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Why do the French not purchase more long-term care cover?

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Abstract

Only 8% of people over forty are holders of a long-term care (LTC) insurance policy in France. In view of the financial risk caused by the dependence of elderly people, this rate of coverage seems very low. Moreover, public mechanisms don't cover all the needs. This article aims to explain this situation using data from companies, for the first time in France. It studies the determining factors of demand for LTC insurance in order to provide a solution to this paradox.

This article is organised into the following sections:

Section 1 presents the characteristics of the risk of dependence and an estimation of the cost of care. It shows that despite the importance of this financial risk, the market is struggling to develop.

Section 2 presents some explanations in a literature review.

Section 3 studies the determining factors of the demand for LTC insurance in France using original data.

These results are taken from a doctoral thesis entitled "Assurabilité et développement de l'assurance dependence" (insurability and the development of long-term care insurance) defended at Paris Dauphine University and available at the following address: http://www.dauphine.fr/index.php?id=7648&taille=3,

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1. The financial risk of long-term care (LTC)

This section aims to provide figures to assess the financial risk of long-term care (LTC). It affords a better understanding of the extent to which we can speak of an "enigma of long-term care insurance puzzle" (Kessler, 2008). LTC is clearly not just a matter for economists. Many physicians, demographers and sociologists[1] have also studied this phenomenon. However, this paper shall focus on the economic and insurance approach to LTC, considering it principally as a financial risk.

Section 1.1 defines the concept of LTC as it is understood in France. Section 1.2 provides an outline of the French population requiring LTC. Section 1.3 looks at why LTC is a risk and not a period of life while section 1.4 provides figures on the cost of care, whether at home or in institutions and the macroeconomic cost that it represents. It demonstrates that public financing only partially covers this cost, leaving individuals with an out-of-pocket that is not covered. Section 1.5 discusses the extent to which help in kind (from children) may limit the financial cost of LTC. However, even if the issue of a decline in help in kind is subject to debate, such help cannot sufficiently offset the need for professional care. Some examples are given to demonstrate that despite public financing and help in kind, the financial risk of the out-of-pocket remains considerable, particularly in relation to pensioners' incomes. Section 1.6 illustrates how the insurance market is struggling to develop in this area, despite the financial risks related to LTC.

(1) A. Gramain, F. Weber and S. Gojard, Chargé de famille, Dépendance et parenté dans la France contemporaine, La Découverte, 2003.

1.1 Long-term care: definitions

The French concept of dépendance (Long term Care) differs from the definitions understood in English-speaking countries. The French notion of LTC can be defined as an elderly person's need for assistance in completing the essential activities of day-to-day life (Duée and Rebillard, 2004). The Anglo-Saxon definition of Long Term Care refers to the type of care requires (long-term) but not to health or handicap. In France, LTC is directly related to the age of individuals and applies to those over 60. The French public institutions consider persons under the age of 60 with the same needs as disabled and not dependent. The Anglo-Saxon concept of long-term care is not used to designate an age group and applies to any person requiring long-term assistance.

Even though these two concepts are similar, they are not entirely equivalent, making international comparisons difficult[2]. Another consequence of this segmentation between LTC and disability in France is that, for equal handicaps, the public assistance allocated to people with disabilities is much more generous than the allowances for dependent persons.

1.2 Long-term care: how many people are concerned?

The differing definitions of LTC and dependence impact the classifications applied to measure the dependent population.

1.2.1 How is dependence measured in France?

The French standardised instrument for measuring dependence is the AGGIR grid (Autonomie Gérontologie Groupes Iso-Ressources). This scale determines benefit eligibility based on 15 criteria. The classification GIR 1 represents the highest level of dependence and GIR 6 the lowest. As a convention, the dependent population is classified in groups 1 to 4. These GIR define groups of people who in principle have the same level of dependence, despite the fact that types of required care within a GIR group may differ greatly[3]. This grid is used by public au-

(2) Throughout the text, we will use the term long-term care (LTC) and dependence to refer to the French concept of dépendance, i.e. care for people over 60 limited in the basic activities of daily life.
(3) A single GIR category may include people who are physically or psychologically dependent, thereby covering heterogeneous situations.

thorities to determine eligibility to the APA (Allocation Personnalisée d'Autonomie – personal autonomy allowance). Many private insurers also use the same scale and some apply the ADL (Activities of Daily Living)[4] approach (known as AVQ in French), which is not based on groups requiring the same care but on a person's ability to perform everyday activities.

1.2.2 The dependent population in France

One method for counting the dependent population involves the use of national surveys. The latest such survey, Handicap Santé Ménage (disability and health, household section), conducted in 2008, states that 706,000 individuals are dependent at home (Dos Santos and Makdessi, 2010). This survey did not use the GIR classification and was instead based on three categories: losing autonomy, dependent and highly dependent[5]. However, the results of the Handicap Santé Institutions (disability and health, institution section) survey which assess the number of dependent individuals in institutions[6] have not been published to date. In addition, the EHPA survey estimated 551,880 people in GIR categories 1 to 4 in 2007 (Prévot, 2009). Even though the notions of dependence and GIR 1 to 4 are significantly different, the total dependent population may be estimated at 1,257,880 people. Table 1 from the HSM survey demonstrates that the number varies greatly according to the dependence criteria used. On the basis of projections created using the HID[7] survey, the dependent population in France represents roughly 1 million people in 2011 (Duée and Rebillard, 2006).

Table 1

	Losing autonomy	Dependent	Highly dependent
20-39	0	0	82,100 (0.5%)
40-59	980,000 (5.8%)	156,000 (0.9%)	24,000 (0.1%)
60-79	1,400,000 (13.7%)	273,000 (2.7%)	61,000 (0.6%)
80 + *	661,000 (25%)	277,000 (11.2%)	62,000 (2.5%)
Total*	3,041,000	706,000	229,100

Source: Dos Santos & Makdessi (2010), HSM survey

Another method used to measure the number of dependent persons involves calculating the number of recipients of the APA (personal autonomy allowance). In 2009, 1,117,000 people received the APA allowance (Debout and Lo, 2009). Of these, 61% lived at home and 39% lived in care institutions. The proportion of people in the GIR 4 category (moderately dependent) represented 45% of recipients while 8% came under the GIR 1 category (severe dependence). This measurement of the dependent population is clearly imperfect. Some dependent persons do not receive the APA to fund their care, either because they do not know about the allowance and entitlement conditions, or out of choice[8]. Persons in the GIR 4 category may not necessarily present the characteristics of a dependent person. Furthermore, APA allocation policies may vary between French départements (local government divisions) (Ernst & Young, 2010). Some persons may be placed in GIR 4 whereas they may have been considered for the GIR 5 category elsewhere. The number of APA recipients is therefore an imperfect measurement of the dependent population. In spite of this, it can be used to test the reliability of previous estimations.
Based on these various assessments, we can argue that the dependent population in France represents between 1 and 1.2 million people.

(4) ADLs define the degree of dependence based on seven basic everyday activities:
- mobility in bed, transfer from the bed to a chair
- ambulation in the bedroom, corridor, unit or floor, outside the unit
- dressing,
- feeding oneself,
- toilet use
- personal hygiene and grooming
- bath and shower

(5) Persons with "moderate autonomy" have motor difficulties (walking, lifting or bending/kneeling), cognitive problems (memory loss, related to learning new things, behavioural problems), and have trouble performing some everyday tasks (shopping, housework, administrative formalities). However, they have hardly any absolute restrictions in the basic activities of daily living.
Persons considered to be "dependent" have the same limitations as persons with moderate autonomy but on a clearly more frequent basis. They may also suffer from incontinence and have some difficulty performing the basic activities of daily living, such as washing or dressing.
Lastly, persons considered to be "highly dependent" have major difficulties in all areas: physical and cognitive limitations, frequent difficulties in performing activities of daily living.
(6) The counterpart of the HSM (household) survey.
(7) Conducted between 1999 and 2001.

(8) For persons with income above 2 771.46 euros (2.67 x Majoration pour Tierce Personne - increase for external assistance), public financing covers 10% of their care plan. These persons may therefore decide not to apply for the allowance due to its low impact on costs.

1.3 Is the need for LTC a risk?

Dependence is a real risk and not simply an unavoidable period of life. For a cohort aged 65, the probability of becoming dependent (GIR 1 or 2) before dying is roughly 15% (Rosso-Debort, 2010). The probability of dependence seems very low compared to the probability of reaching pension age. Moreover, long-term dependence is rather rare. On average, people live for four years in a state of dependence (Debout and Lo, 2009). Only 6% of men and 16% of women over 60 live more than five years in a state of dependence.

1.4 LTC: how much does it cost?

This section provides microeconomic estimations of the cost of LTC, whether care is given in an institution or at home. It also discusses the macroeconomic cost of LTC.

1.4.1 Costs in institutions

France has approximately 10,000 care institutions for the elderly. The level of medical care and the cost of care vary greatly from one institution to another. The gross cost of institutional care varies between €2000 and €6500 per month in France, with an average around the €2500 mark[9]. Another study estimates the average net cost[10] at €2200 in rural areas and at €2900 in towns and cities (Rosso-Debord, 2010). The person's level of dependence has less influence on the total cost of care in institutions than on that of care in the home. This is why LTC for severe dependence is less costly in an institution than at home, for the same level of coverage.

(9) Estimations taken from www.agevillage.com
(10) The net cost is calculated by deducting the APA allowance or other Social Security benefits.

1.4.2 The cost of care in the home

On average, the cost of care in the home was approximately €1800 per month in 2010[11]. The cost of home help is more related to the person's level of dependence. Ennuyer (2006) has demonstrated two extreme scenarios for home care. The minimum scenario corresponds to the case of a person with a very low level of dependence. The time spent on care is estimated at roughly three and a half hours a week and costs approximately €340 per month. The maximum scenario corresponds to the extreme case of a severely dependent person suffering from Alzheimer's disease. This type of dependence often requires 24-hour care with a monthly cost of roughly €5300.

1.4.3 An illustration of the financial risk of long-term care

These cost figures could be refined in a later study. Yet these estimations give an overview of the financial risk posed by the long-term care required by the elderly. By means of example, if we consider an average dependent individual who lives in a retirement home in the Paris region will pay on average €2900 per month after deduction of social benefits, the average total cost of the long-term care over this four-year period will be €139,200. In regions other than Paris and its surroundings, the average cost for the same care in an institution would be €110,400. Care provided at home would cost an average of €86,400. This cost must be related to the average monthly pension levels which in 2004 were €1625 for men and €979 for women[12] (INSEE, 2004). It must also be related to the basic old age pension which was at €709 per month in 2010.

This reasoning is based on an average situation. However, if we consider the case of a woman who receives the basic old age pension due to a fragmented working life, who lives in the Paris region and has been in a state of severe dependence for six years, the financial risk becomes significant. In this case, the total cost is approximately €208,000 in an institution and €381,600 at home[13]. People who are the most exposed to the risk of dependence and long-term care are also those who have the least means of support in their old age.

(11) This figure is from the Direction générale de la concurrence, de la consommation et de la répression des fraudes (department of competition, consumption and fraud).
(12) Those are 2004 numbers which are available on INSEE's website: http://www.insee.fr/fr/themes/tableau.asp?reg_id=0&ref_id=NATCCF04564
(13) These are clearly extreme examples.

When this average cost is related to the average financial support of €409 provided by the APA allowance paid by local governments, it is clear that public financing only covers 30% (Ennuyer, 2006). More recent studies estimate that an individual must pay an average remainder of €1600 (Rosso-Debord, 2010). It should also be noted that this out-of-pocket also depends on help in kind provided by relatives. A considerable proportion of dependent people cannot cover this financial risk with their monthly income. They are therefore obliged to use any savings they may have, request assistance from their children or sell their homes to fund their long-term care. Dependent persons must therefore finance part of their care.

1.4.4 The macroeconomic cost

Public spending devoted to LTC represented approximately €22 billion in 2010, i.e. 1.1% of the French GDP (Rosso-Debord, 2010). By means of comparison, the proportion funded by insurers in the form of an LTC annuity remains very low, representing only €127.7 million in 2009 (FFSA, 2010). If we add to this figure the annuities paid by French mutuelles (mutual insurance plans) and instituts de prévoyance (mutual insurance plans run by trade unions of employers and employees), we reach an approximate total of €200 million per year (FFSA, 2010). This low amount may be explained by the market's low maturity. The market began to develop around ten years ago and insured cohorts have not yet reached the age at which the risk of LTC is high. The assistance provided by families, whether financial or in kind, should also be added to this figure.
On the basis of financial contribution levels as defined as part of the APA allowance, we reach a total of €7 billion (Vasselle, 2008). The APA defines a care plan and only funds part of it based on the dependent person's income. This estimation is based on the out-of-pocket defined in care plans. However, actual assistance provided by families (either by the dependent person or his/her children) is often much higher than the out-of-pocket defined by local governments. This is firstly because APA recipients may use professional care in excess of the assistance defined in the care plan and secondly because the family provides help in kind valued at roughly €6 billion (Davin et al., 2009). This figure underestimates help in kind according to its authors and also because it is based on 1999 wage costs[14]. If we consider that these two figures underestimate the total amount of support provided by families, it is not unrealistic to argue that total spending (public and private) for LTC represents around 2% of GDP in 2011.

1.5 Will help in kind continue to limit the financial costs of LTC?

Economists traditionally distinguish two types of factors of production that may produce LTC: professional care, which involves a market-based exchange, and help in kind, often provided by the family, which does not involve the market. Help in kind may be considered as a free substitute for professional care. Supposing that these two factors are substitutable, the level of help in kind produced reduces the need for professional care and therefore the financial risk that elderly people face. The decline in the number of family members who are caregivers may increase the financial risk of LTC in coming years. This decline is, however, more difficult to estimate than it may seem. Help in kind may only appear free of charge on the surface.

1.5.1 Help in kind and the role of children

Helping a dependent elderly parent is for the most part considered as a service, as financial transfers within the family are only very rare from children to parents (Attias-Donfut, 1995 and 1996, Wolff, 2000). Using the European study SHARE, the proportion of individuals who help their elderly parents financially is estimated at less than 5% (Attias-Donfut and Wolff, 2007; Bonsang, 2009; Fontaine et al., 2007). In most cases, children assist their parents through help in kind.

(14) Date of the first wave of the HID study

Help in kind may be understood as a means of mitigating the financial risk of LTC, even though this substitution proves to be relatively imperfect in practice. For public authorities, families appear to be service providers in the same capacity as professional caregivers. This is why encouraging people to look after their dependent parents has been one method used by the authorities to decrease the financial cost of LTC. This help only appears free of charge as it represents a cost in terms of caregivers' health and labour supply. These policies to encourage help in kind raise at least three issues:

- Will help in kind decline considerably in coming years, thereby limiting its mitigating effect?
- Are policies inciting sixty-year-olds to look after their dependent parents so they can stay at home compatible with the measures aimed at extending the working life of over-fifties[15]? What is the consequent macroeconomic cost of this help in kind in terms of labour supply and caregivers' health?

1.5.2 The decline of help in kind

The drop in the number of children per family, the geographical distance between parents and children and in a more general sense the breaking-up of the family structure are all factors that may limit help in kind. This statement is often put forward to explain the decline in the number of potential caregivers in coming years[16]. This decline would lead to an increase in the financial cost of LTC as all care would be provided by paid professionals. This scenario should be qualified for at least two reasons.

Firstly, the quantity of help received by the dependent person does not necessarily rise in line with the number of children per family (Fontaine et al., 2007). Consequently, the downward trend in the number of children born in a family in developed countries[17] seems not to have a direct impact on the level of help in kind received by the parents. Rather than the number of children, it is more the presence of the children, and of a girl in particular, that may significantly impact the level of help in kind received.

(15) And in particular those over sixty.
(16) See in particular the Gisserot (2007) and Rosso-Debord (2010) reports.
(17) Considering all developed countries over the last century and not only in the last ten or twenty years.

Secondly, recent studies show that interactions between brothers and sisters may be negatively correlated. A drop in the contribution of one may be offset by increased help from others (Fontaine et al., 2009). Recent work even shows that help and mutual support within the family remains strong and that the number of caregivers has never been as high[18].

1.5.3 The macroeconomic consequences of help in kind

Help in kind is in essence a transfer that is not based on market relations. It is therefore not easy to value. Two valuation methods are conventionally used in economic literature:

- Replacement cost,
- Opportunity cost.

The replacement cost is the value of care that would have been provided by a professional instead of the caregiver. The cost of help in kind may also be measured in terms of opportunity cost. One method used to measure opportunity costs involves measuring the salaries that the caregivers would have earned if they had allocated the time spent with their dependent parents to the labour market. This approach gives a monetary value to help in kind and is used to estimate its overall cost[19]. The opportunity cost is used here only to value help in monetary terms. Help in kind may also generate two other types of costs.

(18) See the Vasselle report, page 148 (Vasselle, 2008) which reiterates the conclusions of Simone Pennec on this issue.
(19) As seen previously in the work of Davin et al. (2009)

Help in kind may also influence individuals' labour supply. Fontaine (2010) believes that one additional hour of help in kind reduces the labour supply of Europeans aged between 50 and 65 by roughly 20 minutes. The activity of caregivers may also force individuals to let certain career opportunities pass them by or to accept lesser paid jobs with more flexible working hours so they can be close to their parent's home and more available. However, if help in kind crowds out labour supply, it is rare that the role of caregiver leads individuals to leave the labour market permanently (Le Bihan and Martin, 2006). Ultimately, the increase in the employment rate of seniors, a European-scale target, is likely to occur to the detriment of help in kind, in turn leading to increased use of professional assistance and a higher financial risk of long-term care.

Help in kind also has an effect on the health of caregivers. Many epidemiological studies have demonstrated the negative effect that help in kind has on caregivers' health (Sorensen et al., 2002), (Brodaty et al., 2003). In particular, the study by Coe and Van Houtven (2009) shows that helping a dependent parent increases the probability of depression in married individuals. For single men, however, helping a dependent parent tends to increase the probability of suffering from heart problems. Help therefore seems to have an effect on caregivers' health, even if this effect is not uniform.

1.6 Does the LTC insurance market cover this out-of-pocket financial risk?

Taking the previous example, a person aged 60 has therefore a roughly 15% chance of having to pay on average €140,000 for long-term care before dying. It is therefore a relatively rare risk that generates a high financial cost. This cost is even higher when related to the average resources of pensioners. The principle of pooling risks and therefore insurance cover applies as it shares this financial burden among individuals.

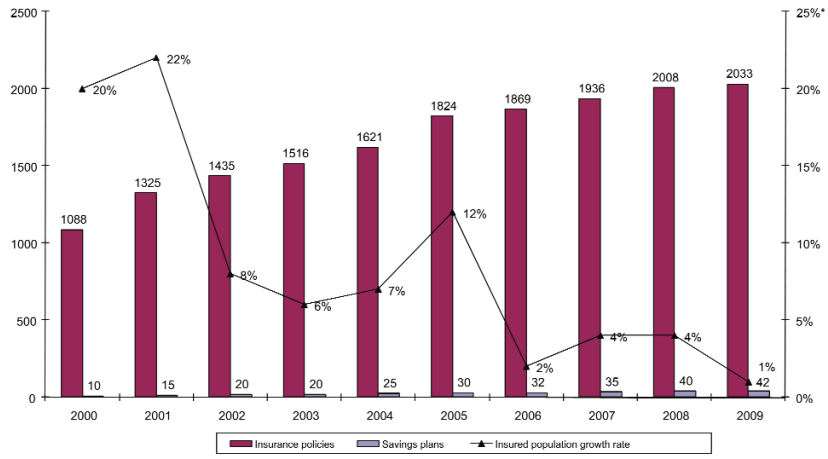
However, a maximum of only 3 million people are covered by an LTC insurance product in France (FFSA, 2010). If this total number of insured persons is related to people over 40, we reach a rate of cover of approximately 8%, which is very low compared to the rate of cover on the complementary health market (86%)[20].

In light of Figure 1, it can be observed that despite strong growth at the turn of the century[21], the market seems to have lost its momentum in recent years. This estimate of 3 million individuals may also change considerably according to how we define long-term care coverage.

(20) The rate of cover on the complementary health insurance market is 86% if the number of individuals covered by the French CMU (free healthcare for persons with low incomes) is deducted.
(21) This strong growth at the turn of the century can be explained in particular by the arrival of new players in the LTC insurance sector.

Figure 1

Population insured by insurance companies (in thousands)



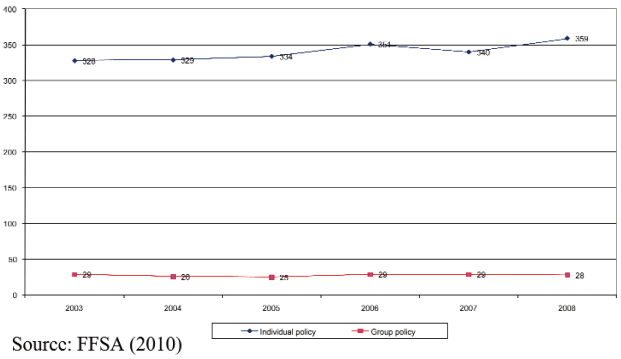
Source: FFSA (2010)
* the right axis indicates the insured population growth rate

If we base our estimations on the definition of coverage in the strictest sense, the figure of 3 million overestimates the insured population. A large share of these 3 million insured individuals are relatively poorly covered. The premiums and benefits provided for in collective policies, in which roughly half of the covered population are enrolled, are often too low against the cost of LTC as stated in Figure 2. Individual policies propose monthly benefits of €522 while collective policies propose monthly annuities ranging from €150 to €200 (FFSA, 2009). Can we consider a person covered for LTC if they receive an annuity of €150 in the event of a claim? These benefits will be even lower in 15 years' time as the cost of care is set to increase.

If, on the other hand, we understand a loose meaning of LTC coverage, this figure of 3 million should be revised upwards. In this case, we can include complementary health covers that propose benefits in the event of dependence. The first limit of this coverage is that it remains relatively low compared to an individual policy with LTC as principal coverage (and to group policies). The second limitation is that coverage is not provided over time, as it is with an annuity policy.

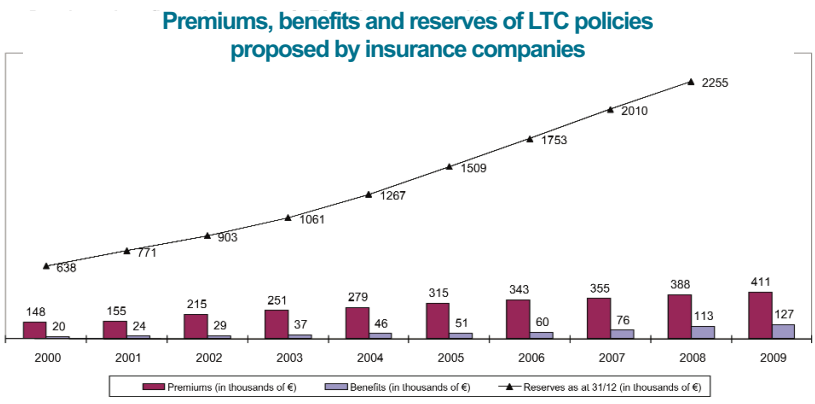
The long-term care insurance puzzle is not specific to France. The United States, which has a social insurance system which is very different from the French framework, is experiencing exactly the same type of paradox. Public financing is even less sufficient and exclusively reserved for persons with no means of financial support, pensioners often receive pensions that do not cover their care needs and the rate of cover for LTC insurance is struggling to exceed 10% of over 65s, as in France. And yet, the United States and France represent the two most mature LTC insurance markets in the world.

Figure 2



Source: FFSA (2010)

Figure 3



Source: FFSA, 2010.

2. Literature review

Many economists have analysed the reasons behind the limited size of the LTC insurance market. These explanations can be placed into four categories:

- Reasons concerning individuals' short-sighted vision of the risk,
- Reasons concerning insurers (distribution of an inappropriate product and/or asset management),
- Reasons concerning the institutional background (eligibility criteria for public financing, tax regime of the policy),
- Reasons inherent to the risk (insurability, anti-selection, intergenerational moral hazard, etc.).

We will concentrate on the last series of explanations in this article.

Explanations related to supply

Several factors may influence the insurance offering:

the terms and conditions of public coverage,

the degree of competition between players,

the insurability of the risk.

Here, we will focus on insurability. The risk must be insurable for the insurance market to develop. The law of large numbers must apply for this to be achieved. Events must therefore be independent, and the probability and cost of the loss must also be known. Under these conditions, an insurer may set the price of an insurance policy. Failing this, the insurance company will face solvency problems in the short or long term.

In reality, the LTC risk can be broken down into three types:

1. the probability of becoming dependent,
2. the duration of dependence,
3. the cost of this dependence.

The LTC risk also has a specific characteristic: it is a long-term risk. Like the risk of illness, it has two components that are interlinked: the financial risk of becoming dependent and the reclassification risk (Geoffard, 2000). A long-term risk therefore contains a reclassification risk that can be defined as the risk of becoming a bad risk.

The risk of the cost of care changing over time also depends on two factors:

changes to the average duration of dependence,

changes to the average unit cost of care.

The first risk depends mostly on changes in demography and in the treatment of some incapacitating illnesses. The second risk, that we may call the risk of cost, or the risk of cost overruns, is more complex. It is closely related to the regulatory and social context that provides a framework for care coverage. The insurability of the financial risk of LTC therefore depends on the ability to foresee the development of underlying risks. Theoretically, this means studying the extent to which the LTC risk market is a complete market.

Adopting this approach, Cutler (93) studies the changing cost of care for a day in a US institution using a simplified model.

$$C_{t+1}^{ln} = \rho C_t^{ln} + \eta_{t+1}$$

η_{t-1} represents here the innovation of cost from one year to the next.
Using augmented Dickey-Fuller tests, Cutler shows that American series are not stationary and seem to follow a DS process. Consequently, the forecasts for changes in the cost of care over twenty years present a significant confidence interval that makes it difficult to set a price for a compensatory product.

Cutler concludes that insurability issues encourage insurers to offer incomplete policies. Faced with a product that does not cover the risk entirely, individuals may therefore rationally decide to forego insurance.

It is possible to enrich the model by specifying an ARMA(p,q) model as follows (Plisson and Nouet, 2007).

$$Y_t = \Phi_1 Y_{t-1} + \Phi_2 Y_{t-2} + \ldots + \Phi_p Y_{t-p} + \varepsilon_t + \theta_1\varepsilon_{t-1} + \theta_2\varepsilon_{t-2} + \ldots + \theta_{\tau-\theta}\varepsilon_{t-q}$$

Y_t represents the cost of care in the home in year t. The Y_{t-1}, Y_{t-2}, etc. represent the lagged variables of cost. ε_t represents the innovation of cost in t. ε_{t-1}, ε_{t-2}, etc. represent the lagged innovations of cost.

The results obtained from French data on home care show that the confidence interval at 95% does not grow significantly over time. It is therefore possible to anticipate changes in the cost of care with a reasonable margin of error.

It is also possible to test a cointegration relationship between changes in the cost of home care and macroeconomic aggregates using the following model (Plisson, 2009):

$$Cost_t = \alpha + \beta GDPt_t + z_t$$

The two-step method proposed by Engle and Granger involves estimating this relationship then conducting stationarity tests on the residue z_t.

The results based on French data demonstrate a significant cointegration relationship[22]. This work therefore concludes that although there are difficulties in anticipating the development of a compensatory insurance, it is possible to push back the boundaries of insurability, especially as concerns the insurance of home care. Yet, as demonstrated by Brown and Finkelstein (2007), explanations concerning the shortcomings of supply are insufficient. We must also look at why the demand for LTC insurance is so low.

(22) For a more detailed presentation of these methods and the data used, refer to the thesis (Plisson, 2009) http://www.dauphine.fr/fileadmin/mediatheque/chaires/chaire_transition/pdf/these_Plisson_2009.pdf

Explanations related to demand

The crowding-out effect of public financing

An initial explanation often given with regard to the slow development of the market is the crowding-out effect on public financing. In the case of the American market, Brown and Finkelstein (2008) showed that Medicaid[23] introduces a strong crowding-out effect, for the poorest individuals and women in particular. Medicaid proposes an incomplete yet free substitute to LTC insurance. The authors concluded that all tax incentives developed in the United States to boost the LTC insurance market are mostly ineffective as Medicaid will continue to act as an implicit tax on private insurance. However, this effect is strongly related to the institutional context and it is difficult to generalise this phenomenon to other countries, in particular France, where insurance is seen as complementary to public financing and not as a substitute.

The influence of children's behaviour

Another explanation for the low development of LTC insurance involves what may be called the intergenerational moral hazard (Zweifel and Struwe 1998). According to this theory, parents anticipate an opportunistic behaviour from their children which encourages them not to insure themselves. Their children are then encouraged to look after their parents more. However, the first estimations do not verify this theory (Courbage and Roudaut, 2008).

(23) Medicaid is the American public care system for dependent persons.

3. Demand for LTC insurance: the first empirical results

In this section, we shall review the main determining factors of demand for LTC insurance. For each factor, we shall specify the various effects that it may have on the probability of subscribing to coverage.

Data[24]

The LTC policy offered is an annuity policy covering severe dependence (GIR 1 and 2). The person may subscribe to this policy up to the age of 75 and for an annuity amount defined at the time of subscription. Over the given period, the minimum monthly annuity was €600 and could reach €3500. The monthly premium paid by the insured person depends on the age at which he/she subscribes to the policy and to the annuity level selected in the event of dependence, but not on the person's sex. By definition, the older the person is when he/she subscribes to the policy, the higher the premium. When the insured person's level of dependence is certified by a regional medical unit reporting to the bank-insurer, the person stops paying premiums and receives a monthly annuity to finance care. The premiums do not take the person's sex into account while on average, women have a higher probability of becoming dependent and remaining in this condition for longer compared to men. If the cost of insurance is related to the level of risk, the insurance is therefore much less expensive for women than for men. On the American market, Brown and Finkelstein (2007) show that in this configuration, negative loading rates may even be applied to women.

(24) For a more detailed description of data processing methods, refer to chapter 6 of the thesis (Plisson, 2009), op. cité

The determining factors of the probability of subscribing to cover

In this section, we will firstly look at the influence of conventional factors on the probability of subscribing to LTC cover: age, sex, socio-professional category (csp), income, the person's estate. We will model the effect of these variables on the probability of taking out insurance using three simple logit models.

(A1) $P(A)=\beta_0+\mathbf{X_i}\boldsymbol{\beta}+u$

(A2) $P(A)=\beta_0+\mathbf{X_i}\boldsymbol{\beta}+\beta_j*\text{Aversion}+u$

(A3) $P(A)=\beta_0+\mathbf{X_i}\boldsymbol{\beta}+\beta_j*\text{Aversion}+\beta_k*\text{Proba}+u$

The results of these estimations are presented in Table 2, in the appendices.

Our results are to be understood with precaution. We are attempting to explain a rare behaviour (the average probability of subscribing to cover is low) using relatively general variables. Our variables do not enable us to identify individuals who are highly likely to subscribe to coverage. We do not have sufficiently intimate variables (the case of having looked after dependent parents, of falling out with children, etc.) to identify a population in which the probability of insurance would be high. Our model does therefore not enable us to predict whether or not a specific individual subscribes to insurance cover. It only helps to outline trends in a market that is only starting out.

The factor of sex

Table 2 shows that, ceteris paribus, women subscribe to insurance more than men.

This could be due to a price effect. Women have higher prevalence rates than men. Under these conditions, when the premium level does not depend on sex, the loading rates are much lower for women than for men. Brown and Finkelstein (2007) have even demonstrated that women may have negative loading rates.

A selection effect may also influence in conjunction with the price effect. Even if the premium was gender-determined, women could still subscribe to insurance more often than men due to their higher probability of dependence (selection effect) and their lower probability of receiving help in kind. Lastly, these differences in behaviour between men and women with regard to insurance could express a different degree of risk aversion.

Age

Age has two contrary effects on the demand for LTC insurance:

- a "risk proximity" effect which should encourage older people to take out insurance,
- a price effect which should encourage older people to cover themselves less.

The "risk proximity" effect should encourage older people to cover themselves more than younger people. The younger the people, the lower their probability of becoming dependent in the short term (Duée and Rebillard, 2004). The price effect should have the opposite influence. The older people are when they subscribe to cover, the higher the premiums they pay for the same benefits. Age is a good proxy variable for the price of insurance. Courbage and Roudaut (2008) demonstrate that the probability of subscribing to insurance is negatively correlated to age, which leaves us to think that as people get older, the price effect has more influence than risk proximity in France.

In accordance with the literature, the effect of age on the probability of coverage is high, as demonstrated in Table 2. Figure 4 shows, however, a slight bell curve effect for the oldest individuals.

Socio-professional category (csp)

A person's socio-professional category is likely to have at least three types of effect on the demand for insurance:

- An "information effect" via the level of studies strongly correlated to the socio-professional category,
- An income effect via a high correlation between the socio-professional category and income,
- A selection effect via the negative correlation between the socio-professional category and the probability of becoming dependent.

The socio-professional category information effect should have a positive influence on the demand for LTC insurance. The socio-professional category is a good proxy variable for the level of qualifications. The more individuals are educated and the more they have access to information, the more they are aware of the risk of dependence. Under these conditions, the short-sightedness with regard to the risk should decrease with the level of qualifications ("information effect").

Table 2 and Figure 5 demonstrate that belonging to the categories of office workers or manual workers positively influences subscriptions. This result is further strengthened by the fact that pensioners taking out LTC insurance are very often retired office or manual workers. It therefore seems that the LTC product is rather used by the working classes. If we consider that the socio-professional category is a good proxy variable of the level of education, we obtain results that are contrary to those obtained from the SHARE database (Courbage and Roudaut, 2008). The results for farmers are difficult to interpret due to lack of numbers.

Income

In theory, income can generate two contrary effects on the demand for insurance:

- As self-insurance increases with wealth, people with high income are encouraged to take out less insurance.
- As the crowding-out effect of social financing decreases with wealth, it discourages people with high income less than people with low incomes to take out insurance.

Empirical studies cannot be used to conclude that wealth has a single effect. Sometimes the self-insurance effect prevails, while at other times it is the crowding-out effect. The first American results show that the effect of income on the probability of taking out LTC insurance is not significant and that the person's estate has a very low marginal effect (Sloan and Norton, 1997). For Mellor (2001), however, income and wealth have a positive effect on the demand for insurance. Costa-Font and Rivera-Forns (2008) also find that income has a positive effect on Spanish data while Courbage and Roudaut demonstrate a negative effect on French data taken from the SHARE survey (2007). However, in a more detailed analysis of the effect of income, Courbage and Roudaut showed in a later article that in reality income has a bell-curve effect (not linear) on the demand for LTC insurance (Courbage and Roudaut, 2008). The effect of self-insurance seems to prevail and limit demand. For lower incomes, the crowding-out effect or budget restrictions play a key role and limit demand.

Our results confirm that income has a bell-curve effect on the probability of taking out LTC cover, as shown in Table 2 and Figure 6. This bell effect should be compared with total public financing received (social benefits and tax breaks) for each income level. Figure 8 shows that the effect of income on public financing forms a U-shaped curve, which is particularly unfavourable to the middle classes, who stand to gain from taking out LTC cover as they receive the least public financing for their dependence.

The person's estate

Table 2 shows positive correlation between the level of a person's estate and the probability of insurance for the four first deciles of estate. However, the four first deciles concern persons with estates between 0 and 2000 Euros. It is therefore possible that people with other savings accounts in other banks are over-represented in this category. This is why we have chosen not to further interpret the results from these categories. The effect is subsequently stable for the following three deciles (D5, D6, D7). For the upper deciles, we observe a strong positive relationship between the level of estate and the probability of insurance. Two effects may explain this relationship.

Firstly, LTC insurance may be used to insure one's estate, and subsequently secure the amount of inheritance to be passed on. In other words, individuals may prefer to pay for insurance rather than run the risk of having to use their savings to fund their care. If this explanation is true, our results show that the very rich have a stronger aversion to the risk of using savings (individuals therefore have preferences such as IARA).

Furthermore, this effect may be strengthened by the relaxation of budget restrictions as the estate gradually grows.

The influence of the probability of dependence

It is possible that the probability of becoming dependent one day plays a part in the decision to take out LTC insurance. In particular, it is highly probable that there is a selection effect, i.e. individuals with a high probability of becoming dependent tend more to subscribe to LTC cover than individuals with a low probability (Geoffard, Grandchamps and Gardiol, 2005). We should note that this probability clearly cannot be observed on an individual level[25].

(25) Contrary to conventional econometric models aimed at identifying anti-selection, we do not have the necessary data to test ex post for a higher prevalence of dependence in insured persons than in uninsured persons, as we do not know whether those who are uninsured have become dependent.

We have reconstructed the probability of becoming dependent one day, for at least one year, for a given age and sex, using two exogenous data sources: data from the Handicap Invalidité Dépendance (HID) survey and data from mortality tables[26].

Table 2 shows a strong effect of this factor. However, to go further into its analysis, we should use a bivariate model to detect endogenous effects.

The role of risk aversion

Risk aversion is another conventional factor of the demand for insurance. However, Norton and Sloan showed in their work (1997) that risk aversion does not affect the demand for LTC insurance. Unfortunately, the data we have does not provide information directly on the preferences of individuals facing the risk of dependence. However, taking out a death & disability insurance or sick leave insurance for liberal professions may be considered as a proxy for risk aversion.

(26) The official tables are available at the following site: http://www.actuaris.com/site/index.php?page=infotech&categorie_infotech=4&lang=1 or on the INED (national institute for population studies) website: http://www.ined.fr/cdrom_vallin_mesle/contenu.htm
For a more detailed presentation of the reconstitution of the probability of dependence, see the thesis p. 263 (Plisson, 2009)

To estimate the effect of aversion on the probability of taking out insurance, we use a second model (model A2) which includes the explanatory variables of the model A1 and incorporates the risk aversion variable. Incorporating an aversion variable in the independent risk also enables us to some extent to rid the effects of the other variables of the specific effect of aversion.

According to the results of this model's estimation, presented in Table 2, risk aversion therefore seems to have a strong influence on the probability of taking out insurance, thus confirming the results of Finkelstein and McGarry (2006). An individual who takes out a death & disability insurance has, ceteris paribus, 9.54 times more chance of taking out LTC cover than an individual who does not subscribe to D&D insurance. LTC insurance is therefore marked by a strong selection effect that concerns risk aversion. This selection effect does not disrupt market operations as long as it is not correlated to risk levels that differ from the average.

Let us note that the estimations of other parameters differ between the models A1 and A2. The fact that the parameter related to a modality decreases (respectively increases) between model A1 (without aversion) and model A2 (with aversion) means that the parameter of model A1 overestimated (respectively underestimated) the effect of the variable.

Conclusion

The first result of this study shows that the probabilities of taking out insurance do not vary strongly between the different categories of the population. If LTC insurance continues to develop and the trends observed are confirmed, it could become a mass product and not merely a product for the wealthiest or for a very specific category of the population. The results show that age and income have a bell-curve effect on the probability of insurance. Even though all population categories take out LTC products, the middle classes are more likely to than others. More specifically, the categories of office worker or manual worker or retired office and manual workers take out such insurance the most. Within this category, those with above-average income and estates subscribe the most. These first results lead us to believe that LTC insurance could well become a mass product such as complementary health cover.

Going back to the initial issue, it seems that the small size of the market cannot be explained by the lack of demand or a demand confined to very specific strata of the population. The data we have does not enable us to observe this type of phenomena.
This article calls for complementary work on the role of asymmetric information in the slow development of the market. Another surprising phenomenon is the high termination rate of LTC policies, even when the policy studied does not allow capital lump-sum withdrawals.

Appendices

Figure 4

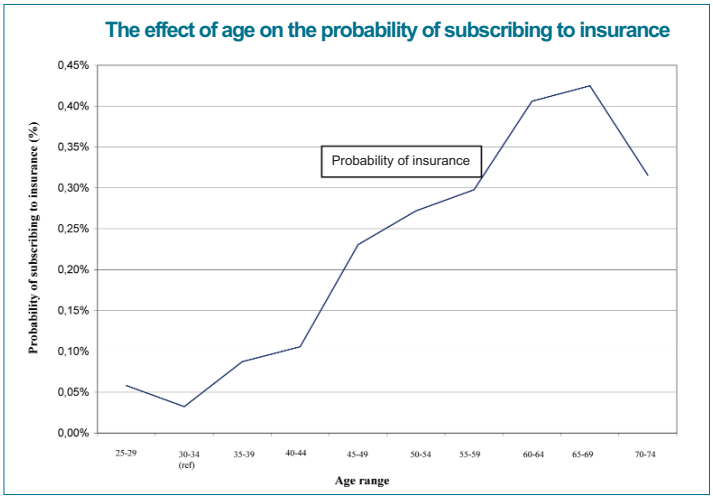


Figure 5

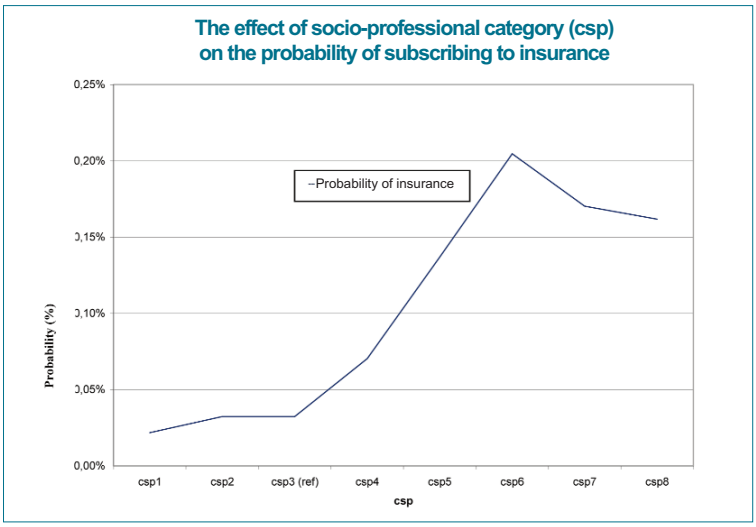


Figure 6

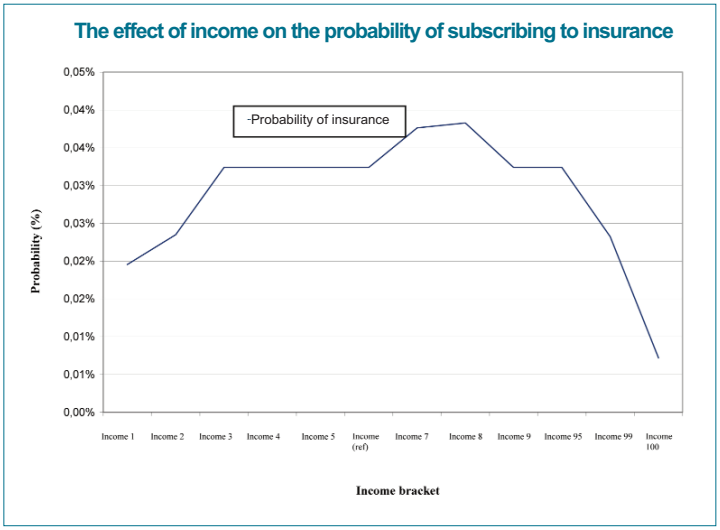


Figure 7

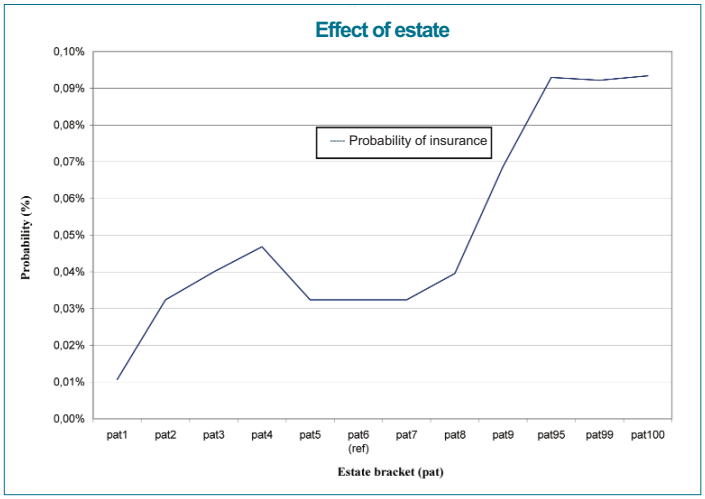


Figure 8

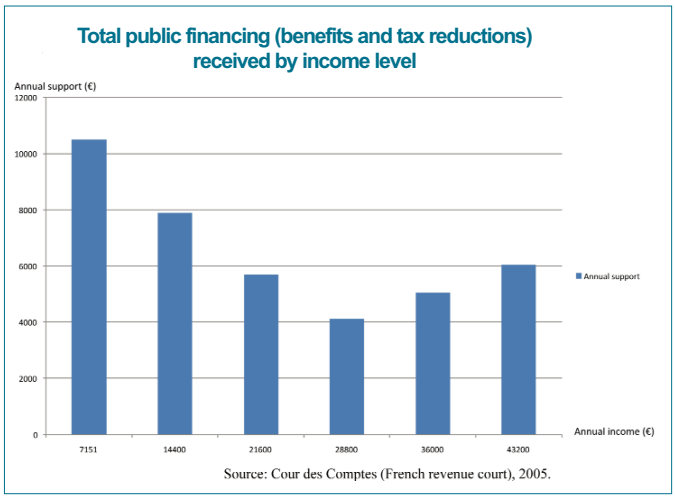


Table 2

Dependent variable		Probability of subscribing to LTC insurance		
method		Logistic regression		
		Model A1	Model A2	Model A3
Constant		-7.7310***	-8.0346***	-18.6570***
Age	25-29	0.5474***	0.5847***	ns
	30-34 (ref)	ref	ref	ref
	35-39	1.2743***	0.9933***	ns
	40-44	1.4622***	1.1819***	ns
	45-49	2.2392***	1.9639***	10.0638***
	50-54	2.3759***	2.1300***	8.4420***
	55-59	2.3356***	2.2204***	7.9814***
	60-64	2.4906***	2.5319***	8.0666***
	65-69	2.4456***	2.5779***	7.9786***
	70-74	2.0977***	2.2785***	7.6666***
	75-79	-13.3925*	ns	ns
Woman		1.6711***	1.7968***	-10.2933***
CSP	Farmers and farm workers (csp1)	0.3582*	-0.3949*	ns
	Craftsmen, commerce employees and company directors (csp2)	0.4200**	ns	ns
	Managers and upper intellectual professions (csp3)	ref	ref	ref
	Intermediary professions (csp4)	0.7443***	0.7753***	0.4780**
	Office workers (csp5)	1.4295***	1.4418***	1.4004***
	Manual workers (csp6)	1.8166***	1.8450***	1.6904***
	Pensioners (csp7)	1.6452***	1.6605***	1.8046***
	Other persons with no professional activity (csp8)	1.5892***	1.6089***	1.6243***
Income	Income1 (5 000-9 745)	-0.5716***	-0.5047***	-0.5938***
	Income 2 (9 745-13 659)	-0.3375***	-0.3212	-0.3343***
	Income 3 (13659-17 130)	ns	ns	-0.1603*
	Income 4 (17 130-20 751)	ns	ns	ns
	Income 5 (20 751-25 155)	ns	ns	ns
	Income 6 (ref) (25 155-30 777)	ref	ref	ref
	Income 7 (30 777-38 531)	0.1729**	0.1496*	0.1039*
	Income 8 (38 531-49 787)	0.2235***	0.1669***	ns
	Income 9 (49 787-74 469)	0.1439*	ns	ns
	Income 95 (74 469-109 215)	ns	ns	ns
	Income 99 (109 215-252 220)	-0.2539***	-0.3323***	-0.4112***
	Income 100 (252 220-8 002 493)	-1.4131***	-1.5040***	-1.6689***
Estate (pat)	pat1 (0)	-1.2199**	-1.1068*	-1.4677***
	pat2 (1-41)	ns	ns	-0.2487**
	pat3 (41-446)	0.3130***	0.2105***	ns
	pat4 (446-1 955)	0.4848***	0.3696***	0.3088***
	pat5 (1 955-5 238.5)	0.1631*	ns	ns
	pat6 (ref) (5 238.5-10 961)	ref	ref	ref
	pat7 (10 961-21 337)	ns	ns	ns
	pat8 (21 337-42 618)	0.1174*	0.2003**	0.2024***
	pat9 (42 618-94 845)	0.6316***	0.7519***	0.7437***
	pat95 (94 845-168 551)	0.9161***	1.0549***	1.0119***
Income	Income1 (5 000-9 745)	-0.5716***	-0.5047***	-0.5938***
	Income2 (9 745-13 659)	-0.3375***	-0.3212	-0.3343***
	Income3 (13659-17 130)	ns	ns	-0.1603*
	Income4 (17 130-20 751)	ns	ns	ns
	Income5 (20 751-25 155)	ns	ns	ns
	Income6 (ref) (25 155-30 777)	ref	ref	ref
	Income7 (30 777-38 531)	0.1729**	0.1496*	0.1039*
	Income8 (38 531-49 787)	0.2235***	0.1669***	ns
	Income9 (49 787-74 469)	0.1439*	ns	ns
	Income95 (74 469-109 215)	ns	ns	ns
	Income99 (109 215-252 220)	-0.2539***	-0.3323***	-0.4112***
Family	Account in name of man (ref)	ref	ref	ref
	Account in name of woman	-0.6180***	-0.8776***	-0.9022***
	Joint account	-14.0065***	-0.5933***	-0.6359***
	Account in name of men	ns	ns	ns
Aversion			2.5572***	1.5861***
Probability of dependence				37.9150***
% concordant		82.7	87.5	85.8

*** means Proba<0.05**
**** means Proba<0.01**
***** means Proba<0.001**

The various estate and income brackets are expressed in Euros.
The % concordant is an indicator of the quality of regression. It is calculated based on the ratio (decision of taking out insurance predicted by the model / actual decision to take out insurance).

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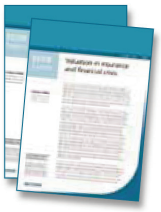

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