurer and upfront payment by the beneficiary. In the absence of cost sharing, liquidity constraints are sometimes cited as a barrier to access; however, transitory support by the family is available in most cases. In the presence of cost sharing, both payment alternatives cause beneficiaries to bear the net cost of treatment with some delay.

Much more important is *type and degree of cost sharing*. In the Nordic countries, beneficiaries bear a fixed percentage of LTC expenditure, as is often the case in (private) health insurance. This type has the advantage of reducing moral hazard at all levels of expenditure; on the other hand, it can expose the insured to substantial financial risk. In most countries with social LTC insurance, copayment is defined as a residual (e.g., Germany, Australia, Austria, and France). As long as the insured expect to remain below the limit with their LTC expenditure, there is no mitigation of moral hazard. However, as shown by the U.S. experience cited above, the cost of LTC can attain very high values that are deemed catastrophic. Unable to predict it, beneficiaries may be motivated to seek out lower-cost alternatives. Of course, especially in the case of social LTC insurance, political pressure is likely to build up, calling for a wide definition of “catastrophic”, with evident implications for contribution rates. In analogy to (private) health insurance, co-payment may be turned around to apply to the low, non-catastrophic end of the LTC cost distribution. In this vein, a recent U.K. proposal (Dilnot Commission, 2011) seeks to implement a deductible of £35,000.

Other distinctions are more of a philosophical than political nature. Even if access to LTC services is *explicitly recognised as an entitlement*, lack of finance forces this entitlement to remain on paper. By way of contrast, countries that lack formal entitlement may have generous schemes – until moral hazard effects cause them to become stingier. Likewise

granting universal access (or coverage) based on need likely is unsustainably in the long term and must be replaced by means testing to determine the level of cost sharing³.

Finally, care can be financed and provided by different *levels of government*. In the UK, France and Nordic countries, the local level is responsible; in others (e.g., Germany and Spain) it is the region, while France has a national scheme.

Summing up, schemes designed to protect citizens from the (often high) cost of LTC can be characterised in many different ways. While some of the distinctions show out to be of limited relevance, the type and degree of cost sharing imposed on beneficiaries appears to be crucial in view of the moral hazard effects found in Section 2.

4. EVIDENCE FROM EUROPE

Social security in general redistributes income and wealth and is therefore subject to the interests of politicians who seek (re-)election. Its structure and development therefore reflects a country's political process, resulting in heterogeneity between countries of comparable income levels. The same heterogeneity characterizes the schemes designed to help citizens cope with the cost of LTC. This becomes evident from Figure 1 which on the right-hand side exhibits the share of GDP devoted to LTC expenditure. This share ranges from below 0.1% in Portugal to 3.6% in Sweden, with the OECD average at 1.5%. Most of this expenditure is public. Again, Portugal is at the low end with 0.1% of GDP and Sweden at the other extreme with 3.6%. The OECD average stands at 1.16% as of 2008. As a rule, countries with a large public sector involvement exhibit high total LTC expenditure relative to GDP. However, there are exceptions. Notably, Switzerland spends 2.1% of its GDP on LTC services, but a mere 0.8% of GDP is public expenditure. Conversely, a full 62% of all LTC expenditure is financed privately. Similarly, Finland spends some 3.5% of its GDP on LTC services, of which 1.8% is financed using public funds. Therefore, almost one-half of the finance comes from private source.

Yet, overall, a high GDP share of public and total LTC expenditure tend to go together. This pattern is consistent with two hypotheses,

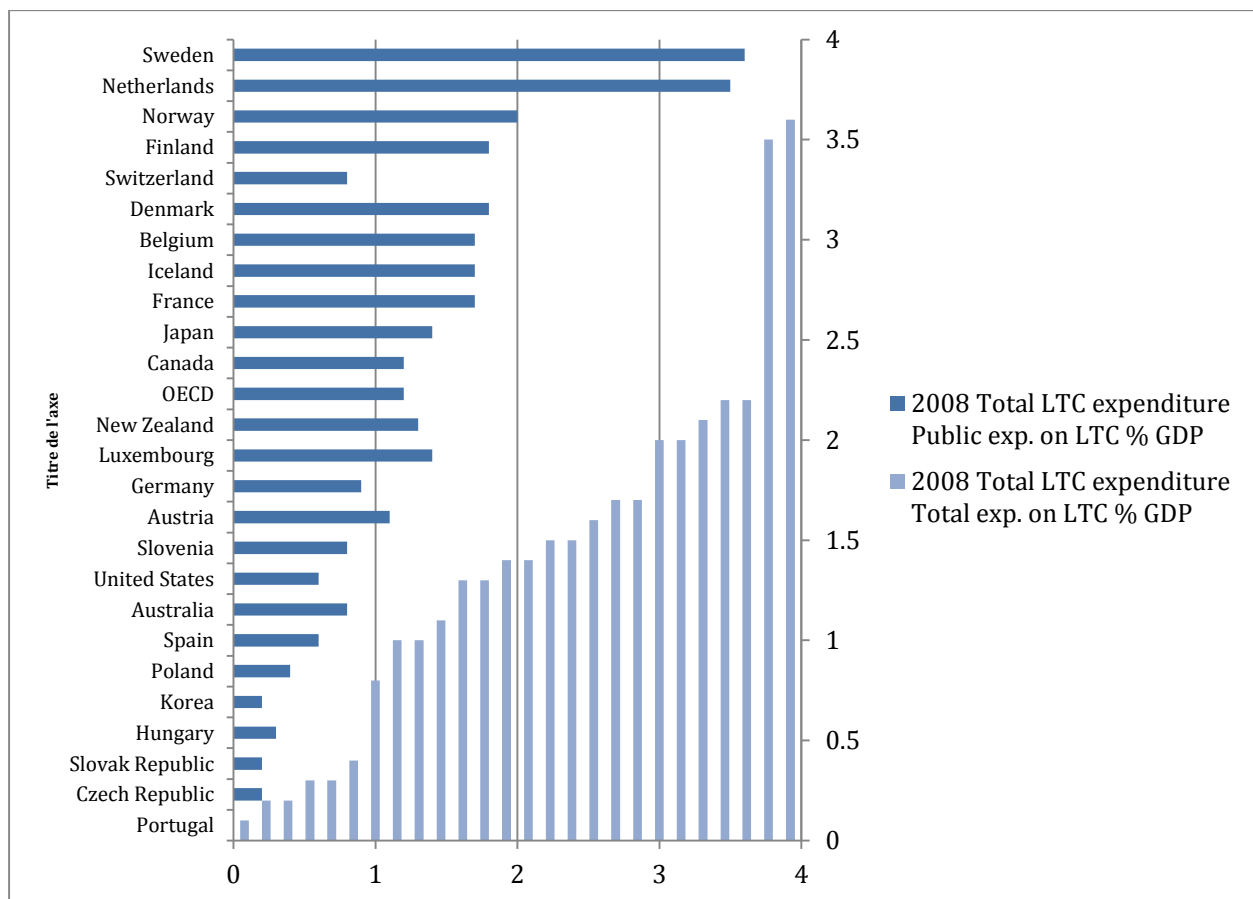
H1: Moral hazard effects are particularly strong when public rather than private funds are used to finance the cost of LTC (see Section 3).

³ In the U.S., Medicaid (the public health care financing program for low-income people) funds 44% of LTC expenditure, while 19% are paid out of pocket. The only ex-ante mechanism available is private LTC insurance, covering 6.4% of the population.

H2: *Public finance of LTC services crowds out private alternatives such as trust saving, private LTC insurance, and family bailout (see Section 2).*

If one or both of these hypotheses should be true, public involvement in the financing of LTC likely is unsustainable in the longer term. On the one hand, the recent financial crisis has caused government debt to soar, making cutbacks in social programs almost inevitable. On the other hand, even if naïve extrapolations are misleading (as argued in Section 1), the demand for LTC services will continue to rise while the supply of informal care will continue to decline. In combination, a substantial future increase in LTC expenditure is the almost certain future consequence.

Figure 1. Total and Public LTC expenditure in % of GDP, 2008

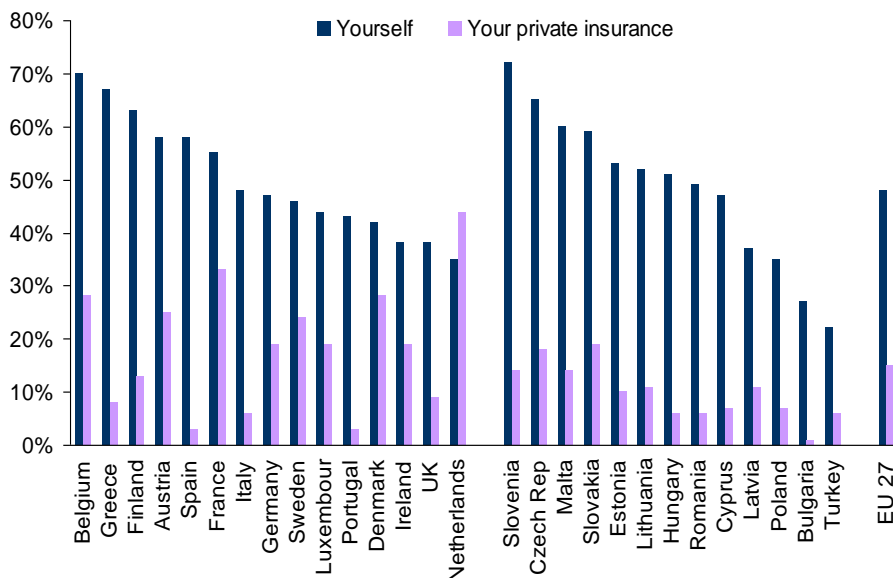


Source: OECD Health Data, 2011.

In order to assess the scope for future reforms in the financing of LTC services, it is of interest to have information regarding citizens' expectations. The dash bars of Figure 2 reveals that in European countries as diverse as Greece and Finland, a majority of survey respondents state that using one's own financial means for ensuring the provision of LTC services would be

best. By and large, these countries are characterized by a high to very high degree of tax financing (see Finland, but also Belgium and France in Figure 1). The light bars reflect the popularity of private LTC insurance as an alternative. Here, almost 45% of Dutch respondents deem private insurance to be the best source of finance. France follows with 35%; interestingly it is currently characterized by a good deal (54%) of social (rather than private) insurance. Among 15 lower-income countries, seven exhibit a majority who believe it is best for the elderly to be able to tap their own funds. Not in one of these countries does the share of persons judging private insurance to be the best source of finance exceed 20%. The remaining respondents presumably look to the government in their search of a “good” source of finance.

Figure 2. Who should pay for people’s LTC?



Question: “Imagine an elderly father or mother who lives alone and can no longer manage to live without regular help because of her or his physical or mental health condition. In your opinion, what would be the best option for people in this situation?”

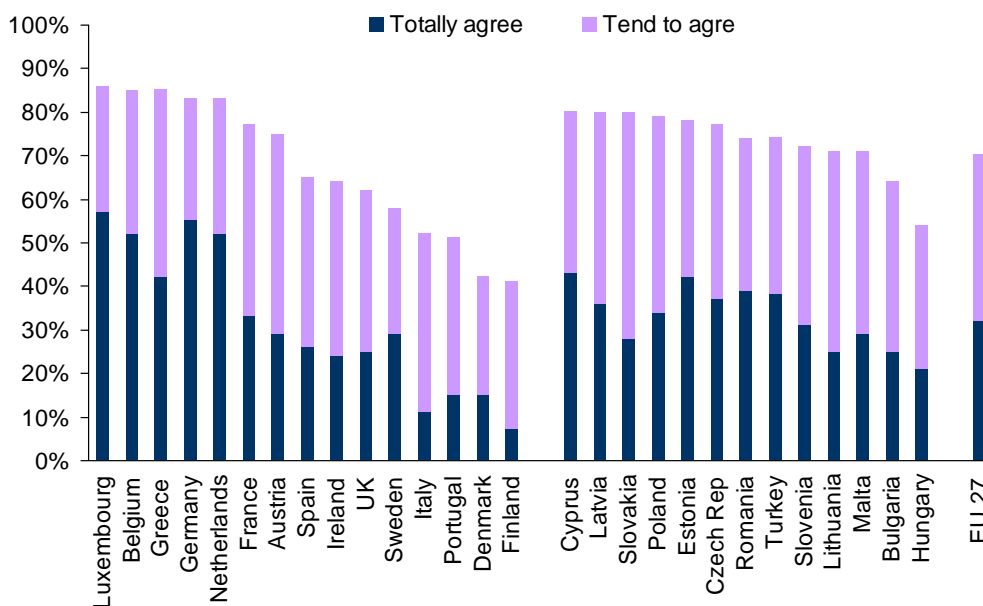
Source: Eurobarometer survey, 2007.

What governments can do without burdening their budgets with the cost of LTC is to make LTC insurance compulsory. Figure 3 reports attitudes towards this solution. As is often the case, private preferences and social attitudes diverge. In contrast to Figure 2, where private LTC insurance coverage is nowhere the preferred solution (not even in The Netherlands), in 13 higher-income European countries a majority expresses (total) agreement with the view that citizens should be mandated to take up LTC insurance (even in The Netherlands). Only Danish and Finnish respondents seem to be skeptical. In all lower-income countries, strong majorities agree or totally agree with the introduction of compulsory (social) LTC insurance. It may be worth noting that this holds true also of China, another lower-income country (see

Xu and Zweifel, 2013). These attitudes seem to neglect the financial constraints confronting both social insurers and governments (who act as financiers of last resort). These observations are in accordance with a third hypothesis.

H3. *In most European countries, there is a “latent demand” for compulsory LTC insurance, which might crowd out private LTC insurance.*

Figure 3. Attitudes towards compulsory LTC insurance



Question: “Every individual should be obliged to contribute to an insurance scheme that will finance care if and when it is needed”

Source: Eurobarometer survey.

Yet, individuals are acutely aware of the financial constraints they are subject to. According to Figure 4, spending about 5% of one’s income on LTC services is judged reasonable in Denmark, while a minority of 30% finds LTC services affordable. This divergence is very marked in Great Britain, Belgium, and Ireland (note that these countries exhibit clear majorities in favor of compulsory LTC insurance; see Figure 3 again). In just one of the 29 countries sampled (Slovenia), respondents deem LTC services affordable; everywhere else this is a minority opinion.

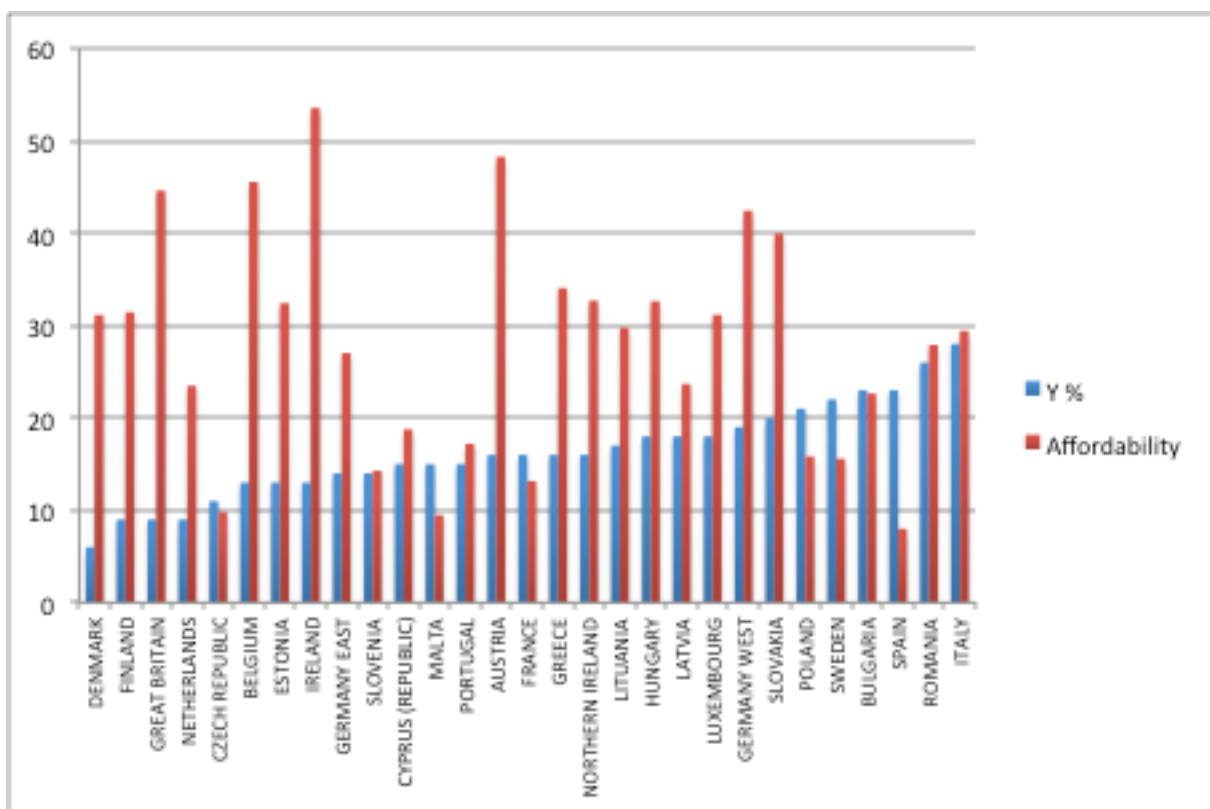
In all but six countries, on average no more than 20% of disposable income devoted to LTC is judged reasonable. This limit is exceeded in six countries which are (except Sweden) still characterized by strong family ties. Possibly, respondents in these countries think they can (reasonably) afford to sacrifice up to 30% of their income to the benefit of parents in need of LTC. These attitudes may be contrasted with the fact that average LTC expenditure can

represent as much as 60% of disposable income for all but those in the top quintile of the income distribution (Colombo et al, 2011). This gives rise to hypothesis

H4. *The percentage of personal income devoted to LTC deemed “reasonable” is relatively high in countries where the family continues to be primarily responsible for providing LTC.*

If true, this hypothesis points to a future challenge. Even in southern and eastern European countries, family ties are likely to weaken due to increased labor market mobility. Finally, the low popularity of private LTC insurance is not easily reconciled with the view that an income share of 30% and more spent on LTC services is reasonable. Shares of this magnitude exceed by far those devoted to health insurance (13% of GDP or less in European OECD countries, amounting to some 17% of personal income as in Figure 4).

Figure 4. “Affordable” and “Reasonable” LTC expenditure relative to Income (Y%)



Source: Eurobarometer survey, 2009

5. CONCLUSION

This paper has addressed some important policy dilemmas in the funding of LTC in Europe. We have discussed the problem of limited insurance, and the possible interactions between different forms of financing and provision of LTC, focusing primarily on European countries. We have argued that national LTC schemes differ substantially from one European country to another for reasons that span beyond economic efficiency. This follows from both historical and societal choices about individual and collective responsibility towards care for elderly and disabled people. This heterogeneity also reflects that LTC finance needs to be considered as part of an overall retirement strategy rather than as a simple extension of health insurance, even if one can separate the goals of consumption smoothing (retirement) from insurance (LTC). To stimulate the uptake of LTC insurance, either as a complementary or a substitutive tolls, one can think of using subsidies and tax incentives encouraging the uptake of LTC insurance combined with transparency about the limits confronting both public insurance and pension schemes. However, for achieving this transparency, the role of public insurance has to be delimited, combined with an increased awareness of how (un)affordable LTC can be.

References

- Barr N., (2010). “Long-Term Care: A Suitable Case for Social Insurance”. *Social Policy and Administration*, 44(4): 359-374.
- Brown, J.R., Finkelstein A., (2008), “The interaction of public and private insurance: Medicaid and the long-term care insurance market”, *American Economic Review*, 98(3), 1083–1102.
- Brown, J.R., Finkelstein A., (2007), “Why is the Market for Long-term Care Insurance so Small?”, *Journal of Public Economics*, 91(10),1967–91.
- Brown J.R., Finkelstein, A., (2009), “The Private Market for Long-term Care Insurance in the U.S.: A Review of the Evidence”, *Journal of Risk and Insurance*, 76(1): 5-29
- Colombo, F. et al., (2011). *Help wanted?: Providing and paying for long-term care*. OECD Health Policy Studies, Paris: OECD
- Colombo, F., Mercier, J., (2012). “Help Wanted? Fair and Sustainable Financing of Long-term Care Services”, *Applied Economic Perspectives and Policy*, 34(2), 316-332.
- Costa-Font, J., Courbage, C., (eds.), (2012), *Financing long-term care in Europe: institutions, markets and models*. Palgrave Macmillan, Basingstoke, UK.
- Costa-Font, J., (2010), “Family ties and the crowding out of long-term care insurance”, *Oxford Review of economic policy*, 26(4), 691-712.
- Costa-Font J., Font-Vilalta, M., (2009). "Does 'early purchase' improve the willingness to pay for long-term care insurance? *Applied Economics Letters*, 16(13), 1301-130
- Costa-Font, J., Gil, J., Mascarilla-Miró, O., (2010) “Housing wealth and housing decisions in old age: sale and reversion”. *Housing studies*, 25(3), 375-395.
- Courbage, C., Eeckhoudt, L., (2012). “On insuring and caring for parents’ long-term care needs”, *Journal of Health Economics*, 31, 842-850.

- Courbage, C., Zweifel, P., (2011). "Two-sided intergenerational moral hazard, long-term care insurance, and nursing home use", *Journal of Risk and Uncertainty*, 43(1), 65-80.
- Department of Health (2011). Commission on Funding of Care and Support. <http://www.dilnotcommission.dh.gov.uk/>.
- Eurobarometer Survey (2007). Special Eurobarometer. Health and long-term care in the European Union. TNS Brussels Belgium.
- Eurobarometer Survey (2010). Special Eurobarometer 355 Poverty and Social Exclusion. TNS Brussels Belgium.
- Fehr, E., Schmidt, K.M., (2006). "The Economics of Fairness, Reciprocity and Altruism - Experimental Evidence and New Theories", in Kolm S.C., Mercier Ythier J.M.(eds), *Handbook on the Economics of Giving, Reciprocity and Altruism*, Elsevier
- Frank, R., (2012). "Long-term Care Financing in the United States: Sources and Institutions". *Applied Economic Perspectives and Policy*, 34(2), 333-345.
- Pezzin .L.E., Steinberg Schone, B., (1999). "Intergenerational Household Formation, Female Labor Supply and Informal Caregiving: A Bargaining Approach", *The Journal of Human Resources*, 34(3), 475-503.
- Lakdawalla, D.N., Philipson, T., (2002). "The rise in old-age longevity and the market for long-term care", *American Economic Review*, 92(1), 295-306.
- OECD Health Data (2011), OECD: Paris.
- Stevenson, D.A., Cohen, M.A., Tell, E.J., Burwell, B., (2010), "The complementarity of public and private long-term care coverage", *Health Affairs*, 29(1), 96-101
- Xu, X., Zweifel, P. (2013), "Bilateral intergenerational moral hazard: empirical evidence from China", Working Paper Fudan University (www.fdfrc.fudan.edu.cn/html/ch).
- Zweifel, P., (2013), "The division of labor between private and social insurance", in G. Dionne (ed.), *Handbook of Insurance*, Chap. 37, New-York, Springer (forthcoming).
- Zweifel, P., Strüwe, W., (1998). "Long-term care insurance in a two generation model", *Journal of Risk and Insurance*, 65, 33-56
- Zweifel, P., Strüwe, W., (1996a), "Long-term care insurance and bequests as instruments for shaping intergenerational relationships", *Journal of Risk and Uncertainty*, 12, 65-76.
- Zweifel, P., Strüwe, W., (1996b), "long-term care insurance and trust saving in a two-generation model", in R. Eisen, F.A. Sloan (eds.), *Long-term Care: Economic Issues and Policy Solutions*, Chap. 11, Boston: Kluwer.