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The Future of Long-Term Care in Quebec: What Are the Cost Savings from a Realistic Shift toward More Home Care?

NICHOLAS-JAMES CLAVET

HEC Montréal, Montreal, Quebec, Canada

ESG UQAM, Montreal, Quebec, Canada

RÉJEAN HÉBERT

School of Public Health, Université de Montréal, Montreal, Quebec, Canada

CIRANO, Montreal, Quebec, Canada

PIERRE-CARL MICHAUD

HEC Montréal, Montreal, Quebec, Canada

CIRANO, Montreal, Quebec, Canada

JULIEN NAVAUX

HEC Montréal, Montreal, Quebec, Canada

ESG UQAM, Montreal, Quebec, Canada

Dans cet article, nous tâchons d'estimer les besoins et les dépenses à venir en matière de soins de longue durée au Québec, tout en proposant et en évaluant un train de réformes qui répondrait mieux aux besoins et serait plus viable financièrement que les politiques actuelles. Ce train de réformes consiste en une transition vers un usage plus intensif des soins à domicile, simultanément à l'élargissement des soins pris en charge par le gouvernement. L'un des éléments clés de la réforme consiste à donner davantage d'autonomie aux utilisateurs et utilisatrices quant au choix de leur fournisseur de soins, par la création d'un compte de soins pour personnes âgées; ce compte permettrait aux personnes qui en ont besoin de se procurer les services de différents prestataires, tant parmi les soins fournis à domicile que parmi les soins fournis en établissement. Dans le but de rendre plus neutre le soutien public à différentes formes de soin, nous proposons également d'augmenter la contribution des résidents et des résidentes des maisons de soins, tout en privilégiant le maintien des crédits d'impôt accordés aux personnes âgées dont les besoins en soins sont peu élevés. À partir d'une modélisation dynamique détaillée des besoins en soins, des modes de vie et des dépenses, nous estimons que les besoins en soins de longue durée connaîtront une hausse accélérée dans les vingt prochaines années, et que leurs coûts deviendront rapidement prohibitifs si les politiques actuelles demeurent en vigueur. Nous montrons qu'il existe un moyen de réduire ces coûts de manière substantielle.

Mots clés: soins de longue durée, soins à domicile, vieillissement démographique, finances publiques, Québec

In this article, we aim to estimate future long-term care needs and expenditures in Quebec while proposing and evaluating a reform package that could deliver increased coverage and be more financially sustainable than current policy. This reform package consists of a shift toward more intensive use of home care while increasing public coverage of care needs. A key feature of the proposed reform is to improve users' ability to choose their provider with the creation of a senior's care account, an account that allows individuals in need to purchase services from several providers, including both home and institutional care. To improve the neutrality of public support across care arrangements, we also propose an increase in the resident contribution in nursing homes while favouring the continued use of existing tax credits to help seniors with lower care needs. Using detailed dynamic modelling of care needs, living arrangements, and expenditures, we estimate that

long-term care needs will grow rapidly in the next two decades, and the costs will quickly become prohibitive under current policy. We show that substantial cost savings may exist.

Keywords: long-term care, home care, population aging, public finance, Quebec

Introduction

Canada is aging at a pace that varies across provinces. Among those greying faster than others, Quebec and the Atlantic provinces are leading the way. In Japan, the world leader in terms of population aging, the proportion of those aged older than 65 years already exceeds 25 percent. In barely a decade, Quebec will reach this milestone. One of the most notable consequences of population aging is the rapidly increasing fraction of the population with long-term care (LTC) needs.

The health care system has been slow to adapt to population aging. Established in the second half of the twentieth century, Canada's health care system was organized around medical and hospital care, serving a younger population with acute illnesses. As early as the 1970s, provinces developed a separate support system for older individuals with care needs. For example, Quebec established the Centres d'hébergement et de soins de longue durée (CHSLDs) in the 1970s. In Canada, the nursing home model remains predominant to this day, with home care remaining a relatively marginal mode of care delivery. Among Organisation for Economic Co-operation and Development countries, Canada dedicates only 14 percent of LTC public financing to home care (Huber et al. 2009), far behind that of most European countries, with, at another extreme, Denmark spending 73 percent of its public expenditures on home care. With rapidly increasing care needs, the nursing home model is rapidly becoming financially unsustainable as provinces have a hard time keeping up. The coronavirus disease 2019 (COVID-19) pandemic has also demonstrated the limits of the nursing home model (Wyonch 2021). Béland and Marier (2020) suggest that the pandemic acts as a "focusing event" to think about policy. In this article, we aim to assess the future outlook of the current system and evaluate a reform package that improves coverage and neutrality while being more financially sustainable than current policies.

In Canada, LTC is a provincial jurisdiction that leads to a wide range of approaches in terms of delivery and financing. Attempting to model this level of heterogeneity and complexity at the Canadian level and propose a one-size-fits-all reform package would be a daunting task. Instead, we focus on the situation in the province of Quebec. Although our analysis is based on the Quebec model of delivery and financing, we think our results are of relevance to other provinces and the federal government. With scarce but informative data, we are able to prospectively calculate the population in need of care and service, evaluate the intensity

of their needs, assign individuals to living arrangements, and attribute per capita costs. This rich framework enables us to craft a set of measures that, taken together as a reform package, could meet several policy objectives.¹

To do so, we outfit a traditional demographic projection tool with a tracking system for the evolution of a total of 11 levels of care needs, using a categorization used in the current Quebec LTC system. We then build a realistic cost architecture on top of these projections to quantify the implications for current policy and the potential cost savings from a reform package. Three scenarios are simulated, with the Quebec government providing different coverage levels of needs. The proposed coverage levels (30 percent, 40 percent, 50 percent) are much higher than the current level of 8 percent. These scenarios also incorporate other changes, such as a reallocation of users across living arrangements, adjustment of fees for nursing homes and residential care, and commuting optimization for care providers. Overall, this package delivers cost savings relative to current policy while increasing the services offered.

One of the policy objectives we pursue is to improve the neutrality of public participation across living arrangements. The current model implicitly favours nursing homes because user costs are often lower (and public participation is often higher) than those for a comparable level of care delivered at home. However, empirical evidence shows that seniors mostly prefer home care over institutional care. A 2020 survey established that 91 percent of Canadians and almost all individuals aged 65 years and older plan on supporting themselves at home for as long as possible (NIA and TELUS Health 2020). Moreover, individuals expect public authorities to act more toward home care. A 2021 survey in Quebec shows that 75 percent of respondents want the authorities to take concrete actions to increase home care services (Centre de Recherche sur l'Opinion Publique 2021). Another survey, also conducted in 2021, shows that the COVID-19 pandemic reinforced the preference for home care. Of the respondents, 72 percent reported being less inclined to enter a nursing home because of the pandemic (Achou et al. 2021). Hence, this implicit subsidy of institutional care over home care is hard to justify.

In the next section, we present the methodology used for our projections in the status quo (current policy) and the proposed reform package. We then present the results regarding LTC users, care hours, and costs. We then discuss the limitations of the approach. The final section concludes.

Methodology

The Status Quo: Current Policy

As a benchmark, we use Quebec's current public LTC system. In this scenario, the current needs coverage is kept constant in all living arrangements, without adding any constraints on the supply side. For instance, new beds will automatically be provided if the need for beds in nursing homes is greater than the current capacity. We incorporate costs associated with building new infrastructure. The same goes for other living arrangements in which the supply adjusts to the demand for services. Labour supply perfectly adjusts to the needs without putting pressure on hourly wages. We assume that the coverage rate (CR) for home care needs, which corresponds to the share of individuals' needs covered by public services, remains constant in the future.

Next, we detail some of the key components of the simulation model (Clavet et al. 2021 can be consulted for more technical details).

Older People in Need of Support

The number of older people in need of support is modeled using data from the 2017–2018 Canadian Community Health Survey (Statistics Canada 2017–2018) and the 2016 Census (Statistics Canada 2016). First, we estimate the proportion of people who need help with at least one instrumental activity of daily living (IADL), by age group (65–69, 70–74, 75–79, 80 years and over), with the 2017–2018 Canadian Community Health Survey and the proportion of people in institutions, for the same age groups, with the 2016 Census. We then combine both proportions to obtain the share of frail older people (living at home or in institutions) in need of support. These shares are 9.8 percent for people aged 65–69 years, 13.1 percent for people aged 70–74 years, 16.6 percent for people aged 75–79 years, and 39.6 percent for people aged 80 years and older. Shares are then applied to demographic projections by age group with SimGen to obtain the number of older people in need of support.²

Intensity of Needs

Second, we attribute an intensity of needs to older people in need of support by using Iso-SMAF profiles (see Dubuc et al. 2006), the case-mix classification used in the Quebec health system to quantify care needs. This classification is used to assign individuals to particular care settings. The Iso-SMAF profiles are based on the SMAF (Système de mesure de l'autonomie fonctionnelle [Functional Autonomy Measuring System]) rating scale, which assesses a person's disabilities with 29 items covering activities of daily living (ADLs), mobility, communication, mental functioning, and IADLs (Hébert et al. 2001). The Iso-SMAF profiles were developed by cluster analysis. SMAF ranks individuals from Profile 1 (low IADL needs) to Profile 14 (high needs in all categories) according to physical and mental disabilities (see Raiche et al. 2014 for more details). Quebec is the only province in Canada that uses this instrument. Other provinces

use indicators derived from the Resident Assessment Instrument (Hirdes, Poss, and Curtin-Telegdi 2008).

To attribute Iso-SMAF profiles to people in need of support, the Program of Research to Integrate Services for the Maintenance of Autonomy (PRISMA) survey is used to estimate the proportion of Iso-SMAF profiles by age group.³ These proportions are then applied to the number of individuals in need of support.⁴ The PRISMA survey did not allow differentiation of Iso-SMAF Profiles 11–14. Profiles 11–14 were therefore grouped into a single profile, 11+. This aggregation has a limited impact on the projections because most individuals with Profiles 11–14 live in nursing homes, and the computations use Iso-SMAF profiles only for home care costs.

Living Arrangements

A third step consists of assigning people with support needs to a living arrangement or care setting. Three living arrangements are considered: (a) nursing homes, (b) residential care, and (c) home care. Nursing homes, also called CHSLDs, are facilities in which people have severe LTC needs. Residential care facilities, corresponding to intermediate-care facilities and family-type resources, are smaller facilities that look more like homes for people with moderate to severe LTC needs. Finally, home care is when individuals receive LTC while living in a private residence or a retirement home. All older people in these three living arrangements receive publicly regulated and funded LTC. Nevertheless, only a fraction of people with support needs, as identified earlier, are taken care of in these publicly funded living arrangements. Of an estimated 315,568 people with needs in 2020, only 195,800 individuals received publicly funded LTC.

We then estimate the proportion of people with support needs in publicly funded living arrangements according to Iso-SMAF profiles, because public funding is higher for

Table 1: Percentage of Older People in Each Living Arrangement by Iso-SMAF Profiles: Status Quo

Profiles	Nursing Homes	Residential Care	Home Care
1	0.1	0.1	99.8
2	0.2	0.2	99.6
3	1.2	2.2	96.5
4	0.6	1.1	98.2
5	3.1	5.6	91.3
6	4.2	7.6	88.2
7	13.4	17.2	69.5
8	13.3	15.4	71.3
9	41.2	7.2	51.5
10	48.6	6.0	45.4
11+	67.2	1.5	31.4

Note: SMAF = Système de mesure de l'autonomie fonctionnelle.

Source: Authors' calculations.

people with higher profiles. In 2020, which is the reference year for our projections, 38,800 individuals were in nursing homes, 9,900 received residential care, and 147,100 received home care. Table 1 shows the share of older people in each living arrangement among people receiving publicly funded LTC (data from Ministry of Health). We see that individuals with an Iso-SMAF profile of 11 or higher mostly live in nursing homes (67.2 percent), whereas those with lower profiles are more likely to receive residential care or home care. However, a significant number of individuals with Iso-SMAF profiles lower than 10 reside in nursing homes.

Per Capita Costs

As a fourth step, per capita costs are calculated separately for nursing homes, residential care, and home care and are indexed at a rate of 1.6 percent per year over the period of projections.⁵ Most of these costs are taken from administrative data found in Ministry of Health financial reports from nursing homes. Costs include public funding from the Government of Quebec and user costs for nursing homes and for residential care, but they are limited to public funding for home care, because it is not possible to calculate home care costs paid by users. Moreover, per capita costs are identical for all individuals in nursing homes and in residential care, regardless of their Iso-SMAF profile, whereas per capita costs for home care vary with individuals' Iso-SMAF profile. At first, the assumption of a unique cost in institutions regardless of individuals' needs might seem strong; however, most nursing home and residential care users are concentrated in a few Iso-SMAF profiles, whereas the distribution of Iso-SMAF profiles in home care is more widely spread.

In nursing homes, per capita costs include yearly operating costs and financing costs if the bed had to be built during projected years (since 2020) as a result of an insufficient number of existing beds. Operating cost is calculated from financial reports of the Quebec Ministry of Health and equals \$100,900 for 2020. The financing cost equals yearly interest paid plus capital repayment. A construction cost of \$362,500 in 2020 has been estimated for beds in nursing homes,⁶ with financing over 25 years and an interest rate of 3 percent.⁷

The share of nursing home operating costs paid by users, also calculated from Quebec Ministry of Health financial reports, equals 18.3 percent (\$18,500). The remaining share of 81.7 percent (\$82,400) is financed by the Quebec Ministry of Health. In residential care, an operating cost of \$67,100 per year is considered for each user. This cost was again calculated from Quebec Ministry of Health financial reports. Moreover, the share of this cost paid by users equals 20.3 percent (\$13,600). The remaining share of 79.7 percent (\$53,500) is paid by public funds.

In home care, per capita cost is calculated as the sum of a variable cost and a fixed cost. The fixed cost is \$6,670 per user, and it corresponds to costs that are not related to Iso-SMAF profiles, such as readaptation services, technical

help, and administration. The variable cost is a function of Iso-SMAF profiles, and it varies between Iso-SMAF profiles according to the supply of nursing care, personal care, and support services. For these types of care, the number of care hours necessary to fill a user's needs has been evaluated by Hébert et al. (1997). A number of hours for nursing care, personal care, and support care is then attributed to each user according to their Iso-SMAF profile. Nevertheless, we had to apply an intensity rate of 8.3 percent on average to these numbers to match aggregate home care expenditures because the Quebec government meets very little of the (theoretical) care needs of home care users (Tousignant et al. 2007).⁸ To these gross hours of care, we also add travel time to expenditures because home care consultations usually require that the provider travel to and from the user's home. These costs can add up. We impute travel time proportionally to the number of care hours to include the commuting time between two home care users. Finally, we obtain the total number of hours worked by means of Iso-SMAF profiles for nursing care, personal care, and support services. We then apply to these total hours worked a wage rate for each care category.⁹ This finally allows us to obtain the variable cost according to Iso-SMAF profile, which varies from \$470 for Profile 1 to \$16,964 for Profile 11+.

Last, we also modeled the home-support tax credit and the Financial Assistance Program for Domestic Help Services (FAPDHS),¹⁰ two more minor measures of the Quebec government to support home care. These measures are included in total LTC expenditures every time we report those numbers. Again, more details about several aspects of the modelling can be found in Clavet et al. (2021).

Reform Package

The starting point for the reform package we want to produce is shown in Figure 1. The figure shows the average public funding per patient and Iso-SMAF profile under current policy. Three alternative care settings for home care are also introduced. The first observation we can make about current policy is that funding per patient in home care is much lower for any Iso-SMAF profile. Hence, there is a large public funding gap between institutional living arrangements (nursing homes and residential care) and home care. Simply shifting patients from nursing home and residential care to home care would reduce costs but would result in a reduction in the level of care provided. In fact, the CR of care needs, which is defined as the share of care needs (nursing, personal, and support care) that are financed by the Quebec government, is currently estimated to be 8.3 percent for home care. The current CR of needs in nursing homes and residential care is likely to be much higher even though we do not have a precise measurement of these figures.

Figure 1 shows that it would be possible to significantly increase the CR (to 30 percent, 50 percent, and 100 percent) in home care and generate savings if case load could be transferred from institutional living arrangements to

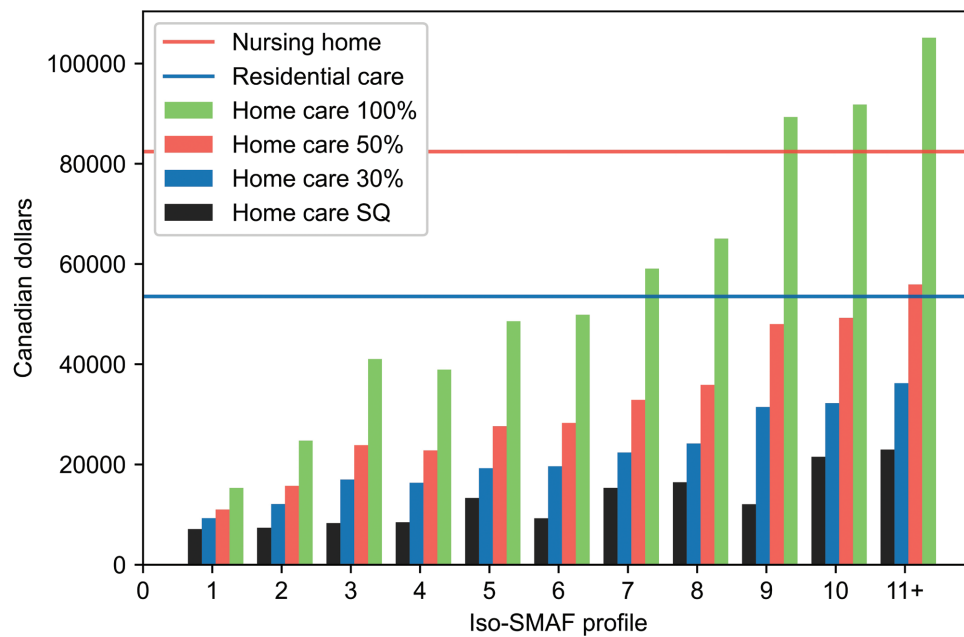


Figure 1: Individual Costs for the Quebec Government by Living Arrangements and Iso-SMAF Profile (SQ and Alternative Coverage Rates for Home Care)

Notes: Amounts in current dollars. SMAF = Système de mesure de l'autonomie fonctionnelle; SQ = status quo.

Source: Authors' calculations.

home care. For instance, it would be possible to increase the CR in home care to 50 percent to obtain equivalent public funding between home care for Iso-SMAF Profile 11+ and residential care. The room for maneuvering is greater for lower Iso-SMAF profiles, between 3 and 9. With a CR of 100 percent, per capita public costs for Iso-SMAF Profiles 1–6 would be lower than per capita public costs for residential care (and nursing homes).

Given these observations, it is clear that the actual system supports much more institutional care (nursing homes and residential care) than home care. Our departure point from current policy is therefore to seek better neutrality in terms of public support across living arrangements. Other issues, such as horizontal equity, freedom of choice, and reduction in costs, were considered in the conceptualization of our reform package. Financial sustainability is particularly important given mounting pressures on provincial public finances. Hence, we start by re-optimizing the distribution of people needing care across living arrangements, increasing the CR for home care, and adjusting the public support for residential care and nursing homes. Our alternative scenarios differ only on CR for home care. Three levels of CR are analyzed: 30 percent, 40 percent, and 50 percent.

Optimizing the Allocation Across Living Arrangements

An increase in public funding would enable more extensive use of home care among frail older adults while

allowing them to obtain a higher amount of care. It does not mean that all individuals would live at home, but it means that they would be able to choose more freely where to live. We suspect that many would make the choice to stay at home, although we do not have solid, detailed evidence of preferences and sensitivity to user costs and CRs. This shift toward home care would mainly concern individuals with light to moderate care needs that can easily be provided at home provided enough services are covered and available. For instance, around 11 percent of individuals who live in institutions (nursing homes and residential care) have Iso-SMAF Profile 1–6 (low to medium care needs). It would be feasible to incentivize these individuals toward home care if sufficient care was provided to them. These individuals often end up in nursing homes because the home care supply is lacking. Note that a similar diagnostic has been made by the [Canadian Institute for Health Information \(CIHI; 2017\)](#). Using a large Canadian panel,¹¹ CIHI estimated that 22 percent of individuals in nursing homes also had low to moderate care needs.

Whereas [Table 1](#) showed shares of living arrangements by Iso-SMAF profiles in the status quo scenario, [Table 2](#) makes explicit the kind of re-allocation that could be desirable to induce. The main feature of a shift toward more home care is to promote its use for people with Iso-SMAF Profiles 1–9. Individuals with Profiles 1–6 would all be headed to home care. Those with Profiles 7–9 in nursing homes would be equally headed to residential

Table 2: Shares of Living Arrangements (in %) by Iso-SMAF Profiles: Reform Package

Profiles	Nursing Homes	Residential Care	Home Care
1	0.0	0.0	100.0
2	0.0	0.0	100.0
3	0.0	0.0	100.0
4	0.0	0.0	100.0
5	0.0	0.0	100.0
6	0.0	0.0	100.0
7	0.0	23.8	76.2
8	0.0	22.1	77.9
9	0.0	27.8	72.2
10	48.6	6.0	45.4
11+	67.2	1.5	31.4

Notes: SMAF = Système de mesure de l'autonomie fonctionnelle.

Source: Authors' calculations.

care and home care (leaving the more severe cases with an option to go to residential care). We assume that allocation across living arrangements for Profiles 10 and over would remain the same. There are inevitable implicit behavioural assumptions with any scenario, but the direction of the biases introduced by our choices is unclear. On the one hand, we may overestimate the number of people who would move to home care among those with Profiles 1–9. On the other hand, we may underestimate the number of individuals with severe needs who may prefer home care, properly funded, perhaps with help from the family.

We assume that the transition between the status quo (Table 1) and the reform package (Table 2) would be made progressively over 10 years. We assume the new distribution of living arrangements from Table 2 is achieved in 2030 and remains constant thereafter.

Increasing the Coverage Rate with a Senior's Care Account

One could of course force individuals to use home care when it is desirable to do so. Although this may be simple, one of the problems with the current home care system is that there is one provider, the Ministry of Health, that is very often unable to meet current demand. With the surge this reform package would create, we think an alternative public funding model for LTC is to give patients different options from which to choose, including community and private care and eventually residential care. This could be done with the creation of a notional senior's care account, which would be credited with an allowance function of the Iso-SMAF profile. For example, an individual with Iso-SMAF Profile 6 could be given an allocation from which they can purchase services. The money would not flow to patients to make transactions. Instead, it could be administered by the Health Insurance Board of Quebec (RAMQ),

which is familiar with processing claims and paying for services. When contracting with a provider, which could be the state, the patient would see their account debited for the cost of the services purchased. Fees for these services could be set by the government or an external independent review board. This type of account would not need to be implemented for all Iso-SMAF profiles. In what follows, we assume that individuals with Iso-SMAF Profile 4 or higher would have access to such an account, whereas people with Profiles 1–3 would obtain sufficient support using a home-support tax credit and FAPDHS. Indeed, even with 50 percent coverage under a senior's account, the amount of the tax credit would be superior for these groups.

Individuals eligible for the account would be able to choose between different home care providers, including public community service centers (CLSCs), private providers, and community organizations, which would decrease the current pressure on public providers. Entities would need to be accredited to be able to bill the Quebec Health Insurance Board, and certification could be revoked if irregularities were uncovered. The account would reset every year with an annual amount depending on the current Iso-SMAF profile established by a health professional, and the Quebec government would finance the effective hours of care provided. Although the creation of this type of account does not have a material effect on our projections, we think it is an important element to consider, fostering freedom of choice and avoiding supply constraints with a unique central provider.

In terms of public financial support, the main difference between the status quo and the reform package we propose is the Quebec government's CR of needs in home care. Although the CR is equal to 8.3 percent in the status quo scenario, we propose to increase it to between 30 percent and 50 percent. A government could certainly aim for a higher CR, but the objective of keeping the reform financially sustainable constrains the coverage that can be provided. In addition to this increased coverage in the reform package, there is also room to optimize how care is delivered. In fact, it is common practice for personal care and support services to be provided by two different workers, although these two kinds of care could easily be provided by one person. The use of the same person to provide personal care and support services could reduce commuting time and staffing needs. Savings from this change increase with Iso-SMAF profile, and they range from 3.4 percent to 11.7 percent of individual home care cost.¹² Although our results do not depend crucially on this element, we think it is important to highlight these sources of efficiency gains in our projections.

Three home care CR scenarios by the Quebec government are considered: 30 percent, 40 percent, and 50 percent. These three scenarios are proposed because it is possible to significantly improve the level of care provided while respecting cost constraints. On the basis of

Table 3: Amount Available in the Senior's Care Account by Iso-SMAF Profile and by Coverage Rate Scenario

Iso-SMAF Profile	Coverage Rate, \$		
	30%	40%	50%
4	13,400	17,900	22,400
5	16,200	21,600	27,000
6	16,600	22,100	27,600
7	18,700	24,900	31,100
8	20,200	26,900	33,600
9	25,900	34,600	43,200
10	26,700	35,600	44,500
11+	30,600	40,800	51,000

Notes: SMAF = Système de mesure de l'autonomie fonctionnelle.

Source: Authors' calculations.

our assumptions, Table 3 shows the annual amount that would be made available in the senior's care account as a function of the Iso-SMAF profile. Funding would increase significantly as a result and effectively multiply Quebec government funds by a maximum of 3.5 in comparison with current policy. Moreover, the amount of the senior's care account increases with respect to Iso-SMAF profiles. For instance, an individual with Iso-SMAF Profile 11+ could receive double the amount of public support received by an individual with Iso-SMAF Profile 4.

Adjusting Public Support for Residential Care and in Nursing Homes

The last main feature of the reform package is to adjust the public support rate for residential care and nursing homes (the share of total per capita costs covered by the public system). Currently, the public support rate is 81.7 percent for nursing homes and 79.7 percent for residential care (Table 4). When looking at the components of this support, one can observe that accommodation and meal costs are largely covered by the Quebec government. However, these expenses are supported by individuals when they use home care. Therefore, the current formula tends to favour institutional care over home care. To strive for more neutrality between individuals who live in different arrangements, it would therefore be possible to decrease the public support rate for residential care and nursing homes. Note that the proposed public support rate is an average, and it may vary depending on family income. The new system will therefore keep striving for more redistribution because the current system already reduces inequalities by means of subsidies.

It is possible to calculate the share of the total cost that should be paid by users if they were responsible for all accommodation and meal costs in private nursing homes that have an agreement with the Quebec Ministry of Health. Figures come from financial reports of the

Quebec Ministry of Health.¹³ By adding building management, meals, laundry, and other support services, we find that individuals should pay 30 percent of total costs on average in these institutions (a public support rate of 70 percent). This rate would be closer to what is observed in other provinces. In Canada, just less than three-quarters of LTC facility costs are paid by public sources, on average (Canadian Health Coalition 2018). The difference between Quebec and Canada in the average public support rate is around 5 percentage points. The Canadian average, however, is strongly pulled down by the province of Quebec. As reported by MacDonald (2015), the daily standard fee for a basic shared room in a nursing home (before subsidization for low-income patients) is \$36 in Quebec, whereas it is \$56 in Ontario. Comparing all provinces, the second-lowest daily fee is observed in Alberta, at \$48 per day, which is still 34 percent higher than in Quebec. Nova Scotia is at the other end of the spectrum, with a daily fee equal to \$104 per day, which is almost three times the daily fee observed in Quebec.

Considering these observations, we propose to increase the user contribution rate to 30 percent for residential care and nursing homes and thereby decrease the public support rate to 70 percent. Table 4 shows that the average user contribution increases from \$18,500 to \$30,300 per year in nursing homes. In contrast, average public support should decrease from \$53,500 to \$47,000 for residential care and from \$82,400 to \$70,600 for nursing homes.

Results

Long-Term Care Users

Iso-SMAF Profiles

Figure 2 shows the projected number of individuals receiving publicly funded LTC,¹⁴ according to their Iso-SMAF profile. The number of LTC users is expected to increase from 195,800 in 2020 to 329,300 in 2035 (68.2 percent increase in 15 years) and to then reach 443,800

Table 4: Average Yearly Cost for Users and for the Government by Living Arrangement and by Status Quo Scenario and the Reform Package

Living Arrangement	Cost, \$			Support Rate, %
	User	Government	Total	
Status quo				
Residential care	13,600	53,500	67,100	79.7
Nursing homes	18,500	82,400	100,900	81.7
Reform package				
Residential care	20,100	47,000	67,100	70.0
Nursing homes	30,300	70,600	100,900	70.0

Source: Authors' calculations from AS-471 files.

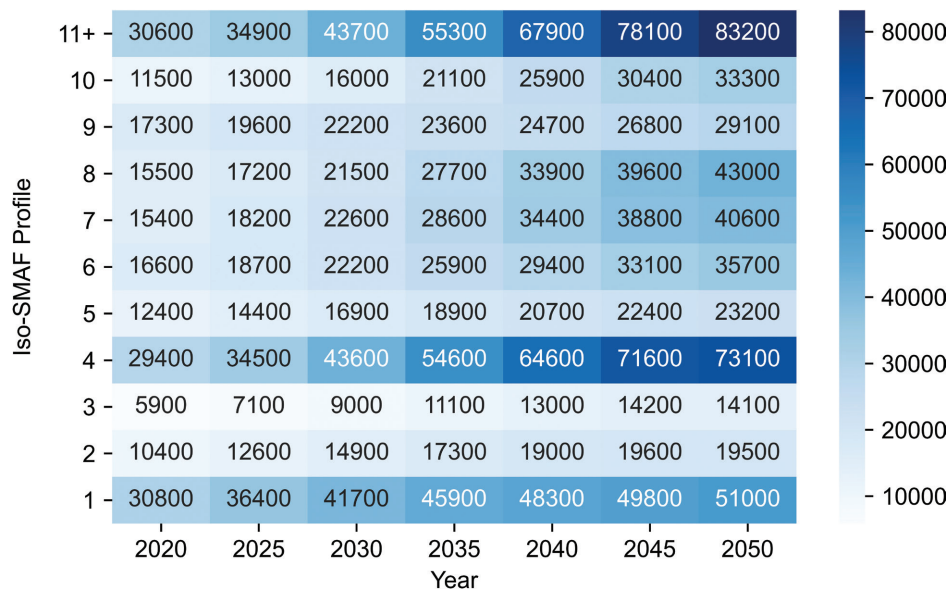


Figure 2: Projections of the Number of Individuals Receiving Public LTC by Iso-SMAF Profile

Notes: LTC = long-term care; SMAF = Système de mesure de l'autonomie fonctionnelle.

Source: Authors' calculations.

in 2050 (126.7 percent increase in 30 years). [Figure 2](#) also reveals a stronger increase for higher Iso-SMAF profiles. The number of individuals in Iso-SMAF Profiles 7, 8, 10, and 11+ is expected to increase by 160 percent in 30 years. For instance, the number of individuals in Iso-SMAF Profiles 11+ increases from 30,600 in 2020 to 83,200 in 2050, which represents a 170 percent increase. The increase is lower in Iso-SMAF Profiles 1–6, although it is still significant. For instance, the number of persons in Iso-SMAF Profile 1 increases by 66 percent between 2020 and 2050. Iso-SMAF Profile 4 appears to have the strongest increase among lower Iso-SMAF profiles, with an increase of 150 percent in 30 years. The main reason for the faster increase in higher Iso-SMAF profiles is that there is population aging within the aging group. The share of those aged 85 years in the population aged 65 years and older increases. Because more severe Iso-SMAF profiles are more predominant among the oldest-old, the increase is larger for those groups.

Living Arrangement

[Figure 3](#) presents the projected number of LTC users by living arrangement under the current policy and then under the alternative reform package.

The number of LTC users in residential care increases more rapidly with the proposed reallocation than in the status quo scenario. In 2050, the proposed reallocation leads to a need for 6,288 additional beds (26 percent increase) in comparison with the status quo scenario (an

increase from 24,200 beds to 30,500 beds). Conversely, the projected number of LTC users in nursing homes and home care is lower after the reallocation. In 2050, the number of users is lower by 26,100 in nursing homes (26.5 percent decrease) and by 65,000 in home care (20 percent decrease) compared with the status quo. In home care, this decrease is explained by the choice of excluding Iso-SMAF profiles lower than Profile 4 from the senior's care account, which account for 84,000 people in 2050. Without people from Iso-SMAF Profiles 1–3, the number of home care users during this year would have been 239,000 rather than 323,000. These people are still eligible for the Tax Credit for Home-Support Services for Seniors and for the Financial Assistance Program for Domestic Help Services, but they are not included in [Figure 3](#).

The decrease in need for additional beds in nursing homes has a sizable impact on construction costs. In fact, there is no need for additional nursing home beds in the next 10 years after reallocation, whereas the status quo scenario requires 15,300 new beds by 2030. By 2050, 59,400 beds should be built according to the status quo scenario (153 percent increase), but only 33,000 additional beds are necessary with the proposed reallocation (86 percent increase).

Hours of Home Care

The three alternative scenarios for the reform package differ according to the CR of home care provided by the Quebec government (i.e., 30 percent, 40 percent, or 50 percent of LTC needs). [Figure 4](#) reports the impacts

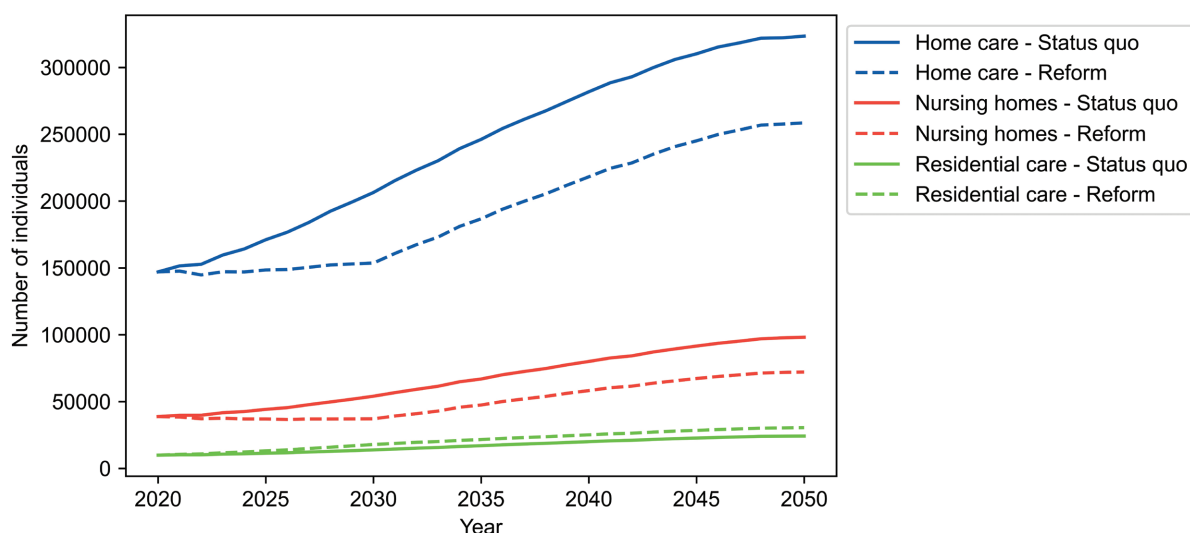


Figure 3: Number of LTC Users by Living Arrangement and by Scenario (Status Quo and Reform Package)

Notes: LTC = long-term care; RC = residential care; NH = nursing homes; HC = home care.

Source: Authors' calculations.

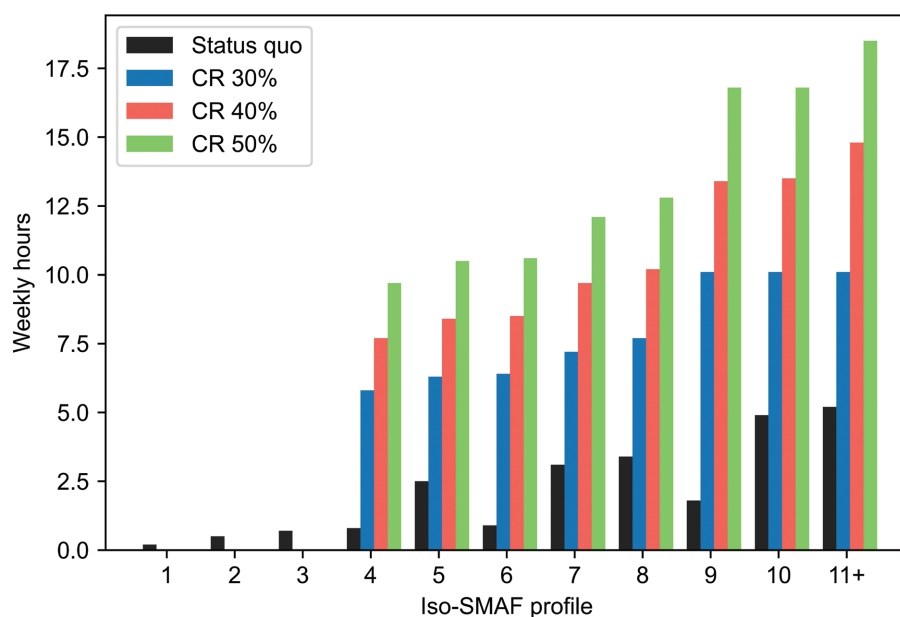


Figure 4: Maximum Number of Hours of Support Financed per Week by the Senior's Care Account by Iso-SMAF Profile: Status Quo and Alternative Scenarios

Notes: Amounts in current dollars. SMAF = Système de mesure de l'autonomie fonctionnelle; CR = coverage rate.

Source: Authors' calculations.

of such CRs on the number of hours publicly funded by the senior's care account by Iso-SMAF profile. Table 5 shows the impacts of these scenarios on the total number of hours of home care paid by the Quebec government between 2020 and 2050. In the status quo scenario, the

total number of hours increases from 13 million in 2020 to 31 million in 2050. It increases to 100 million with a CR of 30 percent, 134 million with a CR of 40 percent, and 167 million with a CR of 50 percent. Over 30 years, the average annual growth rate (AAGR) equals 2.9

Table 5: Total Number of Hours of Home Care per Year Paid by the Quebec Government

Years	Reform Package Coverage Rate, %										
	Status Quo		30			40			50		
	Hr, M	AAGR, %	Hr, M	AAGR, %	Diff., M	Hr, M	AAGR, %	Diff., M\$	Hr, M	AAGR, %	Diff., M
2020	13		13		0	13		0	13		0
2025	14	1.5	30	18.2	16	38	23.9	24	46	28.8	32
2030	18	5.2	59	14.5	41	79	15.8	61	99	16.6	81
2035	22	4.1	72	4.1	50	96	4.0	74	120	3.9	98
2040	26	3.4	84	3.1	58	112	3.1	86	140	3.1	114
2045	29	2.2	95	2.5	66	126	2.4	97	158	2.4	129
2050	31	1.3	100	1.0	69	134	1.2	103	167	1.1	136

Notes: AAGR = average annual growth rate; Diff. = difference.

Source: Authors' calculations.

percent for the status quo scenario, 7 percent with a CR of 30 percent, 8.1 percent with a CR of 40 percent, and 8.9 percent with a CR of 50 percent. The results suggest that the AAGR of the total number of hours increases by around 1 percentage point when the CR increases by 10 percentage points.

Costs

Current Policy Leads to Faster Growth of Institutionalization

Table 6 shows that the status quo scenario results in a strong increase in total costs for all living arrangements. However, the increase is stronger in institutions than in home care. Although the cost for the Government of Quebec increases by 340 percent in 30 years for nursing homes and by 290 percent for residential care, it increases by 270 percent for home care. Hence, we project an increase in the share of nursing homes and residential care in total long-term care expenditures, from 61.3 percent in 2020 to 64.8 percent in 2050. The status quo combined with population aging would therefore reinforce institutionalization in Quebec.

A Reform Package with a Shift in Home Care that Leads to Cost Savings

Before simulating the reform package from a dynamic perspective, it is possible to assess its impact in a static way. The complete implementation of the reform package in 2021 would decrease LTC costs for the Quebec government by 21.6 percent with a CR of 30 percent, by 11.4 percent with a CR of 40 percent, and by 1.1 percent with a CR of 50 percent. This static approach is useful to assess the magnitude of the reform package's impact in comparison with the status quo. However, it does not provide information about the cost savings over time for the Quebec government, which highly depends on the

Table 6: Cost of LTC for the Quebec Government in the Status Quo Scenario by Living Arrangement

Years	Living Arrangement					
	Nursing Homes		Residential Care		Home Care	
	M\$	AAGR, %	M\$	AAGR, %	M\$	AAGR, %
2020	3,194		529		2,352	
2025	4,018	4.7	657	4.4	3,108	5.7
2030	5,483	6.4	866	5.7	4,082	5.6
2035	7,518	6.5	1,152	5.9	5,308	5.4
2040	9,826	5.5	1,469	5.0	6,557	4.3
2045	12,204	4.4	1,805	4.2	7,757	3.4
2050	14,070	2.9	2,083	2.9	8,756	2.5

Notes: LTC = long-term care; AAGR = average annual growth rate.

Source: Authors' calculations.

population dynamics associated with the reform package. Moreover, it does not consider a realistic reform timeline, which is spread over 10 years in our reform package. The results shown in Figure 5 and Table 7 include all these variables and introduce total expenditures for the status quo scenario (current policy) and the three alternative scenarios under the reform package.

With the status quo, the total cost for the Quebec government increases by 310 percent between 2020 (\$6.1 billion) and 2060 (\$24.9 billion),¹⁵ which represents an AAGR of 4.8 percent over the period. The annual growth of public expenditures is stronger between 2025 and 2035 (6.0 percent), which is driven by the strong increase in the number of individuals needing care during this period. In Figure 3, we show that the number of individuals receiving public LTC will grow by 45.2 percent between 2025 and 2035 and that it will grow by 28.4 percent in the following decade.

All the alternative scenarios under the reform package lead to lower expenditures and therefore cost savings. Total public costs include both the direct public cost of home care, residential care, and home care and the tax spending associated with tax credits and similar programs. The cost savings are positive for every year after 2020. For instance, in 2025 a CR of 30 percent reduces expenditures by \$1.2 billion in comparison with the status quo scenario, which represents a decrease of 15.1 percent. A CR of 50 percent would also imply substantial savings. It

would decrease the costs for the Quebec government by 6.0 percent (\$464 million) in 2025 in comparison with the status quo scenario. There is still a little leeway over 50 percent because the CR that would equal the public cost of the status quo scenario and the public cost of the reform package is 52.5 percent for the year 2050.

Savings for the Quebec government quickly materialize during the first 10 years after the reform and are maximized in 2030 when the new allocation of living arrangements is achieved, as shown by the evolution of

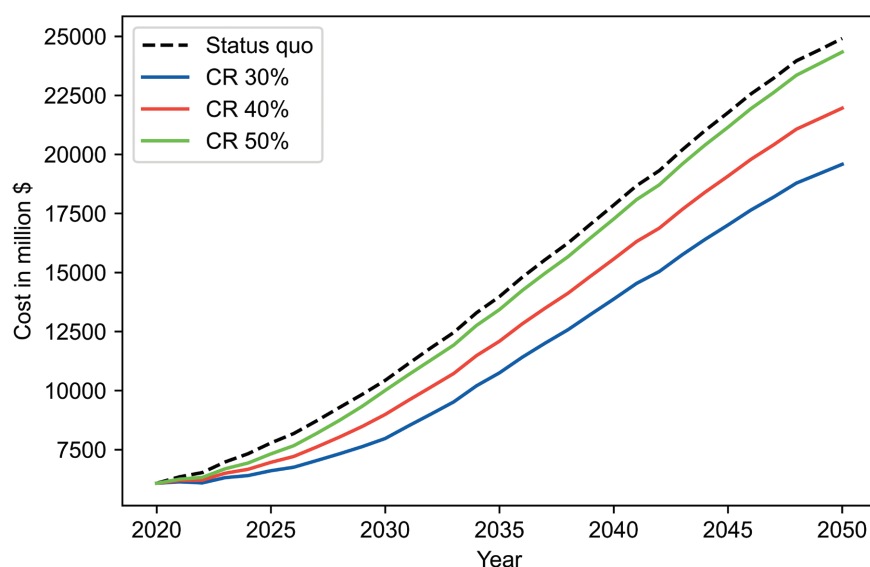


Figure 5: Total Cost of LTC for the Quebec Government for the Status Quo Scenario and the Reform Package (CRs of 30%, 40%, and 50% for Home Care)

Notes: Amounts in current dollars. LTC = long-term care; CR = coverage rate.

Source: Authors' calculations.

Table 7: Total Cost of LTC for the Quebec Government for the Status Quo Scenario and the Three Alternative Scenarios for Home Care

Years	Status Quo		Reform Package Coverage Rate, %								
	Amount, M\$	AAGR, %	30			40			50		
	Amount, M\$	AAGR, %	Amount, M\$	AAGR, %	Diff., M\$	Amount, M\$	AAGR, %	Diff., M\$	Amount, M\$	AAGR, %	Diff., M\$
2020	6,075	—	6,075	—	0	6,075	—	0	6,075	—	0
2025	7,782	5.1	6,606	1.7	-1,176	6,962	2.8	-820	7,318	3.8	-464
2030	10,430	6.0	7,969	3.8	-2,461	8,987	5.2	-1,443	10,006	6.5	-424
2035	13,977	6.0	10,749	6.2	-3,228	12,088	6.1	-1,889	13,427	6.1	-550
2040	17,853	5.0	13,872	5.2	-3,981	15,568	5.2	-2,285	17,263	5.2	-590
2045	21,766	4.0	17,009	4.2	-4,757	19,078	4.2	-2,688	21,148	4.1	-618
2050	24,909	2.7	19,581	2.9	-5,328	21,958	2.9	-2,951	24,335	2.8	-574

Notes: Amounts in current dollars. Dashes indicate that the AAGR cannot be calculated because there are no available data for 2015. LTC = long-term care; AAGR = average annual growth rate.

Source: Authors' calculations.

the AAGR of total costs shown in Table 7. AAGRs for the alternative scenarios between 2020 and 2025 for CRs of 30 percent, 40 percent, and 50 percent are, respectively, 3.4 percentage points, 2.3 percentage points, and 1.3 percentage points lower than those for the status quo scenario. Between 2025 and 2030, AAGRs for the alternative scenarios are lower than those for the status quo scenario for a CR of 30 percent (−2.2 percentage points) and 40 percent (−0.8 percentage point) but slightly higher for a CR of 50 percent (+0.5 percentage point). Comparing AAGR between 2020–2025 and 2025–2030 shows that the gains are larger during the first five years of the reform than during the last five years. This can be explained by the progressive transition for living arrangements and CRs over 10 years combined with the population aging process that is not linear over this period. From 2035 on, AAGRs are very similar for all scenarios. However, savings are still generated after 2030. For instance, in 2050, the reform package with a CR of 50 percent is \$574 million less costly for the Quebec government than the status quo scenario.

With the reform package considered, cumulated savings (in constant dollars) for the Quebec government from 2020 to 2050 are expected to be quite large. Thirty years after the reform, a CR of 30 percent generates \$69.4 billion of cumulated savings. It represents 1.3 years of the Quebec budget for health expenditures, which equalled \$53.0 billion in 2020–2021. These cumulated savings equal \$40.5 billion with a CR of 40 percent (equivalent to 9 months of the Quebec budget for health expenditures) and \$11.9 billion with a CR of 50 percent (equivalent to 2.5 months of the Quebec budget for health expenditures).¹⁶

Limitations

First, the results from our simulations depend to a great extent on underlying assumptions. In particular, the annual per capita costs growth rate of 1.6 percent is a conservative assumption given the current labour shortages and because health care costs usually outpace general inflation. It is thus useful to measure the sensitivity of the results according to this parameter. To this end, we estimated the impact of doubling the per capita costs growth rate (i.e., increasing it to 3.2 percent). Such a growth rate would change the total cost of LTC in value for all scenarios. For instance, for the status quo scenario, the cost of LTC is \$39.5 billion in 2050 with a 3.2 percent growth rate instead of \$24.9 billion with a 1.6 percent growth rate. With the reform package and a CR of 50 percent, the cost of LTC is \$38.8 billion in 2050 with a 3.2 percent growth rate instead of \$24.3 billion with a 1.6 percent growth rate. However, even if the total cost of LTC in value is highly influenced by this assumption, the impact of the reform package in comparison with the status quo scenario is comparable. Instead of decreasing the cost of LTC by 21.4 percent in 2050 with a CR of 30 percent, it decreases it by 21.1 percent. For

the same year, a CR of 40 percent results in a decrease of 11.8 percent with a 1.6 percent growth rate and a decrease of 11.5 percent with a 3.2 percent growth rate. A CR of 50 percent decreases the cost by 1.9 percent with a 3.2 percent growth rate instead of 2.3 percent with a 1.6 percent growth rate. The relative impact of the reform package in comparison with the status quo scenario is therefore very similar regardless of the per capita growth rate.

Moreover, it is assumed that per capita needs for support will remain constant by age. The implication is that health status according to age will get neither better nor worse, whereas negative effects such as the growing prevalence of obesity and positive effects such as the improvement in health care for chronic conditions could modify needs for support by age. It is not clear whether negative effects will overcome positive effects. Nevertheless, recent research tends to tip the balance to an increase in healthy life expectancy (Cao et al. 2020). To evaluate the sensitivity of the results to a health status improvement, we measure the effects of decreasing the share of people with care needs by age. Following the results of Jehn and Zaracova (2019), we simulate a yearly decrease in the incidence rate of individuals with needs by 1.5 percent, up to maximum of 20 percent. As already noted for the per capita growth rate, a health status improvement modifies the total cost of LTC, but the impact of the reform package in comparison with the status quo scenario remains similar. In 2050, the total cost of LTC equals \$20.4 billion instead of \$24.9 billion without health improvement, which represents a gain of 18 percent. In 2050, the impact of the reform package with a CR of 30 percent equals a decrease of 20.9 percent instead of one of 21.4 percent without health improvement. A CR of 40 percent results in a decrease in LTC by 11.6 percent instead of 11.8 percent and a CR of 50 percent results in a decrease in LTC by 2.3 percent whether health status improves or not.

Second, this article focused on public costs for the Government of Quebec. User costs have been estimated for nursing homes and residential care, but it was not possible to estimate the share of individuals' needs that were covered by private insurance plans, out-of-pocket spending, or caregivers. Moreover, estimations do not include care from informal caregivers, who cover a high share of needs in Quebec and in Canada. For the entire country, MacDonald, Wolfson, and Hirdes (2019) estimate that the value of informal care was between \$5.4 billion and \$9 billion in 2019, depending on the monetization method (direct hourly wage costs or replacement costs). Moreover, these authors evidence that the number of hours per caregiver will strongly increase in the next 30 years. The reform proposed in our article is expected to reduce the need for informal home care by increasing the public CR from 8.3 percent to 30 percent, 40 percent, or 50 percent, depending on the alternative scenario.

Another limitation is that we do not consider the issue of labour shortages and how they affect cost savings. However, the effect would be ambiguous. Labour shortages are likely to put upward pressures on the trajectory of total expenditures with the current policy. It is unclear how shifting the allocation toward more home care would affect labour demand and ultimately labour costs. With senior's care accounts, one could even assume that this could spur entry on the supply side of the market, which could ease labour pressures in the public sector.

Conclusion

In this article, we projected the future needs and costs of LTC in Quebec. As a result of population aging and the rapid growth in the number of the oldest old (those aged 85 years and older), the current policy would lead to exploding costs and effectively increase the share of public expenditures devoted to institutionalization instead of home care. That path is not only financially unsustainable but also appears, in light of the various surveys documenting a clear preference for more home care, undesirable as a policy. At the current pace, it will be difficult for the public sector to build enough homes and beds to meet the upcoming surge. With provincial governments operating under tight budget constraints, a shift toward more home care has been advocated.

We show that a broad shift toward home care, while guaranteeing a reasonable level of care, does not lead to cost savings across the board. The shift needs to be targeted toward individuals with moderate care needs. In fact, caring for more severe cases tends to be more costly in home care than it is in institutions, and existing tax measures are sufficient to cover the needs of those with fewer needs. Once targeted to this group, it is possible to generate substantial cost savings while increasing the intensity of care given to those who receive home care. The public CR increase from 8.3 percent to 30 percent, 40 percent, or 50 percent represents a multiplication of public support to home care by 3.6, 4.8, or 6.0, respectively.

In the reform package we propose, we argue for the creation of senior's care accounts. Administered by RAMQ, an Iso-SMAF-indexed credit would be made available for seniors to purchase care. Seniors would not be responsible for handling claims; providers would directly bill the health insurance board for these services, as do physicians and drug stores for medication. The RAMQ would debit the value of care received from the account of each senior requiring care. Fees would be regulated and set by either the government or an independent review board. This type of account would ensure that seniors have the freedom to pick the type of care they prefer. The introduction of senior's care accounts could very easily be adjusted to the user's income and assets, which could also improve vertical equity (Blomqvist and Busby 2012).

The final element of the proposed package would be to improve neutrality in the current funding model by increasing the user contribution in nursing homes to a level that would make the public share of total costs more comparable to what it is for home care. As we document, Quebec strongly favours institutionalization by covering meals and other home support services in nursing homes but not in home care settings.

With this combined reform package, we show that a shift toward home care accompanied by an increase in covered needs in home care could reduce total LTC costs for the government. The alternative scenarios reinforcing home care and the creation of a senior's care account are in line with public long-term insurances developed in continental Europe, Japan, and South Korea. The amount funded by the government would be in the range of what is funded, for example, in Germany and the Netherlands (Flood et al. 2021). Grignon and Pollex (2020) reach a similar conclusion.

The current LTC financing model is pay-as-you-go, with general revenue funding public expenditures. Indeed, the LTC public insurance schemes in other countries are not capitalized (Hébert 2012). We are not proposing to change the financing model. First, moving to a capitalization model that would pre-fund future expenditures is not useful at this stage of the aging transition. Building up sufficient funding will take a long time and likely miss the bulk of the pressures ahead in the next decades. Second, we are not encouraging a move toward a larger presence of private LTC insurance. Insurance providers have moved away in recent years from this market for a number of reasons, and the trend is unlikely to be reversed anytime soon, especially in a low interest rate environment (Grignon and Bernier 2012; Boyer et al. 2020).

However, there is a role for a complementary insurance market to cover user costs in both home care and nursing home care. Under the possibility that user costs increase with income, retirees could find it worthwhile to subscribe to additional insurance to cover these costs. More education on the costs of LTC could certainly go a long way toward helping Canadians plan for this period of their lives and improve the dialogue with decision makers. Canadians have a number of misperceptions about the risks they face (Boyer et al. 2019). The reform package we present is constrained by the objective to generate a program that would be financially sustainable for provinces. We have not analyzed the potential participation of the federal government in such a model of care delivery. Clearly, there is the potential to deliver a higher CR in home care with the participation of the federal government.

There are a number of unknowns worth thinking about when planning for a LTC reform similar to the reform package we put forward. First, although we know (relatively) a lot about the supply of care, we still know

very little about demand for care and the economic value attached to different care arrangements in Canada. This hampers our ability to build scenarios that account for behavioural responses when we change user costs, and it also makes finding the optimal user costs more difficult. In the end, thinking about an optimal LTC system requires knowledge of both cost and economic value to improve the allocation of scarce resources.

Second, one of the major challenges of the LTC infrastructure as well as the health care system as a whole will be to recruit and retain sufficient workers to deliver services as well as increase productivity through the use of technology. Unless there is close coordination of training needs between stakeholders and faster diffusion of technological advances, the best reform packages will land in the immensely packed graveyard of failed reforms of the past.

Reinforcing home care funding would not only respond to older people's desire to stay longer at home in their physical and social environments, but it would also be less costly for the government and contribute to slowing down public spending associated with population aging. The Quebec government should seriously consider this option and make a major shift to home care.

Note Regarding Editorial Process

As Pierre-Carl Michaud, one of the Guest Editors of this supplemental issue, is one of the co-authors of this paper, he was recused from its editorial review.

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Notes

- 1 One attempt to produce projections at the Canadian level is MacDonald et al. (2019).
- 2 Research Chair in Intergenerational Economics (2022) contains an overview of the microsimulation model SimGen and a link to more detailed documentation. Aggregate projections by age, sex, and year are calibrated in Statistics Canada projections.
- 3 The PRISMA survey, conducted by Hébert et al. (2010) in Quebec from 2001 to 2006, measures the Iso-SMAF profile for a representative sample of 1,501 individuals in need of help.

- 4 Thus, a key hypothesis is that this distribution of the Iso-SMAF profiles by age has not changed since 2006.
- 5 We discuss the sensitivity of the results to the growth rate of per capita costs in the Limitations section.
- 6 Construction cost is calculated from historical construction costs from a request for access to information made to the Quebec Ministry of Health in 2017. The estimated cost was \$325,000 in 2017 (Tremblay 2018), but the value has been updated to 2020 with a yearly rate of 3.7 percent. This rate corresponds to the annual average growth of the building construction price indexes for institutional buildings in the Montreal census metropolitan area between the first quarter of 2017 and the first quarter of 2020 (Statistics Canada 2021). The construction cost used corresponds to a conservative hypothesis, given the strong increase in housing prices in Quebec. As a comparison, a survey on announcements of LTC builds coming from various provinces estimated this cost at \$536,000 (Gibbard 2017).
- 7 Notice that several amortizing durations have been tested and do not significantly affect the results.
- 8 The ratio varies across Iso-SMAF profiles. It is less than 10 percent for Profiles 1–4, 6, and 9 but increases to around 15 percent for Profiles 5, 7, 8, 10, and 11+.
- 9 On the basis of nursing homes' financial data and Ministry of Health financial statements, we use a wage of \$64 per hour for nursing care, \$36 per hour for personal care, and \$18 per hour for support services.
- 10 The home-support tax credit is a refundable tax credit dedicated to Quebecers aged 70 years or older. It can be claimed for home services that are included in the rent, which targets especially private seniors' residences, and for occasional services that are not included in the rent such as laundry services, housekeeping, or dressing services. Individuals aged 18 years or older, who are covered by the Quebec Health Insurance Plan and who use the services of a domestic help business recognized by the Quebec Ministry of Health, are eligible for the FAPDHS. It allows a reduction in the hourly rate for home care services provided by social economy businesses, such as housekeeping, laundry services, meal preparation, and accompanying shopping.
- 11 This panel excludes Quebec.
- 12 Notice that nursing care has not been considered for this measure, because it requires specific degrees and knowledge that are different from personal care and support services.
- 13 That is, these costs are calculated from AS-471 financial statement files of nursing homes. The calculation is limited to private nursing homes under agreement because it was not possible to identify the costs related to nursing homes, residential care, hospitals, or CLSCs in public nursing homes.
- 14 Hereinafter, we call these individuals LTC users to simplify reading.
- 15 Of note, the magnitude of increase calculated with our analyses matches the country-level estimations produced by the National Institute on Ageing. Also, on the basis of a population microsimulation model, the institute found that the cost of publicly funded LTC will be multiplied by more than four within the next 30 years (MacDonald 2022).

16 These cost savings rely heavily on labour costs assumptions. Nevertheless, note that 55.4 percent of costs in nursing homes are related to nursing, personal care, and support care wages. In home care, these labour costs will depend on the CR of needs. With a wage increase of 10 percent in these care types, there will be a cumulated savings decrease of 66 percent with a CR of 50 percent, of 12.2 percent with a CR of 40 percent, and of 3.0 percent with a CR of 30 percent. In sum, our qualitative findings are robust to labour cost hypotheses for scenarios with a CR of 30 percent or 40 percent. The scenario with a coverage rate of 50 percent is less robust, but a wage increase of more than 15 percent would be needed to cancel cumulated savings.

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