

18-04

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CAHIER DE RECHERCHE
WORKING PAPER

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Avril / April 2018



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Dépôt légal : Bibliothèque et Archives nationales du Québec et Bibliothèque et Archives Canada, 2018.
ISSN 2368-7207



A Canadian *Parlor Room-Type* Approach to the Long-Term Care Insurance Puzzle*

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April 2018

Abstract

We examine the different hypotheses which have been put forward to explain the low demand for long-term care insurance using the results from a survey of 2000 Canadians that was conducted in the autumn of 2016. Defining the *natural market* of long-term care insurance buyers as the one catering to individuals aged between 50 and 70, we find that a remarkable proportion of this natural market has never been approached to purchase such protection. We estimate that approximately 60% of this natural market is currently under-served. After eliminating risk perception and demand side explanations for the low market penetration of long-term care insurance, we conclude that supply-side factors and the crowding-out by government programs are the most likely culprits in explaining the low proportion of Canadians that purchase LTC insurance from private providers.

JEL classification: G02, G12, C14.

Keywords: Long-term care puzzle; Risk perceptions; Supply and demand of insurance, Government programs.

*We acknowledge financial support from the Social Science and Humanities Research Council (435-2016-1109). We thank Sébastien Box-Couillard and Francois Laliberté-Auger for excellent research assistance. The continuing support of CIRANO and of the Direction de la Recherche at HEC Montréal are also acknowledged.

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“These (whodunnit) movies include the moment the crime takes place to the second the detective or intelligent protagonist reveals the real culprit in a parlor room-type scene”

(<https://www.ranker.com/list/best-whodunnit-movies/ranker-film>)

1 Introduction

The Manufacturers Life Insurance Company of Canada, which is commonly known as Manulife and which operates in the United States under the name John Hancock, is one of Canada’s largest provider of life and health insurance. It announced in late 2017 that it would discontinue the sale of long-term care insurance in Canada by the end of the same calendar year.¹ Reasons stated for doing so were the limited market acceptance of such an insurance product and the new federal laws restricting insurer access to medical information. Manulife’s presence on this market lasted barely 10 years. In November 2007, a Manulife official was quoted saying that "Canada’s aging population, increased life expectancy and need for elder care all suggest Canadians should account for long term care costs when they’re planning for retirement".² Although the Manulife official uttered those words in 2007, it is very likely that the same quote could be uttered by many others insurance and government officials in 2017; even the OECD³ recognizes that one of the biggest challenges of a modern society whose population is growing older is to devise a system that responds to the greater need of long-term care (LTC hereinafter) services.

Long-term care is defined as the care for elderly individuals over a prolonged period of time. This care is provided in the form of support with activities of daily living (such as bathing, dressing, eating, getting in and out of bed, grooming, and continence) or with instrumental activities of daily living (which include preparing meals, cleaning, doing the laundry, taking medication, getting to places beyond walking distance, shopping, managing money, and using the telephone or the Internet). LTC is thus related to the loss of autonomy brought on by old age. In Grignon and Bernier (2012), the authors distinguish upstream (acute care or rehabilitation) from downstream (help with activities of daily living) services since the former is generally taken care of by health professionals under Canada’s Health Act (and thus covered under provincial health services), whereas the latter is often provided by relatively unskilled workers and family members. For the purpose of the current study, we will limit ourselves to the downstream portion for which no market / public solutions have come up on top in Canada. LTC should be distinguished from illness, disability, and handicap, which can affect younger individuals. Because needing LTC is not the same as having a disability, LTC insurance is not the same as disability insurance. Disability insurance is more targeted towards the working age population whereas LTC insurance is targeted towards the retired or soon-to-be-retired population.

The OECD recognizes⁴ that one of the biggest challenges of our modern society is to design a system that responds to the greater need for long-term care services of a population which is growing older. Although LTC services are only one of many aspects of the increasingly important problems that all rich countries must face with respect to the provision of services to a growing elderly population, it is possibly the one for which the least has been done so far. For instance, medical care for the elderly is financed either from general income tax revenues, as in Canada and many Western European countries, or as a special program such as Medicare in the United States. Great advances have been made in the provision of health services and retirement income to the elderly in most Western economies; yet, the great majority of rich countries are still looking for the best way to finance the cost of providing LTC services.

Financing LTC services raises many challenges since LTC is becoming an increasingly important problem for all developed countries. According to OECD (2011), the population aged 80 and over is expected to represent 10% of the developed world’s population by 2050. That age bracket represented only 4% of the

¹Desjardins announced on March 1st 2018 that it would exit the market on June 15th 2018. This will leave Canada with only three providers of long-term care insurance: Blue Cross, Sun Life and La Capitale (see <https://journal-assurance.ca/article/des-assureurs-se-retirent-faute-de-reassurance/> last viewed on March 2nd 2018)

²See <http://www.newswire.ca/news-releases/manulife-financial-introduces-long-term-care-insurance-with-unique-design-and-benefits-for-canadians-and-their-partners-534616761.html> (last visited 4 January 2018).

³Help Wanted? - Providing and Paying for Long-Term Care. OECD Press.

⁴Help Wanted? - Providing and Paying for Long-Term Care. OECD Press.

rich world's total population in 2010. The over 80 age range is the fastest growing age group in the developed world. The fact that the proportion of the population that is elderly increases would not be a problem in itself if the up-and-coming population aged 80 in 2050 were as healthy as the population aged 70 in 2010. The challenge for the provision and the financing of LTC services is that the average number of years during which LTC services will be needed may actually increase if the population grows older but not healthier, or that the types of services needed, sought, and/or covered by the public system or private insurers in the future changes.

A decade ago, Brown and Finkelstein (2009) estimated that between 35% and 50% of 65-year-old Americans will be in need of a nursing home at some point. Of those, 10% to 20% will need LTC services for five years or more. Nothing suggests that these numbers have gone down since (Hurd *et al.*, 2013). LTC services will likely become more and more costly as the bulk of baby boomers reaches an age when such services are needed. Canada, like other OECD countries, will not escape that trend. Given an annual cost for a nursing home that is approximately four times the average annual gross income of retirees (see Konetzka *et al.* 2014), having to pay for LTC represents a potentially catastrophic financial event for middle-income households. This is especially true for those individuals who will need LTC for five years or more. Wittenberg (2014) reports that, in the United Kingdom, the LTC cost for the high users (those individuals aged over 65 whose total LTC expenses are in the top-10% of the distribution) already exceeds 100,000 GBP (or 170,000 CAD at current exchange rates).

Despite LTC risk having many characteristics similar to that of catastrophic risk (that is, relatively low annual probability of needing LTC but high overall severity), which should be sufficient for an insurance market to thrive, LTC insurance penetration is quite low. Given that less than 15% of any rich country's population has some form of private LTC insurance, the low demand for LTC insurance phenomenon is known as the "Long-term care insurance puzzle".⁵ Despite the apparent need for LTC insurance that would provide protection against a risk that is sizeable and increasing, very few individuals and/or households are in fact insured against the risk of needing LTC services. Many hypotheses have been formulated to explain the lack of a market for LTC insurance.⁶ These hypotheses can be grouped in three categories: Demand considerations (including in particular the misperception of risk), Supply considerations, and Government crowding-out.

Supply side explanations for the lack of a LTC insurance market can be divided in two categories: the cost of underwriting, including the cost of asymmetric information, and the crowding out of the private market caused by government programs. Some studies (see the references in Brown and Finkelstein 2008, 2009) argue that private LTC insurance contracts are expensive because of important loading factors. Brown and Finkelstein (2007) show, however, that loads on LTC insurance are not particularly high; at least not so high as to lead rich retirees to prefer using their private savings as a form of self-insurance rather than purchasing LTC insurance. Other studies (Sloan and Norton, 1997) point to the existence of important asymmetric information problems (both moral hazard and adverse selection) which induce insurers to restrict coverage.

With respect to demand side explanations, which are more numerous than supply side explanations mainly because more data is available from individuals than from insurers, we can divide these explanations as whether they come from the agents' utility function or from the agents' probability of needing long-term care. The first, and perhaps the most significant demand side explanation for the low LTC insurance penetration observed in any country, is related to the importance of family support (and to the support of close friends, to a lesser extent). Many studies have documented the importance of family help and there is now a consensus (see for instance Bonsang 2007 & 2009, Charles and Sevak 2005, and Van Houtven and Norton, 2004) about the substitutability between informal help (in time) and formal help (in money): Informal help is generally provided by the family or close friends, whereas formal help comes mostly from private or public insurance providers, or from the government. A report from the OECD (2011) highlights the fact that family care-takers are primarily women, which include (younger) spouses, adult daughters, and

⁵See Pestieau and Ponthiere (2011).

⁶We invite the interested reader to examine the Brown and Finkelstein (2004,2011), Cremer *et al.* (2009), and Grignon and Bernier (2012) surveys on long-term care and long-term care insurance for a more detailed examination of the long-term care insurance puzzle.

daughters-in-law. Access to family support explains part of the lack of LTC insurance because it is relatively easy to ask help from family members, and children and relatives often feel uncomfortable to say no. In the context of family support, formal help consists in monetary transfers between children and their elderly parents, either directly to the parents or in the form of paying the elderly parents' nursing home if parents are unable to manage their finances. Informal help consists in children accepting to devote time to help their elderly parents, share their house or apartment with them, or move back in with an elderly parent who is unwilling to leave his or her home (Pinquart and Sorensen 2002).

A second demand-side reason is related to the general population's low level of financial literacy in general (see Lusardi and Mitchell 2014 and Boisclair *et al.* 2015), and the individuals' lack of knowledge about the true costs of long-term care and the benefits of LTC insurance in particular. Individuals often fail to evaluate correctly the size of LTC costs which they will basically incur until the end of life. While there is a large body of empirical studies about the lack of knowledge of basic financial concepts, the analysis in Lusardi *et al.* (2017) should raise our concern with respect to the pernicious impact of financial illiteracy in the long run. Indeed, illiteracy can have important consequences with respect to savings decisions and retirement planning. In contrast to the financial illiteracy evidence that is building up (for a review, see Lusardi *et al.*, 2017), there is not much empirical evidence about whether agents have any knowledge of the true costs associated with dependency.⁷

The third demand side reason explaining the low demand for LTC insurance is the older parents' willingness to leave a bequest and their reluctance to leave their homes. Indeed, housing (and the sharing of it) is often considered as a substitute for LTC insurance (see Davidoff 2009) and older retirees prefer to de-cumulate house equity at the time they require care rather than buying LTC insurance.⁸ Since bequests are, in a sense, a luxury good, wealthier individuals should be more willing to bequeath than poorer individuals. At the same time, wealthier individuals should also be more willing to buy LTC insurance. Yet, Lockwood (2014) shows that bequest motives reduce the opportunity cost of saving, thus increasing savings and decreasing the demand not only for annuities (see Brown and Poterba (2000) and Vidal-Melia and Jejjarage-Garcia (2006)) but also for LTC insurance. In the same vein, Ameriks *et al.* (2011) highlight the importance of bequest motives for late-in-life savings decisions. Wealth, income, and bequest motives are all related to the budget set with which elderly individuals need to contend. As shown by De Nardi *et al.* (2010), it appears that the *slower-than-optimal* rate of savings depletion by retirees is consistent only if they face an important medical expense (or long-term care) risk. If it is indeed true that the rate of savings depletion is suboptimal because of the potential risk for medical or long-term care expenses (that is, they consume less than they would otherwise), then retirees should be willing to buy protection against such risk.

One last demand-side source to explain the thinness of the LTC insurance market is related to the agents' misperception of long-term care risk. This misperception occurs with respect to both the likelihood that they will need such services and the cost associated with LTC services. Brown and Finkelstein (2009) and Cremer *et al.* (2009) mention individuals' misperceptions of LTC risks as the primary reason for explaining the long-term care puzzle. In the same way as in Finkelstein and McGarry (2006), their conclusions are built on a survey of respondents aged 78 on average which compares the subjective probability of entering a nursing home in the next 5 years to the actual decisions of the same respondents 5 years later. In the survey, they find that most respondents underestimate their true probability of needing some form of long-term care, and they infer that such under-assessment is the main reason for not purchasing LTC insurance (see Boyer *et al.* 2018 for evidence that such misperception does not affect insurance demand). Tennyson and Yang (2014) highlight the role of one's experience with long-term care as a contributing factor to the awareness of the risk of long-term care costs, or the lack thereof (see also Zhou-Richter *et al.* 2010).

As for government programs, Brown and Finkelstein (2008) show that social insurance, and in particular Medicaid in the United States, crowds out the demand for private insurance.⁹ While acknowledging that the

⁷The Canadian government is promoting financial literacy by providing an online library for finding much needed information about financial products and markets (<https://www.canada.ca/en/financial-consumer-agency/services/financial-literacy-database.html> las visited on 12 December 2017)

⁸Borrowing out of house equity, through reversed mortgage, is relatively limited (see Caplin 2002)

⁹See next section for a description of the Canadian situation.

public provision of health services late in life can explain the lack of insurance, Boyer and Glenzer (2017) propose that generous retirement programs (such as the Canadian Pension Plan in Canada, le Régime des rentes du Québec, or Social Security in the United States) also reduce the need for LTC insurance. They contend that high-risk individuals (i.e., those who have a high probability of having a long life) are being subsidized in the retirement and annuity market by low-risk individuals. When time comes for the high-risk individuals to purchase LTC insurance, they realize that they are richer than they should have been had their retirement not been subsidized by the low-risk individuals, and their need for LTC insurance is reduced. Low-risk individuals, seeking to separate themselves from the high-risk individuals may actually be better off not purchasing LTC insurance than subsidizing the high risk individuals a second time. The combination of generous retirement programs run by the government with adverse selection with respect to the risk of living long result in high-risk individuals wanting to be under-insured, and low-risk individuals to have little or even no insurance at all.

The objective of this paper is to use a new survey we conducted in the Fall of 2016 to explore whether the LTC insurance puzzle can be explained by demand-side factors such as the misperception of old-age risks and other individual characteristics (such as family support, risk aversion, wealth, and bequest motives), by supply-side factors such as insurers and insurance market characteristics, or to the public provision of services.

Our survey is closely related to that of Ameriks *et al.* (2016), which examines the characteristics of demand for LTC insurance in the United States. With the help of *Asking Canadians*, a Canadian online panel survey organization, we conducted our LTC insurance survey using many similar questions as in Ameriks *et al.* (2016). For instance, we asked specific questions about the individual respondent's characteristics and preferences related to risk, their interest in leaving a bequest, and their knowledge about long-term care and long-term care insurance to assess their demand for LTC insurance products. Ameriks *et al.* (2016) find that 60% of the panel members should buy LTC insurance, although merely 22% of panel respondents actually have LTC insurance; interestingly, we find much smaller proportions in our panel of Canadian respondents with only 11.5% of respondents telling us they have LTC insurance coverage. Ameriks *et al.* (2016) explains the gap between the theoretical prediction (60%) and reality (22%) by a lack of interest on the demand side as well as poor insurance product features.

Before getting into the possible reasons why so little LTC insurance is purchased, we first present in the next section the situation and the challenges that befall Canada with respect to the growing elderly population in possible need of LTC services. In Section 3, we present the survey we conducted in Quebec and Ontario with respect to the perception of the need for LTC services, and the potential demand for LTC insurance. Demand side explanations, such as risk aversion, risk perception, and wealth are first examined to explain the low take-up rate. We then examine supply side explanations and the crowding-out by government programs. Finally we conclude with public policy implications of our results.

2 The state of LTC in Canada

Despite the demographic trend towards having older populations and the pressure it puts on health care cost at older ages, OECD countries have still been able to keep LTC expenditures (either public or private) at a relatively low levels. Overall, OECD countries spend on average 1.5% of GDP on LTC services, of which only 20% can be considered as private expenditures. Figure 1 illustrates the importance (or lack thereof) of public expenditure on long-term care services (health and social) in 30 OECD countries. As a percentage of its GDP Canada is close to the OECD mean in terms of total expenditure on long-term care, as well as in terms of public expenditures.

Because the Canada Health Act does not include LTC services to aging individuals in dedicated establishments, provinces are not required to provide such services on a universal basis. In addition, there are no federally-mandated standards¹⁰ for LTC services so that they can vary across provinces. This means that, depending on the insurance contract that individuals sign with a private insurer (that is, does the contract

¹⁰See McGregor and Ronald (2011) for more on this topic.

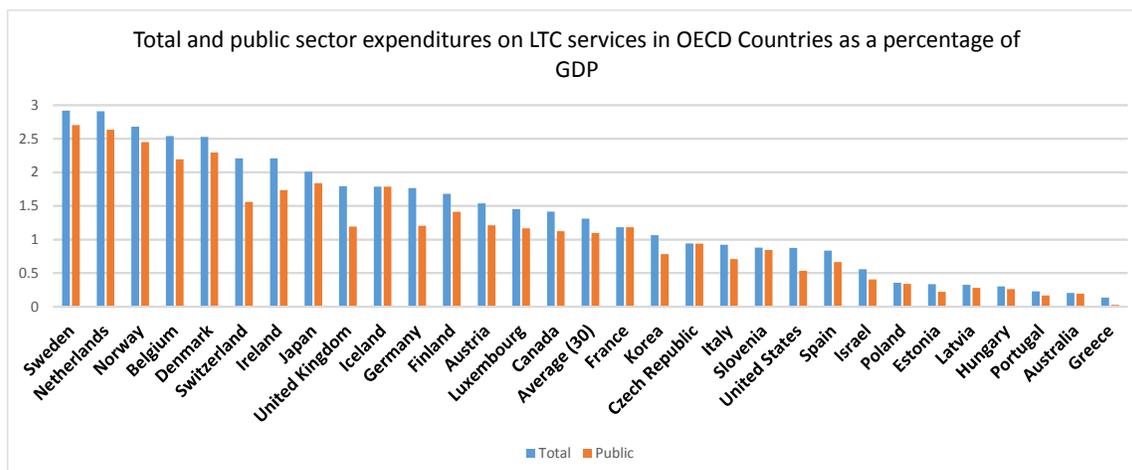


Figure 1: Total and public sector spending on long-term care services as a percentage of the country’s GDP for the year 2014. Source: OECD Health Statistics (2017)

pay a fixed amount if ADL impairments are present, or does the contract specify a level of care without an actual exchange of money ex post), LTC services may even vary within a province as a function of the individual’s ability to pay or the quality of the services specified in the insurance contract. Based on this evidence, McGregor and Ronald (2011) conclude that there are important disparities in the provision of LTC services in Canada. These disparities could potentially be a source of inequalities across provinces. To illustrate the extent of the disparities across provinces with respect to the provision of LTC services, Table 1 provides a series of statistics on the cost in each province of residential care, on the availability of beds in such facilities and on the importance of the for-profit sector in the provision of LTC services.

Province	Monthly charge for residential care facility		Maximum charge for residential care per month (2017)		Beds per 1000 individuals aged 75 +	For profit facilities as a % of total
	Min	Max	Basic service	Private room		
Alberta	\$1,200	\$1,200 ^a	\$1,636	\$1,992	83.9	30%
British Columbia	\$810	\$1,950	\$3,279		81.3	31%
Manitoba	\$780	\$1,860	\$2,550		116.1	26%
New Brunswick	\$3,540	\$5,220	\$3,437		78.5	5%
Newfoundland	\$2,790	\$2,790 ^a	\$2,990		84.2	0
Nova Scotia	\$3,300	\$5,970	\$3,350		89.4	30%
Ontario	\$1,470	\$1,470 ^a	\$1,820	\$2,599	91.5	53%
PEI	\$1,350	\$4,590	\$2,328		100.1	41%
Québec	\$900	\$1,470	\$1,163	\$1,868	88.3	23%
Saskatchewan	\$870	\$1,620	\$2,722		112.8	8%
Source	CIHI (2005) ^{b,c}		Multiple (see footnote ¹¹)		CUPE (2009) ^c	CUPE (2009) ^c

^a Same cost to all residents (for more details, see McGregor and Ronald 2011).
^b The reported values were in days, we multiplied all by 30 to arrive at the above numbers.
^c From McGregor and Ronald (2011) citing CIHI (2005) and CUPE (2009).

Across Canada the maximum daily copayment for a stay in a residential care facility in 2004 varied from almost \$200 in Nova Scotia to \$40 in Alberta. Some provinces (Alberta, Ontario, and Newfoundland & Labrador) asked all residents to pay the same price for a stay in a residential-care facility, at least in terms of the basic service. Other provinces used some form of means-testing approach, or have different prices for different individuals based on their age or the type of services that is required or demanded (such as a private room). The distribution across provinces in the maximum amount that needs to be paid by month in 2005 (and reported in CIHI 2005) is still evident in 2017.¹¹

We also note that the supply of long-term care facilities varies a lot across provinces both in terms of the number of beds available as a proportion of the population aged 75 and over, and in terms of the ownership of these care facilities. With respect to the beds, it is in New Brunswick that the supply of beds per 1000 individuals aged 75 and over is the smallest with 78.5 beds, compared to 116.1 per thousand residents in Manitoba. The private sector's presence is also quite different across provinces as it represents less than 10% of the total supply of beds in Saskatchewan, New Brunswick and Newfoundland & Labrador, compared to 30% in British Columbia, Alberta, and Nova Scotia, and to over 50% in Ontario.

In Quebec, a bed in a long-term care unit (the French acronym is CHSLD) can be secured for a maximum of between \$1,162 and \$1,867 per month.¹² Given the means-tested higher bound of \$1,867, this seems relatively low compared to the monthly earnings¹³ of richer retirees. In Ontario, the monthly cost for any elderly individual in a residential care facility is also less than \$1800. The maximum cost in Atlantic Canada varies between twice and four times the minimum price. In the private sector, the cost of a nursing home is estimated to be between \$40,000 and \$60,000 per year (see Boyer *et al.* 2017).

Based on OECD publications¹⁴ on long-term care services, Canada is not unique in its treatment of long-term care at the regional level (Slovakia and Estonia also have regional mandates for long-term care services), or at least with a dual central-regional responsibility as Spain, Ireland, the United Kingdom, Switzerland, Italy, and New Zealand, to name a few, also share responsibility of providing LTC services between the central government and their more-or-less autonomous regions. Some countries provide means-tested long-term care services that are managed at the federal and regional levels, such as in the United States through Medicare and Medicaid. What is unique about Canada, however, is that it is the only OECD country whereby the long-term care responsibility falls entirely upon the different regions (that is, the provinces), while at the same time allowing a private market for LTC insurance.

¹¹Per province (last visited on 8 February 2018):

AB: <http://www.health.alberta.ca/services/continuing-care-accommodation-charges.html>

BC: <https://www2.gov.bc.ca/gov/content/health/accessing-health-care/home-community-care/care-options-and-cost/long-term-residential-car>

MB: <http://www.gov.mb.ca/health/pcs/index.html>

NB: http://www2.gnb.ca/content/gnb/en/services/services_renderer.9615.html

NL: <http://www.health.gov.nl.ca/health/faq/nhltfaq.html>

NS: <https://novascotia.ca/dhw/ccs/FactSheets/Paying-for-Long-Term-Care.pdf>

ON: <https://www.ontario.ca/page/find-long-term-care-home>

PEI: http://www.gov.pe.ca/photos/original/hlth_ltc_fs1.pdf (2012)

QC: www4.prod.ramq.gouv.qc.ca.

SA: <https://www.saskatchewan.ca/residents/health/accessing-health-care-services/care-at-home-and-outside-the-hospital/special-care-homes>

¹²This cost varies depending on whether this is a private or shared room, and according to income. See https://www4.prod.ramq.gouv.qc.ca/Cah/BY/BYG_GereAdheb/BYG6_CalcContb_iut/BYG6_Accueil.aspx (last visited on 10 January 2018).

¹³According to the 2015 survey, senior families, where the highest income earner was 65 years of age or older, had a median after-tax income of \$57,500, whereas unattached individuals 65 years of age or older had a median after-tax income of \$26,300. <http://www.statcan.gc.ca/daily-quotidien/170526/dq170526a-eng.htm> (last visited on 29 January 2018).

¹⁴Help wanted: Providing and Paying for Long-term Care (OCDE 2011), Questionnaire on Long-Term Care Workforce and Financing (OECD 2009-10),

3 Why so little insurance?

3.1 The Survey

We contacted a Canadian online panel survey organization, *Asking Canadians*, to conduct a survey on long-term care insurance in late autumn 2016. Two thousand panel members aged 50 to 70 residing either in Ontario or in Quebec were randomly selected. The 50 to 70 year-old range was chosen because individuals in that age group are those for whom the risk of needing long-term care is most salient and foreseeable, but yet idiosyncratic enough for insurers to see the risk as diversifiable, at least over time (similar to life insurance). *Asking Canadians* chooses to reward its survey participants for their effort with loyalty rewards from major retailers, but some socio-demographic groups are under-represented in the survey. This is particularly the case for low-educated individuals. To correct for this over/under representation of some socio-demographic groups, we re-weighted the data using the Labor Force Survey of 2014 by stratifying groups based on age (20 categories), sex (2 categories), province of residence (2 categories), and level of education (3 categories).

The survey questionnaire had four parts.¹⁵ The first three parts asked respondents about socioeconomic characteristics, reasons for having purchased (or not) long-term care insurance, risk perceptions, and their preferences regarding the type of long-term care they would prefer to receive. Questions for which we expected a significant fraction of missing information, such as measures of savings and income, were asked using unfolding brackets. We then imputed missing values with information from the bracketing based on socio-demographic covariates such as age and sex. The fourth and last part of the survey consisted of a stated-preference experiment, which is described in more details in Boyer *et al.* (2017). Table 2 reports the summary statistics of some results from the survey (all survey values reported in the paper are in 2016 Canadian dollars).

The first results to appear in Table 2 is the fact that LTC insurance is not very popular amongst our survey participants as 11.5% of them report having some sort of LTC insurance coverage. This compares to 71% of the respondents who have life insurance. The 11.5% take-up rate is not as small as one could think, however, given previous results in the literature on the topic, or stylized facts from the industry. Boyer *et al.* (2017) report that, in Quebec, "the association representing insurers (ACCAP) reported a take-up rate for long-term care insurance policies around 1.7% in 2015" (page 2). Baker (2009) also finds a take-up rate of less than 1% (at least as reported in Grignon and Bernier 2012). Our survey results are much closer to the 13.8% take-up rate in the United States that was reported in Brown and Finklestein (2011) and Grignon and Bernier (2012), but not as high as the 22% take-up rate reported in Ameriks *et al.* (2016).

¹⁵Note that the questionnaire was made available in French and in English.

	Num	Mean	Std.Dev.	10%	25%	Median	75%	90%
Has LTC insurance	1819	0.115	0.33					
Total income (\$'000)	2000	107	450	20	41	72	110	168
House value	1216	594	4381	150	230	330	500	800
Total wealth house owners (\$'000)	1216	928	5146	197	309	500	825	1275
Total wealth renters (\$'000)	784	156	435	0	4.5	50	188	400
Has life insurance	2000	0.71	0.45					
Lives in Quebec	2000	0.50	0.50					
At least one sickness	2000	0.44	0.50					
Number of sicknesses	2000	0.61	0.83	0	0	0	1	2
Has a pension plan	2000	0.59	0.49					
Monthly premium (>\$1)	209	124	112	23	49	87	165	250
Potential monthly benefits (>1\$)	211	2410	2006	478	934	2000	3084	5255
Premium-to-benefit ratio	207	21.8%	77.5%	1.05%	2.28%	4.78%	10.5%	33.3%

The columns give the number of usable answers per question (the number of respondents is 2000), mean, standard deviation, and some quantile values (including median) for 10 variables in the survey. *Has LTC insurance* is equal to 1 if the respondent has LTC insurance and 0 otherwise. *Number of sicknesses* is equal to the number of health issues (heart disease, stroke, diabetes, lung disease, hypertension, mental problem, cancer) a respondent has. Monthly premiums and potential benefits are imputed conditional on being greater than \$1. By design, half the respondents live in Quebec and almost half are women / speak French / are aged 60 and over / are retired

In our survey, the median annual household income stands at \$72,000, which is slightly below that of the average Canadian household's which stands at \$79,000. It is quite close to the average Quebec household's income of 74,000\$. By design, 50% of our respondents are residents of the province of Quebec, use French as their main official language at home, are aged 60 and over, are retired, or are women. With respect to their health, 44% of our respondents reported having or having had at least one of the following seven medical conditions: Heart disease, Stroke, Diabetes, Lung disease, Hypertension, Mental problems (including depression), and/or Cancer. 72% of those with an illness reported having only that one, 20% of survey respondents with at least one illness reported having two medical conditions, and 8% having three or more¹⁶ illnesses.

Questions regarding the respondents' access to an employer-sponsored pension plan and the characteristics of the respondents' LTC insurance contract, if applicable, were also asked. 59% of our respondents report having an employer-sponsored pension plan. Based on our respondents' answers to our survey, we were able to impute the LTC insurance contract premium and benefits for 209 respondents (with 209/1819=11.5%). Conditional on the imputed values being greater than 1, the average monthly premium is \$124, for an average monthly benefit of \$2410. Both values are in line with what is observed in the actual LTC insurance market.

The question we seek to answer in this paper is why LTC insurance products, which protect Canadians and their families against the hardship associated with the catastrophic cost of LTC services, is not more prevalent in our modern society. In the rest of the paper, we are considering sequentially the following four suspects – two are demand-side related, one is supply-side related, and the last ones comes from outside forces – for explaining the low LTC insurance take-up rate in Canada:

1. LTC insurance is prohibitively expensive given the individual's perception of the risk associated with this type of adverse event.
2. Individuals' characteristics (such as risk aversion an wealth) are such that they have a low demand or need for LTC insurance.

¹⁶Two respondents reported having all 7 conditions.

3. The supply of long-term care insurance is lacking because either insurers do not see much profitability to be made in this market, or compared to other personal insurance lines, insurance agents do not perceive there is enough commission upside to warrant investing much energy to understand the drivers of the LTC insurance market and to sell LTC insurance products.
4. Public services are crowding out the private insurance market either directly by offering LTC services, or indirectly by causing disruptions which prevent insurers from having access to a big enough market to diversify risk and recoup the fixed costs associated with setting up a LTC insurance markets.

Even though there are potentially other suspects that could explain why LTC insurance markets find little traction in Canada and in other OECD regions or countries, we believe that these are the most likely usual suspects. One possible additional reason for not purchasing LTC insurance is a lack of confidence in the insurance industry. We did not pursue that line of questioning in our survey.

3.2 Price and risk perceptions

We asked survey respondents for the basic pricing characteristics of their LTC insurance contracts. Survey respondents told us that the median monthly premium they pay is approximately \$87, which is lower than the mean which stands at \$124. These premium payments allow respondents to obtain monthly benefits equal to \$2410 on average if some kind of help with activities of daily living is needed or the respondent has lost his autonomy.¹⁷ Similarly to the case of the premiums, the mean benefit is greater than the median benefit which is \$2000.

Assuming a five-year average need of LTC services (see Boisclair *et al.* 2016), the average potential benefits is close to \$145,000. This is similar to the \$150,000 that was reported in Grignon and Bernier (2012) for each member of a married couple. The monthly premium of \$124 (or close to \$1500 per year) is quite similar to the protection associated with automobile insurance. It is therefore difficult to argue that the reason why long-term care insurance is so unpopular is that it is prohibitively expensive.

Individuals may have a low demand for insurance if they under-estimate their probability of needing long-term care so that the perceived price of insurance is high given their low subjective probability of needing such coverage. In order to examine appropriately this question, we asked survey respondents for their perceived probability of eventually needing long-term care in a nursing home, of living to age 85, and of living more than 1, 2, and 4 years with one or more physical or mental (or ADL) limitations. Table 3 compiles the results of the respondents' answers to these questions.

¹⁷Payments are not conditional upon using formal LTC help such as nursing homes for instance. Participants may then use insurance payments to compensate their family for the informal help provided.

Question: What is your probability...	Without LTC Insurance	With LTC Insurance	Objective ¹⁸ Probability	T-test RankSum
...of needing a nursing home	36.9 (30.0) 1087	28.0 (26.7) 152	26%	1% 1% False
...of living to age 85	70.0 (27.4) 1343	70.3 (19.1) 178	65% ¹⁹	n.s. n.s. False
...of living more than 1 year with an ADL	46.9 (32.7) 1055	39.6 (33.6) 142	56% ²⁰	1% 1% False
...of living more than 2 years with an ADL	42.9 (31.2) 763	37.6 (33.5) 91	N/A	10% n.s. False
...of living more than 4 years with an ADL	35.8 (30.5) 597	33.8 (33.9) 77	N/A	n.s. n.s. False
...of living with a family member if in need of a nursing home	39.0 (36.7) 1258	38.6 (36.3) 166	N/A	n.s. n.s. False

This table presents the mean, standard deviation, and number of answers to the six questions related to the respondents' subjective probability of needing long-term care. The last column gives the level of significance of the test for the difference in the mean and in the median answers of those who have LTC insurance coverage and those who have not, at the 1%, 5%, and 10% levels, or a difference that is not significant (n.s.). The test for the mean is a t-test and the test for the median is a Wilcoxon rank-sum test. The third entry in the last column tells us whether the statement that "individuals without LTC insurance have a lower perception of risk than those with insurance" is "True" or "False". The next-to-last column gives the actual statistic according to previous research (see Boisclair *et al.* 2016).

By first comparing the respondents' perceptions of risks with the actual probability of the event occurring (at least unconditionally), we see that respondents who do not have LTC insurance underestimate their probability of needing a nursing home, but not as much as the respondents who have LTC insurance. With respect to the probability of living to age 85, both the insured and the uninsured respondents over-estimate this probability in a similar way. So, in essence, insured and uninsured survey respondents anticipate to live longer and healthier lives than what reality suggests, and insured individuals are even more optimistic than the uninsured.

The fact that individuals who do not have LTC insurance perceive the risk of needing long-term care as lower than individuals who have LTC insurance contrasts with what we would expect in terms of the perceptions of uninsured respondents compared to insured respondents. Uninsured respondents should assign (i) a lower subjective probability of needing long-term care services in a nursing home, (ii) a lower subjective probability of reaching age 85, and (iii) a lower subjective probability of living 1, 2, and 4 years with an ADL

¹⁸At least as computed in the COMPAS study of Boisclair *et al.* (2016).

¹⁹Conditionnal on being 65 and male at the time of the survey, according to Canadian life tables. For females, the probability is higher. See Boyer *et al.* (2017).

²⁰Although 35% is the "standard value" obtained from The Retirement Project (2007), Robinson (1996), and Dick *et al.* (1994), we will use the recent estimate reported in Boyer *et al.* (2017) of 56%. The estimates in Hurd *et al.* (2013) and Friedberg *et al.* (2014) are closer to 50%. Kemper and Murtaugh (1991) propose 43%, whereas Wiener *et al.* (1994, 2000) report 49%. St. John and Dale (2011) report much lower values for Australia, with the probability of needing long-term care by age 85 of 10%, and 25% by age 90. According to a senior executive of the Canadian Life and Health Insurance Association (CLHIA) quoted in The Globe and Mail, 3 Feb. 2016, the probability that any Canadian will need long-term care at least once in his/her lifetime is 17% (<https://www.theglobeandmail.com/globe-investor/retirement/retire-health/should-you-buy-long-term-care-insurance/article28512380/>).

limitation. It therefore seems that the differences in the respondent’s perception of facing hardship later in life do not match their differences in LTC insurance purchasing decisions.

This is even more dramatic when examining the evidence related to the perception of the risk of needing long-term care since uninsured individuals are those who have the higher subjective probability of needing such service. The difference in the distribution of the perceived probability of needing a nursing home amongst purchasers and non-purchasers of LTC insurance is more evident in Figure 2 where we merged probabilities in 20% bins. Compared to uninsured respondents (on the left), insured respondents (on the right) have a perceived probability of needing a nursing home that is heavier (resp. lighter) in the lowest (resp. highest) bin.

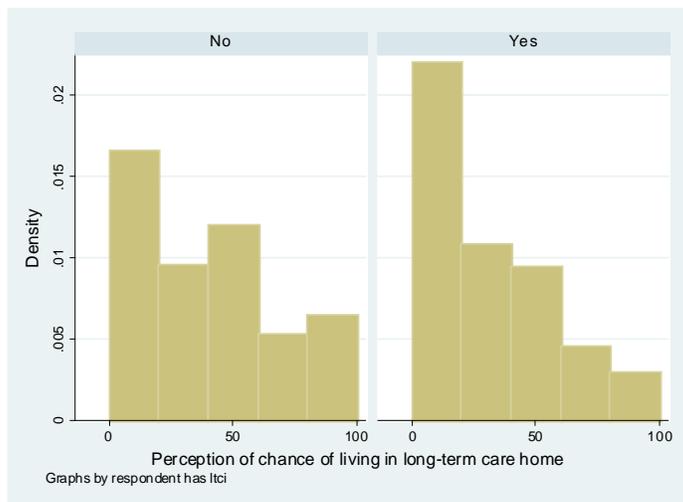


Figure 2: Perception of living in a long-term care home at some point in one’s life as a function of whether the survey respondent is insured (right) or not (left).

Figure 3 shows that the perceived probability of ever needing a nursing home does not vary by sex. This perceived probability does, however, depend on the respondent’s province of residence, as residents of the province of Quebec (see Figure 4) perceive the risk of finding themselves in a nursing home to be significantly lower than residents of Ontario .

Looking at the evidence from our survey, we conclude that respondents who are covered by some sort of LTC insurance contract are not those who are the most pessimistic about the risk of needing LTC insurance; it is rather the opposite. More precisely, the two populations (with and without LTC insurance) either have a similar estimation of the risk (probability of living to age 85, of living more than 4 years with an ADL or of living with a family member in need of a nursing home), or the insured population has a lower subjective probability of needing a nursing home, or of living more than 1 or 2 years with an ADL. Boyer *et al* (2017) show that uninsured individuals are more pessimistic than insured individuals even after controlling for possible covariates and characteristics associated with risk aversion (such as sex, income) and financial literacy.

The only demographic variable in our sample that is significantly correlated with one’s subjective probability of needing long-term care is whether high school was completed. The distribution of the answer as a function of schooling is provided in Figure 5, with those without a high school degree on the left. The histogram tells us that individuals who finished high school perceive their probability of living in a nursing home to be significantly higher than those individuals who did not finish high school. The link between education and LTC risk perception is not linear, however, as we find no significant relationship between the respondents’ LTC risk perception and different post-high school education levels. Another possible explana-

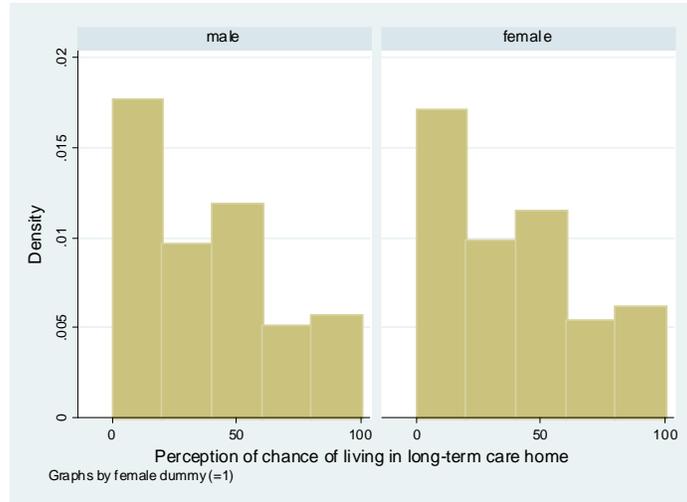


Figure 3: Perception of living in a long-term care home at some point in one’s life as a function of whether the survey respondent is female (right) or male (left).

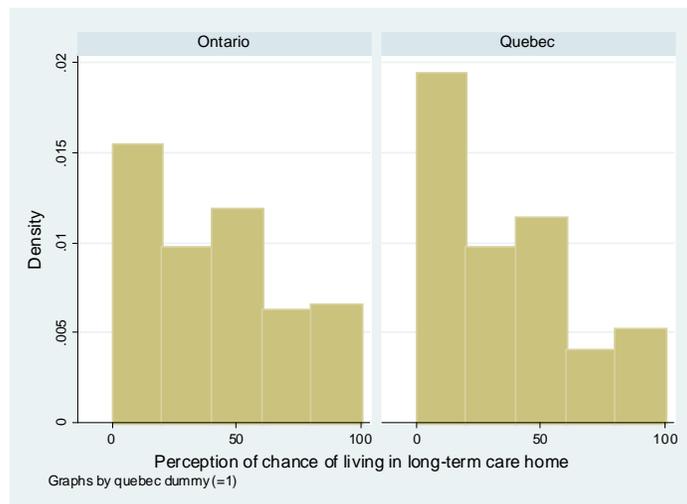


Figure 4: Perception of living in a long-term care home at some point in one’s life as a function of whether the survey respondent resides in Quebec (right) or Ontario (left).

tion, which has nothing to do with optimistic or pessimistic views on life, is that less educated individuals have a higher actual risk of dying before needing LTC services.

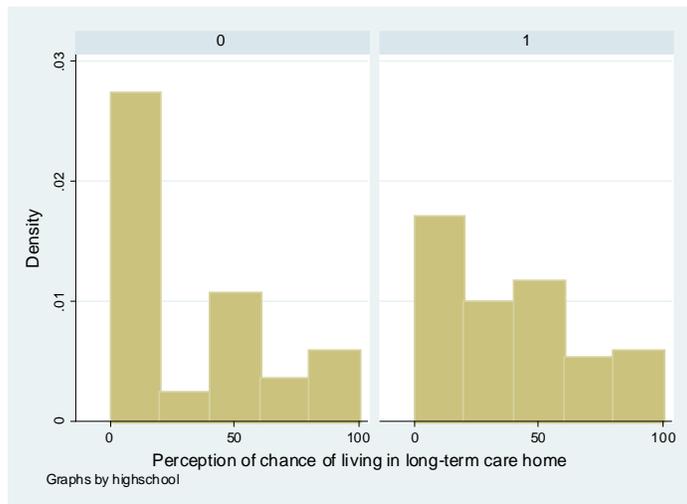


Figure 5: Perception of living in a long-term care home at some point in one’s life as a function of whether the survey respondent finished high school (right) or not (left).

Lastly, Table 4 presents the reported values for the monthly mean cost of a private LTC home and of a subsidized one. Uninsured respondents in Quebec believe the monthly cost of an unsubsidized private nursing home (where they exist) to be higher than those with LTC coverage. The uninsureds’ perception of the cost of an unsubsidized nursing home is more than three times the LTC insured respondents’ perception. At the same time, the same respondents believe the cost of the subsidized nursing homes to be lower.

Table 4. Perceived cost of LTC services depending on the respondents’ insured status and province of residence				
What is the monthly cost of a nursing home which is				
Unsubsidized		Subsidized		
	Without LTC Insurance	With LTC Insurance	Without LTC Insurance	With LTC Insurance
In Quebec	\$9354	\$2615	\$2187	\$2373
In Ontario			\$3797	\$2970

This table presents the perceived monthly cost of a subsidized nursing home in Quebec and in Ontario, and that of an unsubsidized one in Quebec, as a function of the respondent’s LTC insured status.

With respect to Ontario residents, they perceive the monthly cost of a subsidized nursing home to be greater than Quebec residents. Uninsured Ontario respondents are more pessimistic in terms of the monthly cost of a nursing home than insured respondents by about \$830, or almost 30% of the perceived cost of insured Ontario residents. In Quebec, the difference between the uninsureds’ perception of the cost of a subsidized nursing home is only 10% lower than the insureds’ perception.

The perceived median waiting time for a room in a LTC facility is between 13 and 14 months by insured and uninsured respondents alike, and in both provinces. The perception is a tad pessimistic compared to

reality; waiting time is 108 days in Ontario, compared to 10 months in Quebec.²¹

We conclude from this section that the reason for the low take-up of LTC insurance does not seem to be that non-covered individuals under-estimate their probability of needing LTC, nor that LTC insurance is especially expensive compared to other types of insurance purchased by individuals of the same age groups. The rationale for the low take-up should then lie elsewhere on the demand side, be a supply-side issue, or the result of outside forces, such as government programs crowding out the private provision of LTC insurance.

3.3 Demand characteristics unrelated to risk perceptions

In addition of price and perceptions, we explore four other possible demand-side explanations for the thinness of the LTC insurance market in Canada.

1. First, we examine the respondents' risk aversion under the hypothesis that higher risk aversion should induce larger demand for LTC insurance.
2. Second, we examine whether agents feel they do not need to actively purchase LTC insurance because they believe they obtained it from their employer (or some other collective insurance contract).
3. Third, we examine whether the individual's health condition influences his or her willingness to buy insurance.
4. Finally, we explore whether LTC insurance is purchased to protect the financial wealth of the family under the hypothesis that individuals want to protect the size of the bequest they leave to their heirs.

3.3.1 Risk Aversion

If LTC insurance is similar to other types of insurance products, then, all else equal, we should expect more risk averse agents to be more likely to have insurance than less risk averse agents. In our survey, we asked one direct question²² unrelated to the demand for long-term care insurance to tease out each agent's attitude towards risk. That question was related to the type of risk-return relationship they were looking for when investing in capital markets. In particular, we asked about an agent's willingness to take substantial, above average, average, or under average financial risks in order to obtain substantial, above average, average or under average financial returns. Our presumption is that agents who are more risk averse with respect to capital market investing should also be risk averse in seeking insurance protection. In other words, agents who seek investment with a higher risk should be less likely to purchase insurance... unless of course they perceive LTC insurance has being a risky investment.

Table 5 first shows that insured respondents are significantly more willing to take above-average financial risks (23.7% against 19.2%), which means that (financial) risk aversion does not positively correlate with the demand for LTC insurance.

In addition to this direct question about risk aversion, we report in Table 5 some individual characteristics that are often associated with risk aversion, which we cross-tabulate with having LTC insurance coverage (on the right) or not (on the left). These indirect measures of risk aversion are the respondent's age and sex, their level of education, their marital status, and whether they have children and if so, how many.

Older individuals are often associated with being more risk averse.²³ Women are also more risk averse according to Halek and Eisenhauer (2001) *inter alia*. Married individuals can also be seen as being able to support more risk since this risk will be borne by two individuals and not a single one, although individuals

²¹For Ontario, see http://www.waittimealliance.ca/wp-content/uploads/2015/12/EN-FINAL-2015-WTA-Report-Card_REV.pdf and see http://www.csbe.gouv.qc.ca/fileadmin/www/2017/InfoPerformance/CSBE_Info_Performance_no16.pdf for Quebec

²²Because the question on investment risk attitudes is the only direct question we asked with respect to risk aversion, all other measures we will use with respect to risk aversion will necessarily be somewhat indirect.

²³Although it is true that Halek and Eisenhauer (2001) find that risk aversion diminishes with age, this is true only for individuals that are younger than 65 years. Individuals aged 65 and over are approximately twice as risk averse as individuals who are younger than 65 years of age.

could get married because they are risk averse (see Halek and Eisenhauer 2001 for the argument in that sense). Table 5’s last two entries are associated with the willingness to leave a bequest or, when appropriate, the feeling that children can also bear part of the long-term care risk in addition to the respondents and his or her spouse. We can consider the hypothesis that having children is a way to share the burden of the cost associated with long-term care, so that having children implies a higher tolerance for risk, at least when it relates to long-term care risk.

Table 5. Personal characteristics as a function of whether respondents have LTC insurance or not						
Characteristics of respondent	Without LTC Insurance		With LTC Insurance		T-test RankSum	
	% looking for risk above average in investing	19.2 (0.98)	1604	23.7 (2.91)	215	10% n.s.
Age	60.2 (0.14)	1604	58.6 (0.37)	215	1% 1%	<i>False</i>
%women	51.3 (1.25)	1604	36.7 (3.30)	215	1% 1%	<i>False</i>
Finished high school	96.0 (0.48)	1604	97.2 (1.11)	215	n.s. n.s.	<i>False</i>
Married / with significant other	67.1 (1.17)	1604	75.3 (2.95)	215	1% 5%	<i>False</i>
Has at least one child	72.7 (0.01)	1604	70.7 (0.03)	215	n.s. n.s.	<i>False</i>
... if so, how many children	2.13 (0.03)	1166	2.36 (0.16)	152	1% n.s.	<i>False</i>

This table presents the mean, standard deviation, and number of answers to six personal characteristics potentially linked to risk aversion. The last column gives the level of significance of the difference in the mean (t-test) and in the median (Wilcoxon rank-sum test) of these characteristics between who have and those who do not have LTC insurance, at the 1%, 5%, and 10% levels, or a difference that is not significant (n.s.). In the last column *True* (resp. *False*) refers to whether the difference correlates with our risk aversion hypothesis.

Entries in the table give the mean answer, the standard deviation and the number of respondents which provided a usable answer to the relevant question. We see that respondents without LTC insurance are on average 1.5-years older than insured respondents. At the same time, women are more likely to be uninsured than men as they represent over half of the uninsured respondents, but only one-third of the respondents who reported being covered by some sort of LTC insurance. Individuals who reported having some type of LTC insurance coverage are statistically no more likely to have completed high school than those without coverage. With respect to marital status, we observe that individuals who are living with a partner, either married to the partner or not, are proportionally more likely to have LTC insurance. Finally, there is no significance difference with respect to having at least one child amongst those who have insurance or not. Conditional on having children, however, individuals who have LTC insurance have more of them than individuals who do not have insurance. None of these results offers any support to the hypothesis that risk aversion is a determining factor for having LTC insurance.

3.3.2 Collective insurance

A second reason why a respondent might believe they have LTC insurance coverage is that such insurance was part of a portfolio of insurance products. For instance, respondents may believe that such coverage is part of their employer’s (or their former employer’s) pension plan system, or that it is a component of their

spouses' collective insurance agreement.²⁴ To examine this hypothesis, we asked respondents what type of pension plan their employer offered. Table 6 gives a breakdown of the respondents' answers to some of our survey's relevant questions with an emphasis on whether they have (or believe they have) LTC insurance, is if not, why so. Moreover, we asked them about their level of knowledge of LTC insurance.

Table 6. Distribution of answers to whether respondent had LTC insurance or not and reason why (initial sample of 2000), and some other characteristics of participants.																										
All Respondents N=1819																										
Panel A: Respondents with no long-term care insurance (87.9%)																										
Untapped Demand 50.7%			Lapsed/Denied 1.2%			Refused LTCI 39.0%																				
<table border="1"> <thead> <tr> <th colspan="3">Pension</th> </tr> <tr> <th>DB</th> <th>DC/other</th> <th>None</th> </tr> </thead> <tbody> <tr> <td>44.3%</td> <td>13.1%</td> <td>42.6%</td> </tr> </tbody> </table>			Pension			DB	DC/other	None	44.3%	13.1%	42.6%				<table border="1"> <thead> <tr> <th colspan="3">Knowledge</th> </tr> <tr> <th>None</th> <th>Some</th> <th>Good</th> </tr> </thead> <tbody> <tr> <td>27.9%</td> <td>67.9%</td> <td>10.2%</td> </tr> </tbody> </table>			Knowledge			None	Some	Good	27.9%	67.9%	10.2%
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Panel B: Respondents who believe they have long-term care insurance (12.1%)																										
Outside 40.2%			Searched for 10.4%			Offered 49.3%																				
<table border="1"> <thead> <tr> <th colspan="3">Pension</th> </tr> <tr> <th>DB</th> <th>DC/other</th> <th>None</th> </tr> </thead> <tbody> <tr> <td>52.8%</td> <td>16.8%</td> <td>30.4%</td> </tr> </tbody> </table>			Pension			DB	DC/other	None	52.8%	16.8%	30.4%				<table border="1"> <thead> <tr> <th colspan="3">Knowledge</th> </tr> <tr> <th>None</th> <th>Some</th> <th>Good</th> </tr> </thead> <tbody> <tr> <td>3.7%</td> <td>62.4%</td> <td>33.9%</td> </tr> </tbody> </table>			Knowledge			None	Some	Good	3.7%	62.4%	33.9%
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The table decomposes the respondents' answers to our survey as a function of whether or not they have some sort of LTC insurance and what motivated them to be in that situation. Out of the initial 2000 respondents, 1819 gave us a straight yes or no answer to the LTC insurance coverage question. Percentages do not add up to 1 because of omitted or missing answers.																										

In the case of respondents with no LTC insurance coverage, we define as the *Untapped demand* the one associated with respondents who, when asked why they have no coverage, answered either that they did not know what that was (or existed) or that they were never offered this type of insurance coverage by any insurance company representative and /or financial planner. Half of the respondents with no LTC insurance can be classified as part of the untapped demand group of individuals. Respondents who *Refused LTCI*, responded to the question of why they did not have LTC insurance: Possible answers were that they thought it was too expensive, that they did not need it (say because they are sufficiently wealthy to self-insure), or that the coverage offered did not meet their needs. Finally, we also looked at the proportion of respondents whose coverage has lapsed or whose application was denied (they are those who wished they could have insurance or just had, but for some reason no longer do). The omitted answer categories are with respect to respondents who were still waiting for an answer from the insurance company or who had not yet decided on whether they needed such insurance coverage.

Conditional on being part of the untapped demand for LTC insurance, or conditional on being part of the group of respondents who believe have LTC insurance but did not choose to buy it (i.e., it came with the job, or the spouse's coverage, or is part of a group benefit), we divided the respondents based on whether they had access to an employer-provided defined benefit pension plan, an employer-provided defined contribution pension plan, or no employer-provided pension plan at all.

Asking about the respondents' access to a pension plan and its type is done to test the hypothesis that we are formulating in this section of the paper, which is that one possible way for individuals to gain

²⁴Our understanding of the long-term care insurance market in Canada is that it is never a part of the collective insurance package that is offered to employees and retirees, of their family. In our survey, however, some respondents responded that they did not buy LTC insurance because, when asked in an open ended question, such protection is part of their employer's collective insurance package, or their spouse's.

access to LTC insurance coverage is through the bundling of insurance products with their current or former employer, or their spouse’s, or some type of paternalistic behavior. In a sense, we are hypothesizing that LTC insurance is more likely to be offered as part of a portfolio of insurance protection which includes having an employer-sponsored pension plan.

Amongst individuals who are covered by some sort of LTC insurance, but who did not actively have to make a choice about having it or not (including those respondents who believe they have LTC insurance coverage as part of their employer’s collective insurance package of their spouse’s), close to 70% of them answered that they had access to some sort of employer-provided pension plan. This contrasts with those individuals whose demand for LTC insurance remains untapped as only 57% of them have access to some employer-provided pension plan. It does appear that the employer’s paternalistic behavior is a significant driver of whether people have LTC insurance or not. Paternalism should be more pronounced for those employers which are entering their employees in a defined-benefit pension plans. Examining the likelihood of having access to a DB plan conditional on any pension plan being offered by the employer, we find no statistical difference between individuals who believe they are covered without actually having bought insurance and those whose demand is untapped. It therefore seems that merely having access to an employer-provided pension plan is sufficient for increasing the likelihood that an individuals will have LTC insurance coverage. A possible explanation for the correlation between LTC insurance coverage and having access to a pension plan is that LTC insurance is a normal good in the sense that individuals which have access to a pension plan are wealthier and therefore more likely to purchase LTC insurance.

3.3.3 Health

Going back to the health condition of our respondents, we recall from Table 2 that 44% of our respondents reported having or having had at least one of the seven following medical conditions: Heart disease, Stroke, Diabetes, Lung disease, Hypertension, Mental problems, and Cancer. To control for the medical conditions’ general impact on the purchase of LTC insurance, respondents were separated depending on whether or not they have life insurance in addition to having LTC insurance. This gives us four buckets in which survey participants could be classified depending on whether they have LTC insurance only, life insurance only, both, or neither. Table 7 presents how the incidence of these chronic conditions differs across respondents depending on their insured conditions and test whether the proportion of respondents afflicted with at least one of the seven chronic conditions is significantly different across the different buckets.

Table 7. Incidence of seven illnesses common in elderly individuals as a function of whether they have LTC insurance and/or life insurance or not				
	LTC insured & Life insured	LTC insured & Life uninsured	LTC uninsured & Life insured	LTC uninsured & Life uninsured
Heart	8.77%	8.89%	5.62%	7.42%
Stroke	1.17%	0	1.27%	2.06%
Lung	2.34%	6.67%	3.36%	1.86%
Diabetes	14.04%	4.44%	12.34%	12.78%
Hypertension	23.39%	13.33%	23.32%	18.97%
Mental	5.85%	4.44%	7.62%	11.34%
Cancer	4.09%	4.44%	7.80%	6.80%
Any condition	45.03% ^{n.s.}	33.33% ^{n.s.}	44.65% ^{n.s.}	43.71%
N	171	45	1102	485

Conditional on giving a valid answer to whether they own LTC insurance and/or life insurance, this table presents the proportion of respondents who said they suffer from one of seven chronic conditions as a function of their insurance portfolio. T-tests on the proportion of respondents who have “Any condition” suggest that the probability that respondents are afflicted by at least one condition does not vary significantly across insurance-portfolio buckets.

The different t-tests we conduct tell us that there are no significant differences with respect to the respondents' likelihood of having any chronic conditions across the four groups of respondents. That is, whether individuals have LTC insurance only, life insurance only, both, or neither is not associated with systematic differences in health conditions. Hence, the respondents' health condition does not seem to be a good explanation for differences in the demand for LTC insurance. This result is also supported by the analysis in Boyer *et al.* (2017) where it is found that adverse selection on the LTC market, if it even exists, is quite small.

In essence, we could only be witnessing the impact of two contradicting forces. First, individuals which are in better health have more chances to be able to buy a LTCI since individuals who present evidence of sickness would be denied insurance. Second, individuals that are in bad health early in their life could have greater chances to die early so that they would not need to buy LTC insurance since LTC services are required late in life, typically. Those two opposing forces make it such that they appears to be no difference in the health conditions of the respondents across the four sub-samples.

3.3.4 Wealth

One last dimension that could affect LTC insurance demand is the respondents' ability to pay for LTC services themselves, or to hope the government will pay for them. We will therefore examine how income and wealth have an impact on the demand for LTC insurance. It is quite possible that income and wealth do not have an impact on the probability of having LTC insurance since very wealthy individuals may prefer to self-insure (so that they do not buy LTC insurance) whereas individuals at the lower end of the distribution may not have enough income to afford LTC insurance (or believe that the state will take care of them). The following table gives wealth and other personal characteristics of the respondents (are they retired, do they have access to a employer-provided pension and do they want to leave a bequest) according to three income brackets (income above \$100,000, income below \$50,000, and income in between) and whether they have LTC insurance or not.

The most striking difference between insured (Panel B) and uninsured (Panel A) respondents that is seen in Table 8 is the fact that the latter are more likely to be in the lowest income bracket than the former: 33% of uninsured respondents earn less than \$50,000 a year, compared to 21% of insured respondents.

Conditional on having a low income, uninsured respondents are less likely to own a house, but conditional on owning it, their house's value, net of the mortgage, is greater. In addition, the uninsured individuals' median total wealth is greater than the insured individuals'. The combined differences in income and wealth at the lower end of the distribution of income may be due to the fact that uninsured individuals are more likely to consider themselves as retired, which would corroborate the earlier survey result that uninsured individuals are, on average, older by 1.5 years for the entire sample, and over 2 years for the subsample of lower earning respondents. The last two differences between insured and uninsured lower-earning respondents are that insured individuals are more likely to have access to a employer-provided pension plan (60% of insured versus 40% of uninsured, in line with the survey results of the previous section), and are more likely to feel that it is important to leave something to the next generation with 45.5% of respondents who agree or strongly agree that leaving a bequest to the next generation is important compared to 18.4% of uninsured respondents.

Table 8. Respondents who have LTC insurance or not as a function of their income and assets, and whether they are retired, have access to a pension, or plan on leaving a bequest.

Panel A: Respondents with no long-term care insurance (1598)						
$I > \$100k$ 410 (25.7%)	Wealth			Y/N		
	House: own / \$	Assets \$		Retired	Pension	Bequest
	92.4% 450k	665k		40.5%	68.5%	25.6%
$I \in [\$50k, \$100k]$ 663 (41.5%)	Wealth			Y/N		
	House: own / \$	Assets \$		Retired	Pension	Bequest
	85.1% 315k	433k		49.3%	60.8%	24.4%
$I < \$50k$ 525 (32.9%)	Wealth			Y/N		
	House: own / \$	Assets \$		Retired	Pension	Bequest
	61.3% 225k	260k		61.1%	40.6%	18.4%
Panel B: Respondents who have LTC insurance (221)						
$I > \$100k$ 74 (33.5%)	Wealth			Y/N		
	House: own / \$	Assets \$		Retired	Pension	Bequest
	97.3% 455k	589k		45.9%	70.3%	28.8%
$I \in [\$50k, \$100k]$ 101 (45.7%)	Wealth			Y/N		
	House: own / \$	Assets \$		Retired	Pension	Bequest
	82.2% 337k	450k		40.6%	75.2%	27.8%
$I < \$50k$ 46 (20.8%)	Wealth			Y/N		
	House: own / \$	Assets \$		Retired	Pension	Bequest
	67.4% 170k	230k		45.7%	59.0%	45.5%

The table decomposes the respondents' answers to our survey as a function of whether or not they have LTC insurance, and their access to financial resources as a function of their current income brackets ($I > \$100,000$; $I \in [\$50,000; \$100,000]$; and $I < \$50,000$). *House own / \$* gives the proportion of respondents who own their house and its median value, whereas *Asset \$* gives the median total savings (including housing), all in thousands of dollars. Below *Y/N* are the proportions of respondents who consider themselves *Retired*, have access to an employer-sponsored *Pension* plan, and agree or strongly agree that leaving a *Bequest* is important.

For middle income bracket respondents (whose current income is between \$50,000 and \$100,000), we note that uninsured respondents are as wealthy as insured respondents, even though they are less likely to be covered by an employer-provided pension plan. Their opinion as to the importance of leaving a bequest is not that different from that of insured individuals. Lastly, the only difference we observe about the answers of higher income bracket individuals compared with those of other income brackets seems to be with respect to the likelihood of being retired. Insured individuals in the higher income bracket are more likely to consider themselves as being retired (46%) than uninsured individuals in the same income bracket (40%). In the two-lower income brackets, the opposite is observed as insured individuals are less likely to be retired than uninsured individuals. When we examine even higher income brackets, the difference becomes even larger as merely 26.7% of uninsured respondents earning more than \$175,000 consider themselves retired, compared to 37.5% of insured individuals.

To sum up, demand-side characteristics are unlikely the reasons why the take-up rate of LTC insurance is so low in the two most populated Canadian provinces. According to our survey results, we find very little differences between the personal characteristics of individuals who purchase LTC insurance and of those who do not. While it is possible that LTC insurance purchasers and non-purchasers differ on dimensions that our survey did not cover, we find that unlikely given that all dimensions that have been found to correlate with insurance purchase, annuity demand, and the willingness to pay for services at older ages were included in

the survey. Given that there does not seem to be any demand-side explanation for the low penetration of LTC insurance, we now turn our attention to supply-side explanations.

3.4 Supply characteristics

The supply-side explanations we propose differs from those presented in Brown and Finklestein (2004) who write that on "the supply side, four market problems have been suggested as potential explanations for the small size of the market...: high transactions costs, imperfect competition, and asymmetric information (either adverse selection or moral hazard), (and) the uninsured aggregate risk of rising long-term care costs."²⁵

Looking back at Table 6, we note that 50.7% of uninsured respondents mentioned not knowing that such a product even existed or that they were never approached by anyone on the topic. Moreover, of the 39% of the respondents who refused to purchase such a product, 27.9% told us that their level of knowledge about the product is "none". This 27.9% of uninsured individuals who refused the insurance despite knowing nothing about it can be contrasted with the 3.7% of individuals who have LTC insurance and whose level of knowledge about the product is "none". This means that over 60% of uninsured individuals²⁶ are characterized by a knowledge of the product that is very low. It is natural to think that they would have had a higher probability of opting to be covered had they been better informed.

For half of the insured respondents, the main reason for purchasing LTC insurance was reported to be that it was once offered to them. Amongst those LTC-insured respondents, only 9.6% declared having actively searched for such a protection. This means that LTC insurance is more likely a "push product" in the sense that it is not naturally purchased by consumers but it has to be explained and sold to them. As a result, an intensive information campaign seems to be warranted for these products to become more common.

Another possible supply-side explanation is that the sales force necessary to distribute LTC insurance in the Canadian population is not informed enough about the benefits of such a product, or they feel that they are not compensated enough to invest time, resources and energy in learning how LTC insurance products could make Canadians better off. Although we have no direct evidence, an executive from Munich Reinsurance was quoted on March 1st saying

"Ce créneau stagnait, malgré plus de 20 ans de promotion du produit au Canada... Les ventes n'étaient pas au rendez-vous. Leur croissance demeurait faible, *tout comme l'intérêt de la force de vente*" (our emphasis).²⁷

Moreover a senior executive of the Canadian Life and Health Insurance Association (CLHIA) was quoted saying that ²⁸ "the probability that any Canadian will need long-term care at least once in his/her lifetime is 17%". Given that the true probability of becoming dependent is greater than 50%,²⁹ one can see that the problem with the perception of the long-term care risk, which LTC insurance attempts to cover, is not trivial given that even an industry representative underestimates the probability of needing LTC services by more than half. An extensive campaign therefore seems necessary to inform not only the general population about the advantages of LTC insurance, but also the insurance companies' own sales force and agents.

²⁵Grignon and Bernier (2012) use the term "systemic risk" to refer to the "uninsured aggregate risk".

²⁶The 60% of individuals who are unaware is calculated as the sum of the 50% who reported not knowing such a product existed plus the 10% who refused to have insurance despite knowing nothing about it.

²⁷Loosely translated: "Sales for this niche product (LTC insurance) have been stagnating despite 20 years of efforts in promoting the product... Sales were not there. Their growth was weak, just as much at the sales' force interest in the product." Quote of Cedric Thibault, directeur principal, développement des affaires, réassurance individuelle at Munich Re, in *Journal de l'assurance* <https://journal-assurance.ca/article/des-assureurs-se-retirent-faute-de-reassurance/> (last visited on March 2nd)

²⁸<https://www.theglobeandmail.com/globe-investor/retirement/retire-health/should-you-buy-long-term-care-insurance/article28512380/> (last visited 21 January 2018).

²⁹Boyer *et al.* (2017) report 56%, Hurd *et al.* (2013) and Friedberg *et al.* (2014) essentially find 50%, Kemper and Murtaugh (1991) propose 43%, and Wiener *et al.* (1994, 2000) report 49%.

3.5 Government programs

One last aspect of the LTC insurance market we want to examine has to do with whether government services (at the federal or the provincial levels) are crowding-out private alternatives. The fact that Ontario residents have access to some form of LTC facility for approximately \$1800 per month³⁰, whereas the maximum copayment in Quebec for basic service is less than \$1200 per month³¹ raises the question of whether there remains enough of a residual demand in Canada's two more populated provinces for private companies to sell their LTC insurance wares. Although we have no information about the quality or the type of the services that are given in these facilities, there is no denying that these services do exist and that they are offered at a low cost to individuals. This means that the perception on the insurance company side may be that there is very little demand for a product that would cover losses of at most \$21,600 per year. Boyer *et al.* (2017) come up with a present value, at age 65, of the expected cost of long-term care services in Ontario of less than \$20,000 (\$13,000 in Quebec). They reach that conclusion assuming that

- half of the population aged 65 and over will require some form of nursing home;
- nursing home residents use the service for 5 years on average, and
- individuals will need a nursing home at age 80 (so 15 years later) on average.

Assuming there are fixed costs to selling LTC insurance contracts (that is, assuming a fixed insurance premium loading) of \$10,000,³² it is quite possible that many individuals' willingness-to-pay is smaller than the insurance industry's break-even premium of \$30,000. If this is the case, then the low penetration of long-term care insurance can certainly be partially explained by the different levels of government in Canada offering valued and valuable LTC services, which are crowding-out the private insurance sector. This can occur even if LTC services and coverage are valued.

Another crowding out possibility is that the combination of adverse selection and generous pension systems reduces the advantages that LTC insurance offers. As shown in Boyer and Glenzer (2016), if individuals have private information about their risk of living to old age, and if pension plans are structured without any risk underwriting (like most defined-benefit or government programs) so that low risk individuals end up subsidizing the retirement of high risk individuals, then high risk individuals would prefer to be underinsured on the LTC insurance market even if premiums are actuarially fair. Because low risk individuals do not want to pay the same LTC insurance premiums as high-risk individuals, they must signal their type by accepting to have less insurance than high risk individuals.³³ Low-risk individuals would then choose a contract that indemnifies them less than what the high-risks are receiving. And based on the fact that when retirement programs are independent of an individual's risk type high-risk individuals choose to be under-insured, low-risk individuals must signal their type by accepting an even less generous LTC insurance contract. Include small transaction costs, and low-risk individuals could prefer to remain uninsured with respect to their LTC risks.

4 Conclusion and Public Policy Implications

In this paper we examined many reasons why the market for long-term care insurance is so small in Canada. More precisely, we examine whether the reasons lie on the demand side of the market, including risk perceptions, its supply side, or whether the government crowds out the private insurance sector. Using a survey of Canadians aged 50 to 70 living in Quebec and Ontario, we conclude based on survey responses that erroneous risk perceptions and other demand characteristics are not the main drivers of the low penetration of LTC

³⁰See Table1 and <https://www.ontario.ca/page/find-long-term-care-home>.

³¹See Table1 and www4.prod.ramq.gouv.qc.ca.

³²Transaction costs which represents 33% of the total premium are not extraordinarily high.

³³Signalling one's type can be done through the choice of higher deductibles. This is the case, for instance, in automobile insurance.

insurance. Because purchasers and non-purchasers of LTC insurance have essentially the same risk perceptions, and the same characteristics that were hypothesized to be correlated with the demand for insurance, it is difficult to argue that these should be the determinants of the low penetration. We believe that we are not missing some personal characteristics that correlate with the demand for LTC insurance, since we asked a very large (albeit non exhaustive) set of questions, all related to the explanations proposed by the literature on the LTC puzzle.

The most likely culprit for explaining the low LTC insurance penetration in Canada (and possibly elsewhere in the world) must then reside either in the supply (including the design and the marketing) of these products, or as the unforeseen results of indirectly-related public policies.

Supply explanations for the low penetration include the fact that LTC insurance is a product that remains relatively unknown to consumers. Insurers are largely responsible for consumers being unaware that these products exist, and of the role these products can play in helping elderly individuals manage the cost of long-term care at advanced ages. At the moment, it seems that over half of the Canadian population in the “prime age” for purchasing these contracts are unaware of the existence of these products or of the role these products play. And although it is true that our survey was only conducted in the provinces of Ontario and of Quebec, there is no reason to believe that insurers in any of the other Canadian provinces are any more innovative in their LTC insurance sales strategy.

Another potential culprit for the low take-up of long-term care insurance in Canada is the apparent generosity of the public system in providing affordable LTC services in nursing facilities in Quebec and Ontario. By heavily subsidizing basic services in nursing homes, provincial governments are likely crowding out the supply of private LTC insurance. This crowding out is not due only to the generous subsidies that nursing homes receive in Quebec and Ontario; it may also be due to the structure of the Canadian pension system (such as the Canada Pension Plan or the Régime des rentes du Québec) that offers promises of retirement income independently of any risk-underwriting. Although having to make contributions to the Canadian pension system independently of one’s risk may come at the cost of limiting the possible market of LTC insurance, it may be a small price to pay in the grand scheme of social protection scheme. In other words, the social benefits of not basing one’s contributions to the Canada Pension Plan (or Social Security in the United States or an employer’s defined benefit plan) on one’s risk may outweigh the costs of not having a private LTC insurance market.

The new restrictive rules regarding the use in Canada of an individual’s medical information in insurance underwriting have, perhaps, exacerbated the private LTC insurance supply-side problems. The recent decision by Manulife, one of Canada’s largest insurer, to discontinue the sale of LTC insurance was linked to these new restrictive rules (and the limited market acceptance of such a product).³⁴ Boyer *et al.* (2017) disagree with Manulife’s rule-restriction argument since they find very little evidence of adverse selection (which would be the result of individuals having meaningful private medical information) on the LTC insurance market.

If the supply side of LTC insurance and the generosity of public provisions of retirement income and nursing homes are responsible for the low LTC insurance penetration on the Canadian market, what can be done to increase the insurers’ interest in offering long-term care insurance to Canadians? From a political economy point of view, it is unlikely that provincial governments or the federal government itself would lower the social safety net and the generosity of government-provided pensions and nursing homes. Perhaps legislation could provide financial incentives (or public policy directives) for employer-sponsored pension plans to also offer some sort of long-term care protection. But this would be no panacea, as less than half of the Canadian population would be covered, and as the covered population would probably not even be the one that is the most at risk.

Should part of the Canada pension plan premiums (or RRQ premiums in Quebec) be used to fund future LTC services? Extending the LTC insurance coverage to the entire Canadian population was proposed by Grignon and Bernier (2012). After arguing that 1- individuals are misinformed about long-term care needs or in denial of the risk they face, 2- between 25% and 70% of individuals cannot afford insurance, 3- that there

³⁴See <http://www.newswire.ca/news-releases/manulife-financial-introduces-long-term-care-insurance-with-unique-design-and-benefits-for-canadians-and-their-partners-534616761.html> (last visited 4 January 2018).

are important market failures (such as moral hazard, adverse selection, propitious selection, systemic risk) in the long-term care insurance market, Grignon and Bernier (2012) argue that the best possible solution to the challenges of providing adequate LTC services to a growing elderly population is through the public provision of LTC services. The analysis we provide in the current paper does not support such policy because we find that 1- there are no differences in the risk perceptions of insured and uninsured individuals, 2- the cost of purchasing LTC insurance is not high considering the household incomes of our survey respondents, and 3- market failures are not that important given the results in Boyer *et al.* (2017) and the fact that pension plans also suffer from systemic risk and yet, they exist and have survived. Instead of focusing on the public provision of LTC insurance, another tool would be to offer generous tax credits to individuals who purchase LTC insurance as it is proposed³⁵ by the insurance industry. Unfortunately, given our paper's findings about the lack of individuals' knowledge about LTC insurance, it is unlikely that generous tax credits would increase the level of information and thus the take-up rate of LTC insurance, unless credits are given to the insurers rather than the individuals.

One candidate policy to increase the demand for private LTC insurance could simply be to better inform individuals about the risks of becoming dependent in the old age as well as to better inform them about the costs associated with dependency and to promote financial knowledge. In this sense, our results echoes part of the analysis of Grignon and Bernier (2012) where the authors write "if lack of information... is the main cause of the low take-up rate of private long-term care insurance, governments could undertake to better inform the population (and) private insurance companies could launch advertising campaigns to convince consumers of the need to buy private long-term care insurance" (page 9).

Another possibility resides in coupling financial products such as offering a LTC insurance with a life insurance benefit obtained by the heirs in case of early death with no loss of autonomy. LTC insurance could be linked to private pension benefits to eliminate adverse selection problems and thus decrease loading fees. These are some of the roads our governments should explore.

³⁵<https://www.theglobeandmail.com/globe-investor/retirement/retire-health/should-you-buy-long-term-care-insurance/article28512380/>

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