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Financing Long-Term Care: Ex-ante, Ex-post or Both?

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Abstract

This paper examines the heterogeneity in the public financing of long-term care (LTC), and the wide-ranging instruments in place to finance long-term care services. We distinguish and classify the institutional responses to the need for LTC financing as ex-ante (occurring prior to when the need arises, such as insurance) and ex-post (occurring after the need arises, such as public sector and family financing). Then we examine country-specific data to ascertain whether the two types of financing are complements or substitutes. Finally, we examine exploratory cross-national data on public expenditure determinants, specifically economic, demographic and social determinants. We show that although both ex-ante and ex-post mechanisms exist in all countries with advanced industrial economies and despite the fact that instruments are different across countries, ex-ante and ex-post instruments are largely substitutes for each other. Expenditure estimates to date indicate that the public financing of long-term care is highly sensitive to a country's income, ageing of the population, and the availability of informal caregiving.

JEL-Code: I180, H500, J100.

Keywords: long term care, long term care expenditures, long-term care insurance, social insurance, ex-ante funding, ex-post funding.

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1. INTRODUCTION

The ageing of countries' populations and, in particular, the growing number of the very old that is occurring in most industrialised countries, is increasing the need for long-term care[1] (LTC) services. 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). Unlike other personal services, the development of both private and public LTC insurance has been limited, which has contributed to the escalation of public and household LTC expenditures. At the same time, the transformation of family structures, the distancing of children from their parents (Costa-Font, 2010) and higher female labor-market participation rates are responsible for a decline in the supply of informal caregiving (Pezzin and Steinberg Schone, 1999).

The combination of population ageing and social change suggest that in coming years there will be a greater demand for formal LTC (e.g., personal care, community care and institutional care provided in people's homes or nursing homes and assisted living facilities) funded by government programs, private LTC insurance, or individuals' out-of-pocket payments. However, such a shift in the type of LTC has important economic implications insofar as the cost of LTC in Europe, and OECD countries generally, has traditionally been borne by families themselves or by the public purse to a great extent when fiscal conditions have been favourable.[2] Spending on LTC in OECD countries averaged 1.5% of GDP in 2008 but if current trends continue, it is predicted to more than double by 2050 (Colombo and Mercier, 2012). This poses an important policy dilemma and raises questions about the financing of LTC, especially when a large share of such expenditures currently is publicly funded.

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

[2] For a survey of LTC financing arrangements in Europe, see Costa-Font and Courbage (2012).

To protect against the risk of needing costly LTC, various financial mechanisms are available to varying degrees in different countries. One set of mechanisms is of the *ex-ante* type – i.e., measures are taken before the onset of dependency. These comprise insurance (social or private), prevention (reducing either the probability of needing LTC or its future cost), and precautionary savings. Another set of financing mechanisms is of the *ex-post* type – i.e., measures are taken after the onset of dependency. These include the subsidization of formal and informal LTC, family support, and the use of housing equity for financing LTC ('reverse mortgages'). Although population ageing exerts pressure on governments, it is difficult to conceive of an expansion of existing public programs covering LTC in times of austerity.[3]

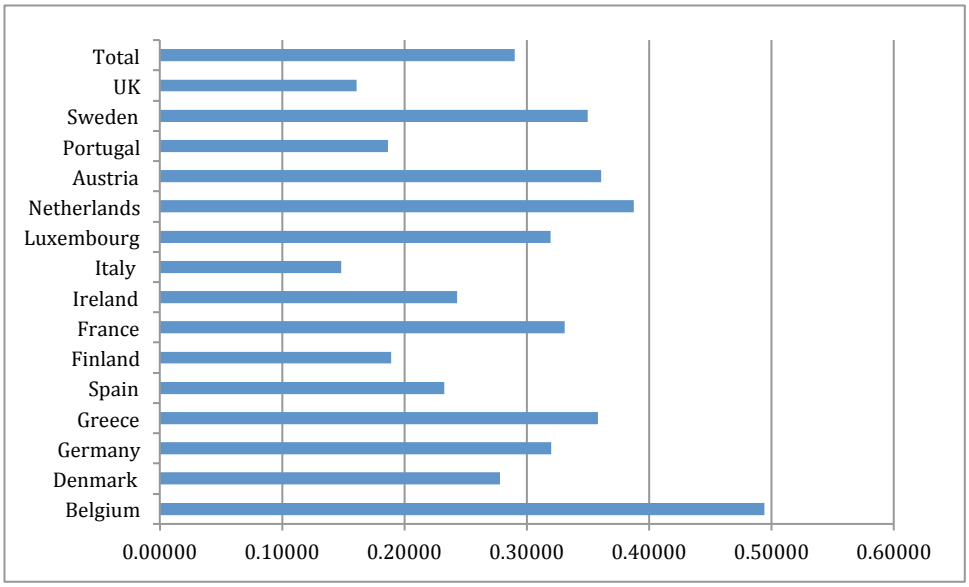
The situation with LTC financing is perhaps one of the clearest-cut cases of a market with *incomplete welfare-related insurance*. People fail to purchase insurance when it is optimal to do so, leaving people in need of care to rely on public support if and when available, or to self-insure if they can afford it.[4] Private (that is, actuarial) insurance markets are not optimal as mainstream insurance because there is so much uncertainty surrounding events that will occur many years (many decades even) into the future and may not occur at all for some people. There is uncertainty about the probability that a younger person will need LTC when older, the length of time a person needs LTC, and the costs of LTC services in the future (Barr, 2010). To date, private LTC insurance has very high premiums to compensate for these sources of uncertainty. Indeed, Brown and Finkelstein (2007) show that the premiums exhibit a high loading factor on top of the actuarial premium, presumably to address these uncertainties. The low level of LTC insurance purchase is in sharp contrast with the fact that the

[3] For instance, programs that entitle the population to free LTC such as the one in Scotland depend on specific yearly-agreed budget. Similarly, funding in Spain is not guaranteed beyond 2015. In the United States, a proposal to reform LTC insurance under the so-called CLASS Act, which attempted to set up a voluntary social insurance scheme, was deemed unworkable (see discussion later in the paper) due to its inadequate long term financial sustainability.

[4] The value of informal care in the United States in 2009 was estimated to be $450 billion – greater than total Medicaid spending and almost as large as total expenditures for the Medicare program in 2009 (AARP Public Policy Institute, 2011).

likelihood of needing LTC services is widely shared and the risk of having catastrophic levels of LTC costs is such that most individuals would want protection against this risk – providing a paradigmatic case for pooling risk through insurance. A large share of the population who reach age 65 (30 to 50 percent) are likely to use LTC services of some sort in their remaining lifetime (Frank, 2012).[5] Equally important, the risk of extremely high costs of LTC is a risk that appears to be random but faced by everyone who reaches age 65. Kemper et al. (2005) estimated that 16 percent of those who reach age 65 have LTC expenses greater than $100,000 (in 2005 US dollars) and 5 percent would have expenses greater than $250,000 in their remaining years of life. Most people do not have sufficient savings or insurance to meet this risk as shown for Europe in Figure 1.

Figure 1. Population with either insurance or savings to pay for LTC



Source: Special EUROBAROMETER 283
Question QA28.1: There are things people can do to prepare themselves for the time when their physical or mental health condition starts to become a major impediment to everyday life. For each of the following measures, please tell me whether you
think that you should do it, you intend to do so in the future, you have already done it or are currently doing so, or have no intention of doing it- Save money or take out insurance to pay for future care

[5] Those who enter a nursing home, namely 12% of men and 22% of females in the United States, will spend more than three months there, at costs that differ across states but on average cost $85,000 US annually.

Moreover, entitlement to public coverage of LTC expenses is also subject to restrictions in many countries. Hence, it appears that a welfare improvement can result from social insurance compared with private insurance and relying on self-insurance, and deserves the attention of economics-based research.

Contributing to the sources of market failure with private LTC insurance markets, Brown et al. (2012) find that people who have alternative ways to pay for care (e.g., savings) or who could receive unpaid care provided by family members were less likely to purchase LTC insurance. The latter indicates that there are potential unknown relationships between the different *ex ante* and *ex post* financing alternatives for ensuring the provision of LTC, which need to receive more attention.

In this paper, we attempt to identify these unknown relationships between the different *ex ante* and *ex post* financing alternatives. We begin by characterising the variety of sources of LTC financing in most of the OECD countries. We specifically show that funding of LTC services in the different countries is structured either more towards ex-ante schemes or ex-post (bailout-type) schemes. However, the extent to which ex-ante and ex-post sources are complements and substitutes is largely unknown. We then examine the main drivers of increases in public LTC expenditures – specifically, the different roles of a country's income, demographic change and caregiving availability

Our analyses suggest that a country's income is the main constraint to the expansion of public LTC expenditure. The proportion of a country's population over age 70 and its female labour force participation rate are relatively less important in explaining expansion of public LTC spending. We show that there is great heterogeneity in the combination of ex-post and ex-ante mechanisms to fund LTC in OECD countries, and there is evidence to suggest some degree of substitution between such mechanisms.

The structure of the paper is as follows. In the next section we characterise the different LTC financing schemes among OECD countries. In section three, we offer some stylised interpretations of differences in OECD countries' LTC financing, and the role of public financing. Then we examine the drivers of public expenditures for LTC in section 4. Finally, we conclude with a discussion of the trade-offs between ex-ante and ex-ante financing schemes.

2. FINANCIAL ALTERNATIVES

Several OECD countries provide some form of entitlement to an ex-ante financial arrangement to pay for LTC. Significantly, all have adopted different forms of ex-post financing; some of the variations may be due to different diagnoses of the sources of market failure. These ex-post financing schemes, however, are conditioned by means testing, need determination, and a heterogeneous array of cost-sharing mechanisms and entitlements targeting specific populations. It is important to separate ex-ante and ex-post types of financing.[6] Ex-ante financial mechanisms encompass some form of ex-ante funding scheme (which can include prefunding some of the future costs of social insurance). In contrast, ex-post funding mechanisms generally involve general taxation or earmarked taxes or individual wealth accumulation.

2.1 Ex-ante Financing

Ex-ante mechanisms generally take the form of insurance and savings as described below.

Social Insurance

[6] However, in almost all OECD countries, informal care is still the main source of LTC provision. In many countries, proposals to expand funding for LTC have not managed to obtain sufficient support (e.g., Italy), and in the United States, a proposal to expand ex-ante funding via the CLASS Act (the Community Living Assistance Services and Supports Act) within the 2010 Affordable Care Act did not reach sufficient consensus and was finally abandoned in January 2013.

Social insurance has been advocated because there is a high degree of uncertainty about both an individual's risk of needing LTC and the costs of LTC services in the future (Barr, 2010). As noted, actuarial (private) insurance deals with uncertainty by charging inefficiently high premiums. Social insurance, in contrast, can address both risk and uncertainty (Barr, 1998), and therefore offers a better mechanism for protecting against both. Among the OECD countries, only the Netherlands, Germany, Japan, South Korea and Spain have separately funded, discrete government-sponsored LTC social insurance programs (Swartz, 2013). Other countries generally provide LTC services as part of their health insurance and other social security programs, and those programs are financed through a mix of national and local/municipal taxes as described above.

The funding of stand-alone LTC social insurance comes from contributions that generally are linked to payroll – and hence ability to pay – and participation is compulsory. There are differences in how the contribution is defined and paid, and who has to contribute. Some of the differences are related to concerns about the financial sustainability of the programs in the face of the rapid aging of the countries' populations (Swartz, 2013). In 2006, Japan lowered the compulsory age threshold from 40 to 20 years of age. In Germany, retirees also are required to contribute to the social LTC insurance, with contributions based on their pension, and since 2005, childless adults must pay an additional 0.25% of their income with their contribution to offset costs that children might otherwise have covered.[7] Benefits are typically provided to those who meet needs criteria and are defined in terms of specific services (as in Japan), or a fixed reimbursement of cost or as a percentage of cost. Where benefits involve reimbursement of costs, beneficiary cost sharing (co-payments) can become substantial, as they have with increases in the costs of providing LTC services. In Germany, anyone meeting the eligibility criteria (mainly a needs test) can choose between receiving cash benefits (which can be used to pay anyone to provide assistance) and in-kind services or a mix of both.

[7] High-income earners can opt out of the social LTC insurance program but they must then purchase private LTC insurance. About 10% of the population are able to opt out but many of these people are choosing to obtain LTC coverage through the social insurance program.

In the OECD countries without a formal, stand-alone LTC social insurance program, LTC services and supports are funded by a mix of other social insurance programs. France, for example, covers the cost of LTC services directly related to health care through its social health insurance system, but another public program, the Allocation Personnalisée à l'Autonomie (APA), is the primary payer of LTC services. The APA provides an allowance, which depends on the degree of need for LTC services. However, co-payments of as much as 80% of the LTC service costs are required of everyone except the poor; the private LTC insurance policies help pay for the co-payments (Swartz, 2013). In Switzerland, the medical component of nursing home care is covered by mandatory health insurance, complemented by means-tested disability benefits to pay for care provided in the beneficiary's home. Communities also run nursing homes and regulate accommodation rates so they are affordable. Norway's national health insurance system pays a larger share of LTC costs when the services are provided in a person's home rather than in a nursing home. Municipalities have to pay nursing home copayments for poor people so as a result, they encourage people to remain in their homes if they need LTC services (Swartz, 2013).

Private LTC Insurance

In most European countries less than 2% of total LTC expenditure is financed through private LTC insurance (Colombo and Mercier, 2012). Generally, the scope for private insurance depends greatly on its interdependence with public programs as well as intergenerational norms. Nevertheless, private LTC insurance is unlikely to achieve a substantial market share without a degree of subsidization targeted at lower-income groups.

There are two main markets for private, actuarial LTC insurance. The American market is the largest market worldwide with about 10 per cent of the population aged 60 and over having private LTC insurance (Lecorre,

2012). The second largest market is France with approximately 3.5 million policyholders representing about 20 percent of the population ages 60 and over (FFSA-GEMA, 2012). These two markets are based on different models, as they differ in the insurance benefit they offer.

In the U.S., LTC insurance policies include individual, group association and employer-sponsored products. Purchasing private LTC insurance in the U.S. is far more complicated than purchasing acute care private health insurance. Premiums depend primarily on a person's risk characteristics (especially health status and age of first-purchase, and in the US, the state of residence) and the extent to which a person wants to share the costs of LTC. If a person wants to be at risk for the first half-year of LTC expenses and to have coverage for $150 US of expenses per day for up to three years, the premium will be substantially less than a policy that starts to pay after 90 days of LTC expenses and covers $250 US of expenses per day. Many people cannot – or do not want to – think through the implications of being at risk for uncertain LTC costs and trading off a reduced insurance premium for greater cost-sharing if they do need LTC services. People who initially purchase a LTC policy in their 50s (or younger) have much lower annual premiums than people who wait until they are in their 60s to apply. Moreover, the likelihood of being rejected by an insurer rises substantially with each additional year of age above age 65. Insurers in the US almost never accept an initial application for LTC coverage for people older than 79 years of age. Thus, by the time many people start to think about purchasing a LTC insurance policy – often at age 65 – the annual premiums are typically $3,000 US and an insurer may reject many applicants.

In France, LTC insurance products can be individual or collective, and they provide for a cash benefit payment, mostly monthly, which is usually proportional to the degree of dependency. The benefits do not depend on care services or on the place where the insured is receiving care, whether it is at home or in a specific nursing home facility. The insured are free to use the cash benefit as they wish. These products are derived from disability

annuity products. They are mainly distributed by direct selling networks and are not tax approved.

Amongst the other OECD countries, Germany has what appears to be the third largest private insurance market. However, the German market has two components: a mandatory private LTC insurance for people who also are required to buy private health insurance because they are not eligible for the social health insurance (about 10 percent of the population), and private supplementary LTC insurance. Mandatory private LTC insurance is *de facto* social insurance administered by the private insurer with age dependent premiums (contributions). Moreover, the premiums are determined by the age at which a person enrolls in the private LTC insurance plan, and the premium cannot be greater than the maximum premium for the social LTC insurance (so long as the person has been in the private system for more than 5 years). In addition, private supplementary LTC insurance plans were held by nearly 1.3 million German citizens in 2008 (GDV, 2009). The supplementary insurance is sold as a supplement (i.e., it tops-up) to the benefit of the compulsory social LTC insurance.

In other countries, the private LTC insurance markets remain very small, with different trends with a growing market in Germany, Italy and France as but stagnating elsewhere such as in the U.K. and the Nordic countries (SCOR, 2012).

In countries that allow private LTC insurance to be sold, participation and the age of first purchase are voluntary. Depending on the country, insurers also may offer a range of policy options and may adopt a variety of mechanisms to protect themselves from adverse selection. Requiring individuals to be responsible for the first 90 days of LTC expenses is the most common mechanism used by insurers to protect against the risk of adverse selection. Notably, individuals bear the cost of obtaining information associated with identifying the optimal contract, although some states in the US have websites providing basic information about issues to consider when deciding whether to buy LTC insurance.

In the US, LTC insurance buyers tend to be younger, wealthier, and more educated than average (Stevenson *et al.*, 2010)[8]. This feature is consistent with the view that decisions regarding LTC insurance are subject to some degree of myopia, which might be less marked among individuals with these characteristics. It is also consistent with general financial advice that the people who would most benefit from having LTC insurance are those who have substantial assets to protect but who also are not super-rich. Similarly, lack of knowledge and misconceptions of risk (Frank, 2012) seem to play a role, suggesting that increased transparency on LTC insurance markets could potentially improve their efficiency. Yet, Brown and Finkelstein (2007) find that for two-thirds of the US elderly it is rational not to purchase LTC insurance because its benefits simply replace support from other sources. This serves to limit the value of LTC insurance once the interactions with other financial mechanisms are taken into account. To address these issues, a partnership programme has been created in the U.S. to allow individuals to purchase private LTC insurance that coordinates with Medicaid. The programme has been in place in most states only since 2009 and to date, only a small number of these partnership policies have been purchased (Bergquist *et al.*, 2014). Adding to the rationality of consumer reluctance to purchase private LTC policies is that fact that the number of insurers selling private LTC insurance has shrunk substantially in the past decade.[9] Consumers in their 50s and 60s quite rightly may be skeptical about the value of paying an annual premium to a company that may not be around when they will be in their 80s or 90s and in need of LTC services.

Precautionary saving

[8] This makes private LTC insurance a luxury good beyond the level of coverage implicitly provided by public insurance. That is, decisions are very much in line with those of insurance choice given a mandatory component imposed by public insurance. (See Costa-Font and Garcia, 2009 for the case of health care). In addition, LTC insurance competes with other ways to provide for dependency costs in old age, notably saving (see Zweifel and Strüwe, 1996).

[9] By one count, the number of insurers offering stand-alone LTC insurance policies declined from more than 20 in the year 2000 to fewer than 10 by 2010 (Robert Pokorski, of The Hartford insurance company, 3 July 2012 interview with CNBC).

Risk-averse individuals who worry about the risks of longevity and old age dependency generally try to save to pay for LTC and other potential household needs that may arise in their later years of life. Such precautionary saving generally needs to be done when people are working; at older ages people's capacity to earn additional income – much less increase their savings – is less than at younger ages.

2.2 Ex-post Financing

Tax-based Financing

Tax-funded social-care systems are typical of the Nordic countries (Norway, Sweden, Denmark, and Finland). However, LTC services may be primarily funded by the national government (as in Denmark) or by local authorities (as in Sweden). Government programs (local, regional or national) support individuals as a funder of last resort. In the Nordic countries, general taxation is used to fund universal comprehensive benefits that include LTC services that are delivered locally or regionally (as e.g., in Denmark). A few other European countries are moving in this direction as well. Similarly, in Scotland, a tax-funded scheme guarantees free access to LTC subject to needs testing.

In England, funding is primarily from general taxation, raised in part by the central government and in part by local jurisdictions. Recent legislation has required local governments to offer cash (through a program called "Direct Payments") as an alternative to providing in-kind services, in order to increase consumer choice and control of service providers. Although a Royal Commission report in 1999 recommended that both nursing care and personal care be funded by general taxation, several other Commissions have discussed other options for reform. Chief among these are the Wanless Commission (Wanless, 2006) that proposed a public-private partnership scheme and the Dilnot Commission (2011) that proposed the introduction of a high deductible before a government-sponsored social insurance program would cover LTC expenses.

Universal entitlement

Access to publicly sponsored LTC results is subject to means testing. Entitlement to LTC service is comprehensive. This variant is prevalent in Nordic countries.

Means-tested cost sharing

The United Kingdom and the United States impose a degree of means-tested cost sharing on beneficiaries, with some exceptions (e.g., Scotland). In both countries, beneficiaries are required to almost deplete their (non-housing) wealth before becoming eligible for public support. Exceptions are the partnership insurance schemes noted previously in the United States (Meiners et al., 2002).

Self-based Financing

In countries with widespread home ownership, reverse mortgages constitute an alternative source of self-funded financing for LTC. Elderly homeowners can borrow against the equity they have in their homes and use such borrowed funds to pay for LTC services. As with a regular mortgage, home ownership is not transferred to the lender. When the individual dies, the heirs can choose whether to pay back the borrowed funds or transfer the property to the lender in lieu of repaying the amount borrowed. However, attitudes and institutional constraints have combined to limit the development of the market for reverse mortgages so far (Costa-Font et al., 2010b).

Most people who self-insure against the risk of high costs for LTC services liquidate their accumulated savings and assets in order to pay for the services. Converting illiquid assets into accessible funds can include downsizing home equity and setting up intergenerational households.

Family Support

Some OECD countries rely entirely on the family for financing LTC expenditure (e.g., Turkey and Mexico). However, most countries finance LTC with a combination of private insurance, family financing with other forms of self-insurance, as well as publicly funded programs and financial support.

In most European countries, publicly financed services are highly fragmented and partial. Individuals and their families are expected to pay a large share of the cost of LTC. These systems tend to coexist with support for access to nursing homes based on ability to pay (e.g., Ireland), sometimes topped up by cash allowances (as in Italy or Poland). In France, the APA offsets the cost for personal care borne by dependents; however, remaining LTC expenditures are to be funded by beneficiaries and their families. Under French civil law, adult children are obliged to take care of their parents, and they must report their income when a parent applies for social assistance.

Generally, while family bailout can take different forms, it typically is governed by socially transmitted values. While Costa-Font (2010) emphasizes family ties, Zweifel and Stüwe (1996) introduce the bequest motive as a rational explanation of children providing informal care to parents in need of LTC services. Strong family ties may be a contributing factor explaining why Italy has not altered its system of 'indennità di accompagnamento' – cash allowances for disabled persons regardless of income. The benefit is generally regarded as part of Italy's LTC system because it can be used to compensate a family for providing informal care. This allowance is paid to almost 10 % of the Italian population over the age of 65.

3. STYLIZED INTERPRETATIONS OF DIFFERENCES IN OECD COUNTRIES' LTC FINANCING

Figure 2 reveals substantial heterogeneity across the OECD countries in total and public LTC expenditures. As a share of GDP, such expenditures

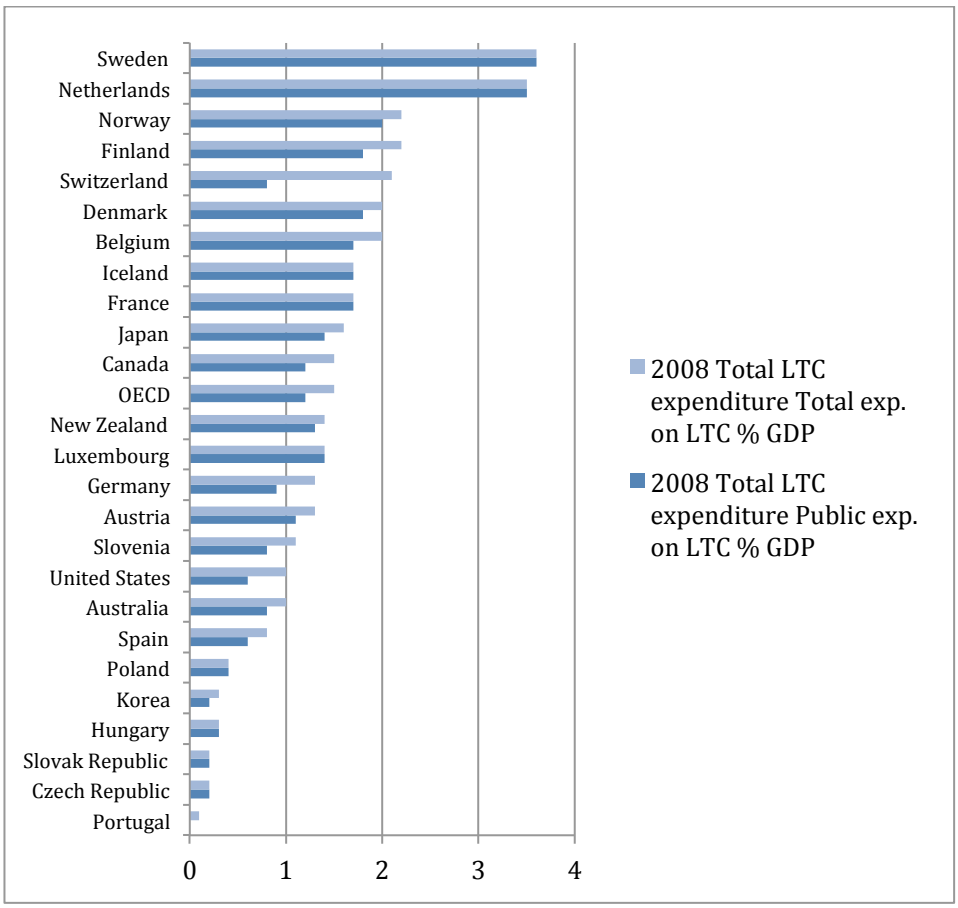
range from 3.7% in the Netherlands to 0.2% in Portugal, with the OECD average at 1.5% of GDP. Importantly, in a few countries (notably Switzerland), a large portion of LTC expenditure is not financed by the public sector, but this is the exception rather than the norm. Still, the data do not provide the full picture of financing sources because most countries exclude a valuation of informal care typically provided by family members or friends. Further, in spite of OECD's current efforts to standardize the definition of LTC services, LTC does not signify the same set of services in every country and some countries' surveys of population use of LTC services do not include people living in nursing homes or assisted living facilities (Swartz, Miake, and Farag, 2012). Hence, while there is indeed heterogeneity in total and public LTC expenditures among the OECD countries, the data are "noisy" for country comparisons and of course does not include the monetary equivalent cost of informal care. Given this, we offer some stylized interpretations of the data:

Stylised interpretation n°1: *Countries with a large public sector involvement tend to exhibit high total LTC expenditures combined with almost negligible private LTC insurance expenditures. This is consistent with public sector crowding-out of private LTC insurance.*

Indeed, except for Switzerland, public LTC expenditures represent the lion's share of total LTC expenditure. This results from the fact that unpaid informal care goes unquantified, and suggests an important role of public intervention in the financing of LTC.

Stylised interpretation n°2: *Eastern and Southern European countries exhibit limited public and private LTC insurance development. This is consistent with a preponderance of family funding of services, mainly in the guise of informal care provided, and economies that are struggling financially. Similarly, the role of the state is the main source of funding in Scandinavian countries.*

Figure 2. Total and Public LTC expenditure as % of GDP, 2008



Source: OECD Health Data, 2011.

Given our interest in ex-ante and ex-post financing, in Table 2 we distinguish between ex-ante and ex-post sources of LTC financing in the OECD countries for which such data are available. Most countries' LTC spending is financed by close to a fifty-fifty mix of ex-ante and ex-post funding sources or the spending relies heavily on ex-post funding sources. Three countries stand out as exceptions: the Netherlands, where 90% of LTC spending is from ex-ante funding sources, and Belgium and the Czech Republic, where ex-ante funding accounts for just over two-thirds of LTC expenses.[10]

Among the countries that have close to a fifty-fifty mix of funding sources, it is notable that they all also have insurance systems for funding acute health care expenditures. The countries that rely heavily on ex-post funding sources finance LTC spending primarily with taxes – again, very much in keeping with how they fund health care. In Austria, Canada, Norway,

[10] Belgium also has the highest share of LTC expenditures financed by private insurance.

Denmark, Australia, New Zealand, and Sweden, ex-post mechanisms account for almost 100% of LTC expenditure. In all of these countries, the public purse is the dominant source of funding, with out-of-pocket payments by individuals and families accounting for less than 20%.

In contrast, individuals and families contribute a great deal in some countries with insurance-based systems for acute health care expenditures (e.g., Switzerland (52%), Germany (30%), and Slovenia (24%)). However, some Eastern and Southern European countries do not exhibit this pattern. For example, while the Czech Republic has an insurance-based system of financing health care, it uses public funds to avoid out-of-pocket payments entirely for LTC services. Portugal, in the fifty-fifty category with regards to ex-ante and ex-post mechanisms, requires households to share the costs of LTC; such out-of-pocket payments account for 45% of total spending. Although Spain funds more than 60% of its LTC expenditures through taxes, it also requires people receiving LTC services to pay a high share of the costs (28%). Austria and Canada stand out for financing LTC expenses with almost 100% ex-post funding sources – but splitting the burden of such funding so that roughly 80% is paid by all tax-payers and almost all the rest is paid by those who use LTC.

Evidently, the variety of arrangements has far less to do with the properties of the LTC risk than with policy choices. The patterns of arrangements suggest that a relatively small share of the countries view ex-ante and ex-post sources of financing as complementary forms of funding LTC expenditures. Most of the OECD countries shown in Table 2 appear to view ex-ante and ex-post funding sources as substitutes for each other, with some countries relying more on one form or the other. However, as we noted, a high proportion of ex-ante funding of LTC is not a predictor of low out-of-pocket spending – only Belgium, Iceland, the Czech Republic, and the Netherlands require very little out-of-pocket expenditures and rely primarily on ex-ante funding of LTC.

Table 1. OECD Countries' Sources of Ex-ante and Ex-post Funding of LTC

Country	Social security funds	Private insurance	**Total Ex-ante**	Tax-funded	Households out-of-pocket exp.	Other	**Total Ex-post**
Switzerland	27.1	0.4	**27.5**	11.7	58.4	2.4	**72.5**
Portugal	51.4	1.1	**52.6**	2.0	45.4		**47.4**
Germany	54.7	1.7	**56.4**	12.5	30.4	1.4	**44.3**
Spain	10.2		**10.2**	61.7	28.1		**89.8**
Slovenia	57.1	0.5	**57.6**	18.3	24.0		**42.4**
Korea	30.7		**30.7**	46.2	17.8	5.3	**69.3**
Austria	0.7		**0.7**	81.1	17.1	1.0	**99.3**
Canada	0.4	0.4	**0.8**	81.6	16.8	1.6	**100.0**
Finland	7.6		**7.6**	77.2	14.2	2.0	**93.4**
Estonia	39.3	0.1	**39.4**	48.2	12.4	0.1	**60.6**
Norway				89.3	10.7		**100.0**
Denmark				89.6	10.4		**100.0**
Australia		0.3	**0.3**	88.9	8.5	2.3	**99.7**
Japan	44.8	4.0	**48.7**	44.2	7.1		**51.3**
New Zealand		1.3	**1.3**	92.0	4.4	2.3	**98.7**
Hungary	30.2	0.9	**31.0**	60.1	2.4	6.4	**68.9**
Sweden				99.2	0.8		**100.0**
France	54.4	1	**54.8**	44.8	0.4		**45.2**
Poland	49.2		**49.2**	43.1	0.3	7.4	**50.8**
Belgium	58.7	9.8	**68.5**	31.4	0.2	0.0	**31.5**
Iceland	60.6		**60.6**	39.4			**39.4**
Czech Republic	69.5		**69.5**	30.5			**30.5**
Netherlands	90.4		**90.4**	9.5		0.2	**9.7**

Source: OECD Health Data, 2011.

Stylised interpretation n°3: *The extent to which a country relies on ex-ante versus ex-post funding of LTC reflects policy choices, particularly choices related to how much individuals and their families should be responsible for paying for LTC and whether the risk of high LTC costs is viewed as a risk that can best be protected against through social insurance.*

Importantly, lack of public intervention often gives rise to an ex-post form of government funding. This is the case in countries that have significant monitoring mechanisms through means and needs testing.

Stylised interpretation n°4: *Out-of-pocket contributions occur regardless of the balance between ex-ante and ex-post mechanisms for financing LTC, suggesting that a majority of countries believe non-poor people using LTC services should be responsible for paying a substantial share of the costs of LTC.*

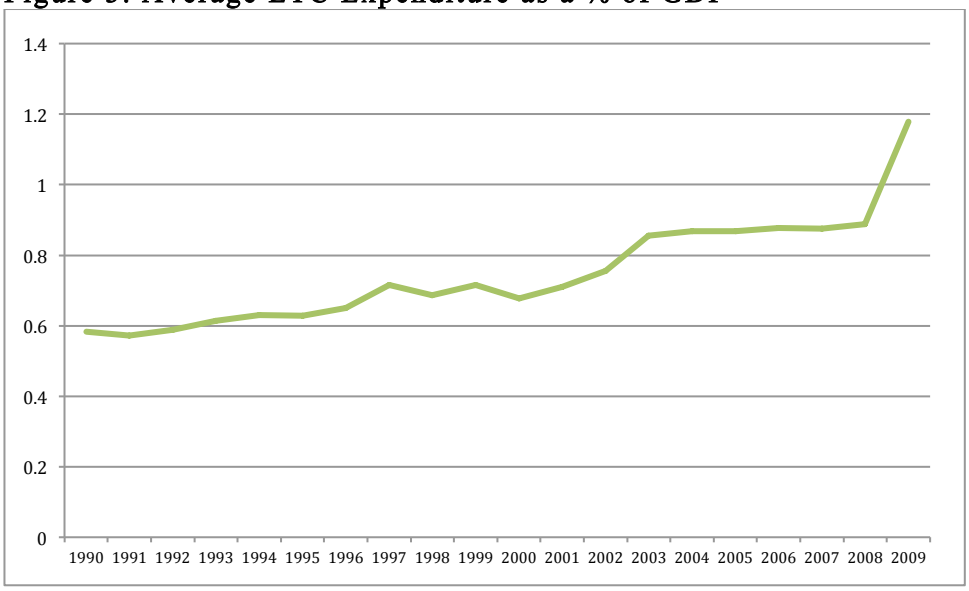
Stylised interpretation n°5 *Ex-ante and ex-post sources of funding of LTC expenditures are generally viewed as substitutes rather than complements as sources of financing LTC expenditures.*

4. PUBLIC LONG TERM CARE EXPENDITURE DETERMINANTS

4.1 Trends

LTC is a unique type of service that has some of the characteristics of heavily subsidised health care but its main component is personal care, which has traditionally been provided within the household and therefore mostly unsubsidised. As a result, as said before, in almost all OECD countries the family is still the main provider (and implicitly the funder) of LTC. However, this description is gradually changing due to the introduction of publicly funded programs in different countries. As Figure 3 indicates, starting in the late 1990's, some countries (such as Germany) expanded the public subsidisation of LTC and the OECD countries' average LTC expenditure as a proportion of GDP doubled in a little less than a decade.

Figure 3. Average LTC Expenditure as a % of GDP



Source: OECD, 2012.

Expenditure trends conflate the effect of different factors, some of which we can classify (broadly speaking) as belonging to three categories. First, budget limits, and more specifically the country's per capita income, constrains how much public revenue can be accrued. Second, the demand

for LTC depends on population ageing. Finally, any reduction in availability of informal caregiving may increase the pressure on the public sector to support the development of publicly financed LTC services.

4.2 The Data and Evidence

We use OECD-compiled data as in Maisonneuve and Oliveira Martins (2012). Specifically, our dataset contains data from 21 OECD countries from 1990 to 2010; although there are some years where no records were identified and therefore a dynamic analysis could not be carried out. Instead, we undertake an exploratory regression analysis of the evidence available using a short variable list.

The variables collected by the OECD include each country's annual LTC expenditure, per capita gross domestic product (Y_{it}) as a proxy for fiscal sustainability, population over 70 ($A70plus_{it}$) as a proxy for demand for long term care and female labour force participation rate (LFP_{it})as a proxy for the availability of caregiving within the household. These variables are expected to linearly predict the log of a country's per capita public LTC expenditure as defined in Table 1.

The simple model we estimate is:

$$LTCE_{it} = \beta_0 + \beta_1 Y_{it} + \beta_2 A70plus_{it} + \beta_3 LFP_{it} + \varepsilon_{it} \quad (1)$$

Given that the dependent variable is the log of a country's per capita public LTC expenditure, the coefficient β_1 is the estimate of the income elasticity as provided in Table 1[11]. In addition, we provide the beta coefficients to be able to interpret the coefficients as the effect of a one standard deviation change in each variable on public LTC expenditure per capita, holding all other variables constant.

[11] We were restricted in our model specification by a limited number of variables, and the model in (1) was the modelled offering a better fit.

The estimated coefficients reported in Table 2 suggest an income elasticity of 3.2, indicating a high sensitivity of per capita public LTC expenditure to a change in a country's per capita GDP. This magnitude is about three times what we observe for acute health care expenditures (Costa-Font et al., 2011). Similarly, we find that a one standard deviation change in income increases public LTC expenditure by roughly 3% (7 US$). In contrast, a one standard deviation change in the proportion of a country's population over age seventy or in the female labour force participation rate have magnitudes only a third as large but each are significant determinants of a country's public per capita LTC expenditure[12].

Table 2. Public LTC Expenditure Determinants: Descriptions and Parameter Estimation Results

	DEFINITION	N	MEAN (S.E)	COEF (S.E)	BETA COEF
$LTCE_{it}$	Public LTC Expenditure Per Capita (in logs)	340	235.1 (10.4)		
Y_{it}	Gross Domestic Product per capital in constant prices (logs)	558	26034 (354)	3.25** (0.49)	0.68
$A70plus_{it}$	Proportion of population above 70 years of age	840	0.085 (0.001)	15.0* (8.5)	0.23
LFP_{it}	Female Labour Market Participation	639	0.4158 (0.0025)	5.27** (1.96)	0.17
Intercept				-32.29 (4.99)	
R^2				0.615	
F(3, 28)				22.46	

Source: OECD, 2012. * Statically significant at 5% level. ** Statistically Significant at 1% level.

5. CONCLUSION

This paper has examined both the main constraints on public expenditure in the financing of LTC as well as the existing financing mechanisms and possible interactions between them, focusing primarily on European

[12] Standardised (beta) coefficients suggest that the effect of income is about three times that of other variables.

countries within the OECD. We have classified countries' funding and found that most countries combine forms of ex-ante and ex-post funding and view them as substitutes rather than complements. It appears that most countries recognize that there are trade-offs between forms of ex-ante financing protection against the risk of needing expensive LTC services and ex-post financing of care for people who have a certain level of need for LTC services but do not have sufficient funds to pay for all of their needs. We also have found that a country's income, which we interpret as a proxy for financial affordability, is the main driver of public LTC expenditure followed by population ageing and female labour force participation rates.

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