

The Future Co\$t of Long-Term Care in Canada

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This paper builds on Statistics Canada's population microsimulation model to project the future costs of long-term care in Canada to the public purse, as well as the unpaid care provided to Canadian seniors by their families. We quantify the economic costs and personal impacts that Canada can expect by following its current path. This information is intended to promote informed and targeted discussion among governments, long-term care providers and individual Canadians on this pressing national concern.

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About the National Institute on Ageing and the Future of Long-Term Care Series

The National Institute on Ageing (NIA) is a public policy and research centre based at Ryerson University in Toronto. The NIA is dedicated to enhancing successful ageing across the life course. It is unique in its mandate to consider ageing issues from a broad range of perspectives, including those of financial, physical, psychological, and social well-being.

The NIA is focused on leading cross-disciplinary, evidence-based, and actionable research to provide a blueprint for better public policy and practices needed to address the multiple challenges and opportunities presented by Canada's ageing population. The NIA is committed to providing national leadership and public education to productively and collaboratively work with all levels of government, private and public sector partners, academic institutions, ageing-related organizations, and Canadians.

The NIA further serves as the academic home for the National Seniors Strategy (NSS), an evolving evidence-based policy document co-authored by a group of leading researchers, policy experts and

stakeholder organizations from across Canada and first published in 2014. The NSS outlines four pillars that guide the NIA's work to advance knowledge and inform policies through evidence-based research around ageing in Canada: Independent, Productive and Engaged Citizens; Healthy and Active Lives; Care Closer to Home; and Support for Caregivers.

The Future Co\$ of Long-Term Care in Canada is the second paper in the NIA's Policy Series on The Future of Long-Term Care in Canada. The first report, *Enabling the Future Provision of Long-Term Care in Canada*, by Dr. Samir Sinha can be found at www.nia-ryerson.ca.

The NIA's 2019 Policy Series on the Future of Long-Term Care has been sponsored by and produced in collaboration with AdvantAge Ontario, the Canadian Institute of Actuaries (CIA), the Canadian Medical Association (CMA), Essity, and Home Instead Senior Care.

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Executive Summary

As attention turns to Canada's baby boomers moving into retirement, public policy debates focusing on income security and primary healthcare – and the corresponding Canada and Quebec Pension Plans (CPP/QPP), Old Age Security (OAS) and medicare programs – neglect a significant strain that will emerge as a result of Canada's ageing population: providing long-term care to seniors.

The National Institute on Ageing (NIA) broadly defines "long-term care" as a range of preventive and responsive care and supports, primarily for older adults, provided by not-for-profit and for-profit providers or unpaid caregivers in settings that are not location-specific, including designated buildings like nursing homes or in-home and community-based settings (NIA, 2019). These services are delivered by the provinces and territories through a mixture of publicly-funded programs, which seniors can supplement with privately-paid services, and care provided by close relatives and friends serving as unpaid caregivers.¹

There are legitimate concerns around the quality and delivery of long-term care in Canada today – but they pale in

comparison with concerns about its future sustainability. Over the next 30 years, the number of Canadians over age 85 is expected to more than triple. Along with this inevitable increase in the number of older people, Canada is also facing lower fertility rates and socio-economic shifts that will decrease the availability of support from family members acting as unpaid caregivers – a primary care source for Canada's older population today. If current health and social care policies and practices continue, these factors point to a future in which there will be significant increases in the amount of support needed from family caregivers and substantially larger costs to the public purse.

Purpose

The objective of this paper is to better understand the challenges Canada faces over the next three decades in providing long-term care – both from a public cost perspective, and from the personal lens of older Canadians and their families – thereby promoting informed and targeted discussion on how best to move forward.

Our analysis is made possible by extending Statistics Canada's *LifePaths* Model – a longstanding, large-scale, policy-oriented micro-simulation modeling system of the Canadian population. Using a micro-analytic approach, we project the future Canadian population by modeling one person at a time, and tracking all relevant information as they make their way through life. We further draw on Canadian interRAI home care assessment data – as well as a number of Statistics Canada resources (surveys, population census, and demographic projections) – to describe the home care needs for Canada's projected future population.

By building on this population and socio-economic projection tool while consolidating various data sources, this paper brings together both the public and personal costs of care for seniors, recognizing that – whether paid from the public purse or provided for “free” through the willingness of family members – these services have value, and require time, energy and resources. With changes in family structures and the growing population of older Canadians, it is important to consider the entire “cost” so we can appreciate the full magnitude of the challenges we are facing.

Looking out to 2050, we first capture long-term care costs from a public policy lens, in terms of the publicly-funded paid care provided in nursing homes and within the homes of seniors, according to current delivery trends. We also examine the personal cost of care for seniors in terms of the unpaid care hours provided by personal support networks – most often, spouses and adult children. This analysis does not include day services (e.g. “community-based” long-term care), or seniors who end up in hospital beds with no other place to go.

A note of caution: Projections are a critical part of policy analysis, but they are not predictions. The results of this paper are best considered as a reasonable view of the future, based on what is known today. Projections depend on a range of assumptions. To the best of our abilities, our projection assumptions reflect consensus views. They do not anticipate various potential policy changes, exceptional medical advances or changes in disease treatments that may arise in the future, resulting in more fundamental shifts in the Canadian population's health or age structure.

Key Findings

Between 2019 and 2050, our baseline projection indicates the cost of public care in nursing homes and private homes will more than triple, growing from \$22 billion to \$71 billion annually (in constant 2019 dollars). These costs will roughly double relative to the macro economy, increasing from 9% of personal income tax in 2019 to 19% by 2050, and from 2% to 4.3% of aggregate wages. (We have not projected GDP, so it is not possible to show these costs as a percentage of GDP).

But sizable increased costs for the public purse are only part of the picture. Pressure on unpaid care provided by families will also increase as the baby boomers get older and family sizes decline, largely due to reductions in Canadian fertility rates. Our baseline projection shows that, by 2050, there will be approximately 120% more older adults using home care support. Over this same period, our projections indicate there will be approximately 30% fewer close family members – namely, spouses and adult children - who would potentially be available to provide unpaid care.

Putting it all together: Family members (unpaid caregivers) will need to increase their efforts by 40% - and some much more than others - to keep up with care needs, on account of fewer children per senior. Unpaid caregiving will increasingly become the reality of many more Canadians, as the number of seniors needing support more than doubles (growing by 120% by 2050).

The Bigger Picture

From a public policy perspective, the projected increase in government expenditures related to long-term care is concerning. The greater challenge, however, could well be increased pressure on Canadians who are providing unpaid care. The emotional, physical and financial stress reported by unpaid caregivers carries a cost – one that is often poorly understood until it's faced directly. Numerous studies have shown that unpaid caregiving is already a strain on Canadian families (NIA, 2018), and our projections show the pressures will increase.

What are the implications if these increased levels of unpaid care aren't sustainable? If all unpaid hours of care inside the home were instead paid publicly, this would add \$27 billion to public sector costs by 2050.

At the extreme, rather than increasing from \$22 billion to \$71 billion between 2019 and 2050, as our baseline projection shows, the cost would actually grow from \$71 billion in 2050 to \$98 billion! Economy wide, these costs would represent over one quarter of all projected personal income tax revenue and 6% of aggregate wages, nearly matching OAS benefit expenditures.

And, in fact, these cost projections may be conservative. Long-term care is a highly labour-intensive sector, generally comprising support workers whose jobs are low-paying, physically and emotionally exhausting, and rarely structured for career advancement. These roles are almost always filled by women, and a substantial proportion are foreign-born. Given that there is already a shortage of long-term care workers, additional demand for paid services would put great upward pressures on the wages of long-term care workers. These and other factors – such as potential demand for better training and

qualifications – may well further drive up the baseline cost projections.

Continued emphasis on the valuable role of unpaid caregivers is not only important for maintaining a comfortable environment consistent with the preferences of older Canadians, but also for controlling costs to the public purse. It's an issue we cannot afford to ignore.

Overall

There is a pressing need for deeper research, as well as more citizen, policy and decision-maker engagement on alternative approaches and financing models capable of achieving sustainable and adequate long-term care coverage for Canada's seniors.

Looking at the cost for the public purse, as well as the unpaid personal roles of families, the sustainability of long-term care poses serious challenges. While there are sizable costs ahead for the public sector, the findings from this paper suggest that a major concern is the sustainability of unpaid care provision – without which there would be major impacts on public sector costs and/or a significant increase in unmet care needs.

It is a complex challenge, with no simple solution. Most Canadians are likely to remain healthy well into older ages, but a minority will face care needs that could potentially be expensive and long-lasting. Private savings will not be an adequate solution for most people. In Canada, private long-term care insurance has not worked historically as intended and is unlikely to work in the future.

This challenge suggests the need for a collective response from a public policy lens. But, it also reinforces the individual responsibility of Canadians to appreciate and plan for their (potentially long) lives in older age – including expectations around the cost of care and family support.

There is little more than a decade before the first cohorts of baby boomers reach the ages when they will begin to need (and use) higher levels of care. As pressure on public long-term care services mounts, there will likely also be spillover to other, more expensive, publicly-funded health services, such as the already problematic “alternative level of care” beds in hospitals.

Echoing the long-standing call of long-term care experts across Canada, proactive and concerted measures – as well as better data – are needed to guide our efforts. Failure to act now risks leaving the state of long-term care to future generations, increasing the likelihood of short-term reactive decisions that could ultimately be more expensive and produce poorer outcomes.

Baby boomers are strongly advised to take a long, hard look at their own personal circumstances and plan ahead, to the extent that they have the health and financial means to better protect their future and possibly more vulnerable selves. At the public policy level, effective reforms require long lead times, so developing long-term care options should be an immediate and high national priority.

1. Background

1.1 Gaps in Long-Term Care in Canada

Developing a disabling health condition is a primary financial concern when ageing.² But it is difficult for individuals to plan financially for their own long-term care needs, with the unknown, potentially high associated costs that can persist (typically until death). In a 2012 survey, the Canadian Life and Health Insurance Association (CLHIA) found that three quarters of Canadians admit to having no financial plan in place to pay for long-term care if they need it (CLHIA, 2014).

Many Canadians are surprised to uncover the gaps within the current publicly-funded long-term care programs when they, or their family members, require care. Being primarily under provincial and territorial jurisdiction, public long-term care services

vary considerably across Canada in their levels of funding and range of services. These services are often supplemented with privately-paid services – either from out-of-pocket, long-term insurance plans or workplace health plans – and even more often, with unpaid care from family members. This has led to a fragmented patchwork of services where cost, access and provision of care varies across provinces and territories. Long-term care in Canada is best characterized as a “targeted,” means-tested collection of programs and regulations.

NIA definition of Long-Term Care

Long-term care is the range of preventive and responsive care and supports, primarily for older adults, that may include assistance with Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) provided by either not-for-profit and for-profit providers, or unpaid caregivers in settings that are not location specific and thus include designated buildings, or in home and community-based settings (Sinha, 2019, p. 7).

In the European Union's (EU) "Ageing Report" – an examination of government expenditures related to population ageing conducted every three years – the EU Directorate General for Economic and Financial Affairs wrote:

Due to historical and organizational reasons, public financing of LTC tends to be highly fragmented, with different government authorities being in charge of different strands. This leads to great difficulties in ascertaining exactly such basic facts as how much is spent on LTC, how many dependents are covered by LTC and what amount of LTC benefits is provided to each of them (EU 2018, p.132).

Clearly, Canada is not unique in its complex, fragmented collection of publicly-funded long-term care services and programs.

1.2 Historical Background and Today's Challenges

Canada's universal health care was adopted in the 1960s when the population was young and the major costs were doctors and hospitals, with the focus narrowly on acute care. But with population ageing, more attention is increasingly being paid to care for chronic debilitating conditions.

A first major source of doubt regarding the future sustainability of long-term care is the age profile of baby boomers who will begin turning age 75 by 2020, culminating in a tripling of the number of Canadians over age 85 by 2050.³ In the absence of other health care policy changes, population ageing will increase aggregate health care costs. Other associated factors – such as the increased intensification of medical care for age-related health conditions and heightened public expectations for advanced medical technologies – are expected to substantially magnify the impact of population ageing (Kingsley, 2015).

A second major source of concern is the anticipated decline in availability of unpaid caregivers. Family has traditionally acted as a form of long-term care insurance for older Canadians, providing much-needed care when their health deteriorates to the point where they can no longer function independently. Care supplied at home currently exceeds care provided by the health care sector by a ratio of over three to one, at little or no direct cost to the public purse.⁴ The immense economic value of unpaid caregivers in offsetting public costs has been well understood both in Canada and beyond (NIA, 2018; AARP, 2015).

As outlined in the following section, an increase in the need for paid services is inevitable, with the growing pressures being put on unpaid care by trends such as smaller families, higher divorce rates, greater participation of women in the workforce, reduced co-residency of older Canadians with their adult children, and greater expectations on the government to provide care services. Lack of proximity of adult children to ageing parents due to a more geographically mobile population makes unpaid care and support impractical for many Canadians⁵ – particularly those ageing in rural settings, given the increased urbanization of younger Canadians.

All this means Canada's long-term care sector is facing the triple challenge of a greater number of seniors needing care, a decline in availability of unpaid long-term care services (hence a higher reliance on paid services)⁶ and a shortage of qualified long-term care workers in Canada (Colombo et al., 2011; Scheil-Adlung, 2015).

Privately-paid solutions currently play a minor role for most Canadians needing long-term care and are unlikely to fill the entire gap. In Ontario, for example, these services currently make up less than 8% of delivered home care hours for seniors receiving paid long-term care.⁷

Privately-paid formal care will continue to provide a supplement for long-term care, and Canadians are advised to plan financially for their later years. However, from a public policy lens, most Canadians will not have the necessary savings to cover the full costs of long-term care from their own pockets – at least, not for very long. For example, a third of Canadian seniors receive the Guaranteed Income Supplement (GIS), which is targeted for those with low incomes. Further, nearly half of Canadian families are nearing retirement without any workplace pension plan and with a mere \$3,000 in median retirement savings (Shillington, 2016).

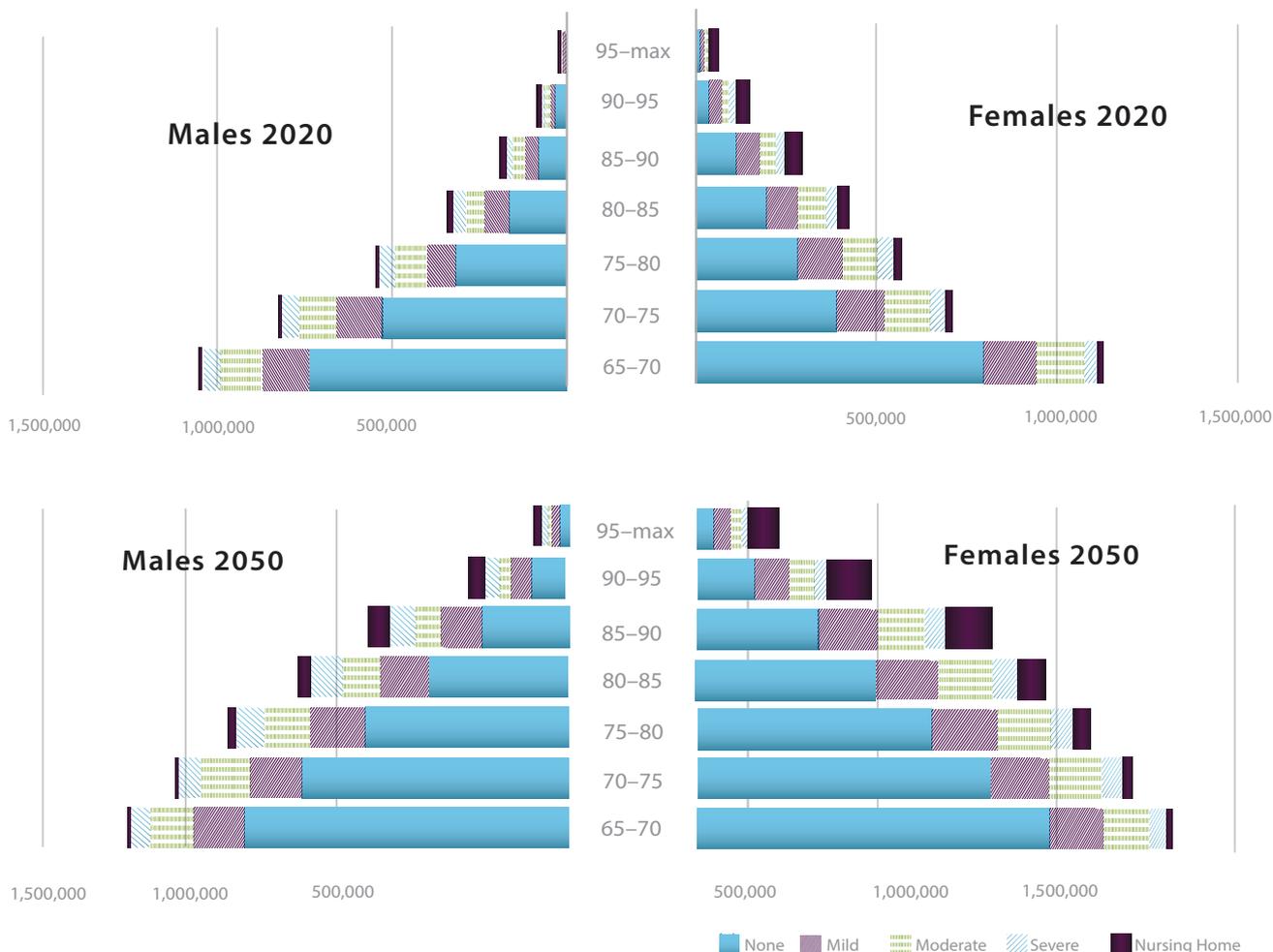
This is why public long-term care programs are so important. Not only do they protect more vulnerable seniors, but they also provide a means to reduce this financial risk for everyone. The costs associated with long-term care are unpredictable, relatively uncommon and, potentially, large and ongoing. The distribution of these costs associated with long-term care is highly skewed: most households have low or no long-term care needs, either due to lack of critical need or exclusive reliance on unpaid care, while a minority face significant ongoing and growing costs relative to their income. In the absence of publicly-funded long-term care programs, most individuals would

end up saving too much, while those with the greatest needs would ultimately find they had saved too little.⁸

With the expected ageing of the population, the numbers of individuals living with more severe disabilities will grow but will remain a minority. The population pyramids in Figure 1 show that large proportions of Canada’s seniors – even into their 90s – are now, and can

expect to be, living independently or with only mild disabilities (represented by the solid blue bars closer to the centres of the pyramids). However, when burdened by serious chronic disease and disability, the full costs of appropriate care in a nursing home (excluding room and board) is approximately \$175/day – well beyond the ability of most Canadians to pay for out of pocket.

Figure 1 – Seniors’ Population Pyramids by Disability Severity, 2020 and 2050



Source: Authors’ *LifePaths* projections (see section “Analytical Methods” for details).

Rather than paying for long-term care services directly out of pocket when needed, Canadians have had the option to purchase private long-term care insurance. Theoretically, this could be an effective vehicle to pool, and therefore mitigate, this potentially costly risk. But in practice, private long-term care insurance has not worked well in Canada. Few people purchase long-term care insurance – a phenomenon known by researchers as the “long-term care insurance puzzle.”⁹ One possibility is that Canadians do not buy long-term care insurance because of a false expectation that this care, like physician and hospital care, is fully funded and provided by government. But a more likely explanation is that since purchasing this kind of insurance is voluntary, there is a tendency for only those people who believe they will need it to buy it. Known as “moral hazard” or “adverse selection”, this phenomenon drives up the price for insurers, as they must cover higher costs and claim frequencies – which, in turn, makes the premium cost too high for most of the general population.

Owing to its low uptake in Canada, voluntary private long-term care insurance is not sufficient to fill the gap.

What’s more, this option is increasingly unavailable, as Canadian insurers are simply getting out of the business of offering long-term care insurance.¹⁰ The enormous financial losses and continuing exit of the major insurance players from this market “underscore how policies meant to pay for nursing homes and prescription costs have become one of the most unpredictable segments of the insurance industry” (Shumsky and Minaya, 2018).

For these reasons – as well as widespread concerns about the sustainability of public long-term care and future unpaid support – there are calls for more integrated funding solutions in which the risks associated with long-term care costs are shared, and therefore mitigated, across Canadians [for discussion, see CIHR (2013); Adams and Vanin (2016)¹¹]. This is not only a consistent theme from health policy advocates in Canada, but also among experts in less likely corners. For example, in an American research survey report sponsored by the Society of Actuaries, 45 out of 50 long-term care expert panelists (including insurance industry executives) agreed that the U.S. government needs to take an active role in developing and implementing long-term care financing solutions (O’Leary, 2014).

Other countries with long-term care pressures similar to Canada's, such as Germany and Japan, have established various forms of national long-term care insurance, avoiding the problem of adverse selection.¹² Whether long-term care continues to be publicly-funded in Canada from general taxation or through a new social insurance program, some additional form of revenue will be needed. These choices will determine how much the baby boomers or succeeding generations will have to pay.

In addition to funding the costs, controlling the costs has been a focus over recent years. A number of best practices for improving health and containing costs have been identified, such as those reviewed in a report on senior care by the Health Council of Canada (Health Council of Canada, 2012). Many best practices explored in that study focus on addressing the lack of integration across the health care continuum for individuals with long-term care needs, including requiring much better coordination among hospitals, primary care and long-term care.

Better coordination is important not only for controlling costs, but also for improving the quality of, and access to, care – another major issue, considering the already high volume of unmet needs of Canadian seniors (estimated in 2018 to be approximately one-third of all seniors) (Gilmour, 2018).

Overall, the provision of long-term care in Canada is facing a range of issues and challenges that will only be magnified with the continued ageing of Canada's population, combined with reductions in availability of unpaid caregiver support.

2. Analytical Methods

Public policy concern regarding long-term care needs in coming decades is driven mainly by population projections showing a substantial increase in the population of Canadian seniors, both in overall numbers and relative to the size of the non-senior population. This increase will most likely be accompanied by a corresponding increase in those who need long-term care.

A common method for projecting national costs is to take a “macro” approach, which uses broad aggregate figures representing population groups and general averages. For example, in the case of long-term care, macro approaches may build on projections of the population by age group and then apply the current proportions who are receiving care in private homes or institutions by age group and sex. The projected population is then multiplied by these current proportions to produce the desired projection.

But these averaged results paint a picture of the future that is too simplistic, offering limited scope in understanding the dynamics and ways to improve outcomes. The numbers of Canadians needing long-term care in the future will depend not only on the size of the senior

population by age group and sex but also on the proportions with disabilities of varying levels of severity, the types of long-term care needs, the extent to which these needs can be met from various sources (including unpaid care from relatives), the programs and services offered, and the costs of those services. Further, these factors – which are complex and likely to unfold differently in the future than they have in the past – will interact.

These considerations point to the need for careful and sufficiently detailed projection modeling that can adequately capture the dynamic nature of change Canada will experience in the coming decades, as well as the interaction of the relevant factors for a diverse population that will also change over time. In other words, understanding the aggregate implications of all these moving pieces requires a more richly detailed and disaggregated methodology than the usual approaches.

Instead of the macro approach, therefore, we have taken a micro-analytic approach. With this approach, the projections are based on the life course trajectories of a large sample of individuals representing the entire Canadian population – in other

words, projecting the future Canadian population by modeling one person at a time, and tracking all relevant information as they make their way through life.

To do this, we have drawn on the very detailed Statistics Canada *LifePaths* model.¹³ *LifePaths* is a microsimulation model, operating at the level of individuals rather than groups of people or aggregates. Millions of individuals have their complete life paths or biographies synthesized via simulation. These synthetic individuals, by construction, collectively form a representative sample of the Canadian population. Individually, each biography is intended to be as realistic as possible – at each point in time over the projection period (to enable valid cross-sectional population results), as well as at the individual level over time (i.e., longitudinally). The model captures this realism by building on the wide range of data available at Statistics Canada.

Microsimulation is significantly more complex and detailed than a macro approach, enabling more realistic projections when various factors change and interact, such as disability severity in relation to long-term care utilization. With microsimulation, we can also start asking and analyzing the answers to questions around the impact of trends or public policy reforms.

LifePaths is a long-standing model for public policy analysis – particularly in relation to Canada’s retirement income systems.¹⁴ We have built on its capacities to simulate individuals’ disability onset and progression, and then added utilization of publicly-funded and unpaid home care and nursing home services, conditional on disability status. Owing to generally poor quality data on long-term care in Canada, particularly on the cost and funding side, we have triangulated our micro “bottom-up” approach with the limited macro “top-down” information available to produce parameters for the fairly detailed modules we have added to *LifePaths* to simulate and project long-term care utilization and costs in Canada over the next three decades.

History of *LifePaths*

Imagine being able to track the fortunes of every Canadian over their lifetime. Some will die young and some will live to 100. Some will have high-paying jobs and some will have sporadic employment. Some will save regularly for retirement or participate in workplace pension plans and some will not. This is essentially what LifePaths does: track a representative sample of all Canadians in order to understand their past and project where they will be at a future date. Developed by Statistics Canada over 25 years, LifePaths brings together Statistics Canada's vast amount of data to shed light on the socio-economic experiences of Canadians. This microsimulation tool has to make some simplifying assumptions, especially where data are not available. Still, the end result is a powerful projection tool.

Adapted from Vettese and MacDonald (2016, p. 6)

For 25 years, Canada invested some of its best resources in a large-scale, policy-oriented population microsimulation model: Statistics Canada's *LifePaths*. Developed by some of the world's best microsimulation modeling experts, *LifePaths* has enabled a diverse and growing number of analysts to test "what-if" scenarios based on actual projected "life paths" for large representative samples of current and future Canadian individuals and families, providing a comprehensive, integrated perspective on the entire Canadian population.

Over the years, *LifePaths* has been used to provide critical support and analysis on a diverse range of Canadian public policy issues – such as retirement income security, taxation, financial markets, disability and caregivers, divorce and parenthood, social indicators, unemployment insurance, immigration and student loans.

But in the budget climate after 2010, Statistics Canada discontinued funding for *LifePaths* and the model was archived, though it is still available to interested parties

Microsimulation population models are considered the gold standard for understanding population trends and informing public policies.¹⁵ For the purpose of this project, we have built on *LifePaths*' capacities to simulate individuals' disability onset and progression, and then added, conditional on disability status, utilization of publicly-funded and unpaid home care and nursing home services.

The federal Department of Employment and Skills Development Canada, Canada Ministry, in collaboration with Statistics Canada, has recently provided a multi-year contract and earmarked funding for the development of a successor to *LifePaths*. However, it will be some years until this new model becomes available.

Technical Snapshot of Long-term Care Utilization and Cost Projection Modeling

This study uses a microanalytic approach, projecting the Canadian population over the next 30 years, and multiplying long-term care service utilization by unit costs. Unpaid care is valued at the replacement cost of care.

In our population projection model, each future Canadian senior's disability status (none, mild, moderate, and severe disability) is imputed at each moment in time, based on detailed analysis of the National Population Health Survey (Canada's best longitudinal health survey to date). Our baseline projection assumes Canadians' lifespans increase in line with the middle range of Statistics Canada's official demographic projections. We further assume that age-specific disability prevalence (disaggregated by mild / moderate / severe) will decline in a manner so that the ratio of health-adjusted life expectancy to overall life expectancy remains generally constant (Bushnik et al., 2018).¹⁶

Conditional on disability levels, age group and sex, utilization of long-term care has been divided into three main areas: home care provided to individuals living in their own private "home" (rented or owned

single, detached or multiple units), those living in retirement residences (like apartment buildings but with congregate dining, considered "collective dwellings" by the population census) and nursing homes.

To produce dwelling estimates for the entire population, we have combined household disability prevalence estimates with census data. Nursing homes are designated buildings for individuals with the most acute care needs. Within private home and retirement residences, long-term care takes the form of "home care" services – predominately provided by personal support workers (PSWs). Both formal (publicly-funded and privately-paid) and unpaid hours of home care are imputed based on the detailed clinical interRAI data for home care utilization in Ontario (the most complete data source on home care use) (Hirdes et al., 2011; Carpenter and Hirdes, 2013). To capture "long-term" care (rather than short-term care following hospital procedures, for example), the study focuses on interRAI's long-stay home care clients: seniors expected to receive services for 60 days or more. Note that estimates of unpaid home care hours were therefore derived from

only those seniors receiving publicly-funded home care. Although not ideal, it is reasonable to expect that Canadians who require long periods of home care from family will also attempt to receive free public home care. (Further, aggregate national-wide unpaid home care hours were consistent with data from the General Social Survey). For further details on the interRAI data source, see Sinn (2019).

Long-term care costs per person at each period over his or her lifetime are determined by multiplying the long-term care unit costs (per bed-day for nursing homes, and per person-hour for home care) by the imputed long-term care utilization (in physical units of nursing home days or formal/unpaid home care hours). The publicly-funded cost of care for nursing homes is set at \$175/day. This figure is net of typical co-payments generally intended to cover “hotel costs” (i.e., room and board), which are viewed as covering regular costs of living that all Canadians pay and, therefore, not part of the “cost of care”. Publicly-funded home care costs, focusing on PSWs who provide the vast majority of home care services (Poss et al., 2008), are set at \$30/hour (\$18 for salary, and \$12 for overhead costs). This hourly figure is intended to be a representative net cost to the government reflecting the home care co-payments that exist in some

jurisdictions. Based on publicly available sources, as well as consultations with health officials and long-term care stakeholders across Canada, these are plausible amounts on average (although actual unit costs vary considerably across the country). They also align with recent unpublished data (Sweetman, 2019) from the Labour Force Survey, indicating that the average salary of PSWs is about \$18/hour. These unit costs of care are projected to keep pace with average wages in Canada.

Wages are assumed to grow at 1.1% per annum, and inflation at 2% per annum, in line with the most recent CPP actuarial report to Parliament (2016a, 2016b, 2017). While the Old Age Security (OAS) pension and individual income tax system legislation specify that their key values increase over time in line with the inflation rate (i.e., these major programs are price indexed), historical evidence finds there are periodic ad hoc changes that are tantamount to being indexed in line with average wages. As a result, we have assumed they are wage indexed to 2050. Further technical details are available in a supplementary information report (forthcoming).

3. Projected Costs of Long-term Care

This section presents the projected costs of long-term care for Canadian seniors – both in the home (private home or retirement residence) and in nursing homes.

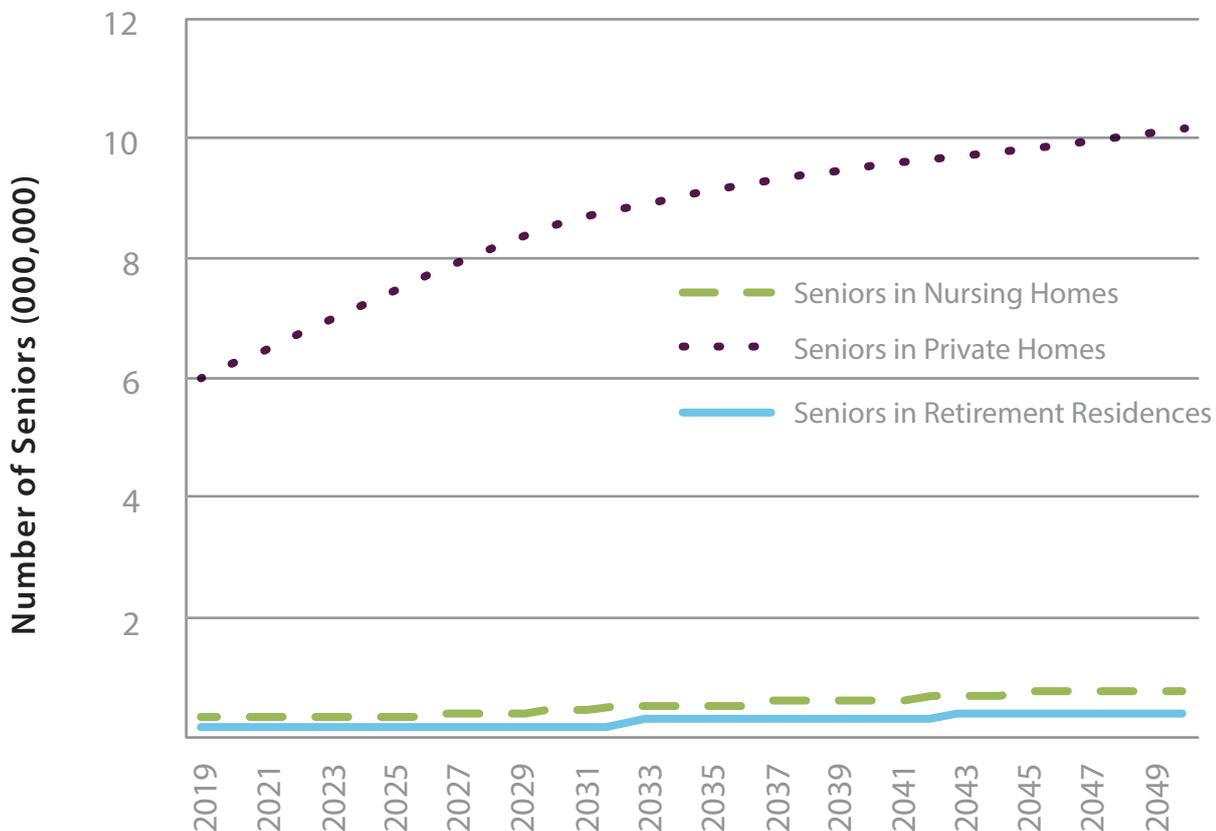
3.1 Public Government Costs

This study defines “public long-term care expenditures” as the cost of public

formal care within nursing homes, private homes, and retirement residences.

Figure 2a provides our baseline projection for the dwelling status of seniors between 2019 and 2050. Figure 2b shows the corresponding aggregate amounts of publicly-funded, privately-paid and unpaid home care hours.

Figure 2a: Dwelling status of seniors across Canada between 2019 and 2050



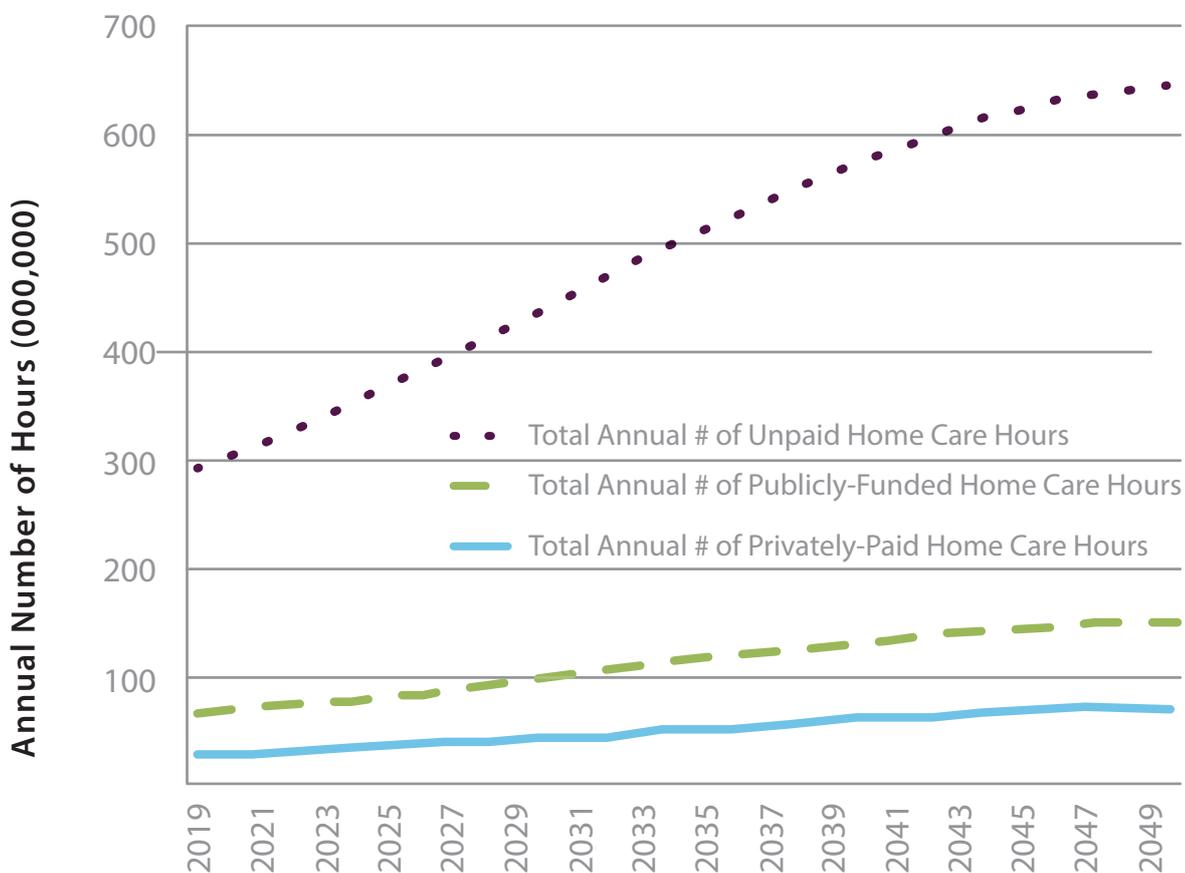
Source: Authors' *LifePaths* projections.

In 2019, approximately 93% of seniors are in private homes, 2% are in retirement residences and 5% are in nursing homes. By 2050, our projections show that there will be 75% more seniors, with 90% living in private homes, 3% in retirement residences and 7% in nursing homes. While the average age of the senior population is increasing, the expected change in dwelling status is relatively small, due to the expectation that seniors will have longer and healthier lives than previous cohorts (see “Analytical Methods” above).

Overall, home care hours provided by all three sources are projected to more than double by 2050 – from approximately 300,000 unpaid, 70,000 publicly-funded and 30,000 privately-paid hours in 2019, to approximately 645,000 unpaid, 150,000 publicly-funded and 75,000 privately-paid hours in 2050.

Publicly-funded home care hours amount to approximately 18% of all home care hours, with privately-paid hours at 7%, and unpaid hours at 75%, relatively constant over the projection period (Section 3.2 discusses the availability

Figure 2b: Total annual number of publicly-funded, privately-paid, and unpaid home care hours



Source: Authors' *LifePaths* projections.

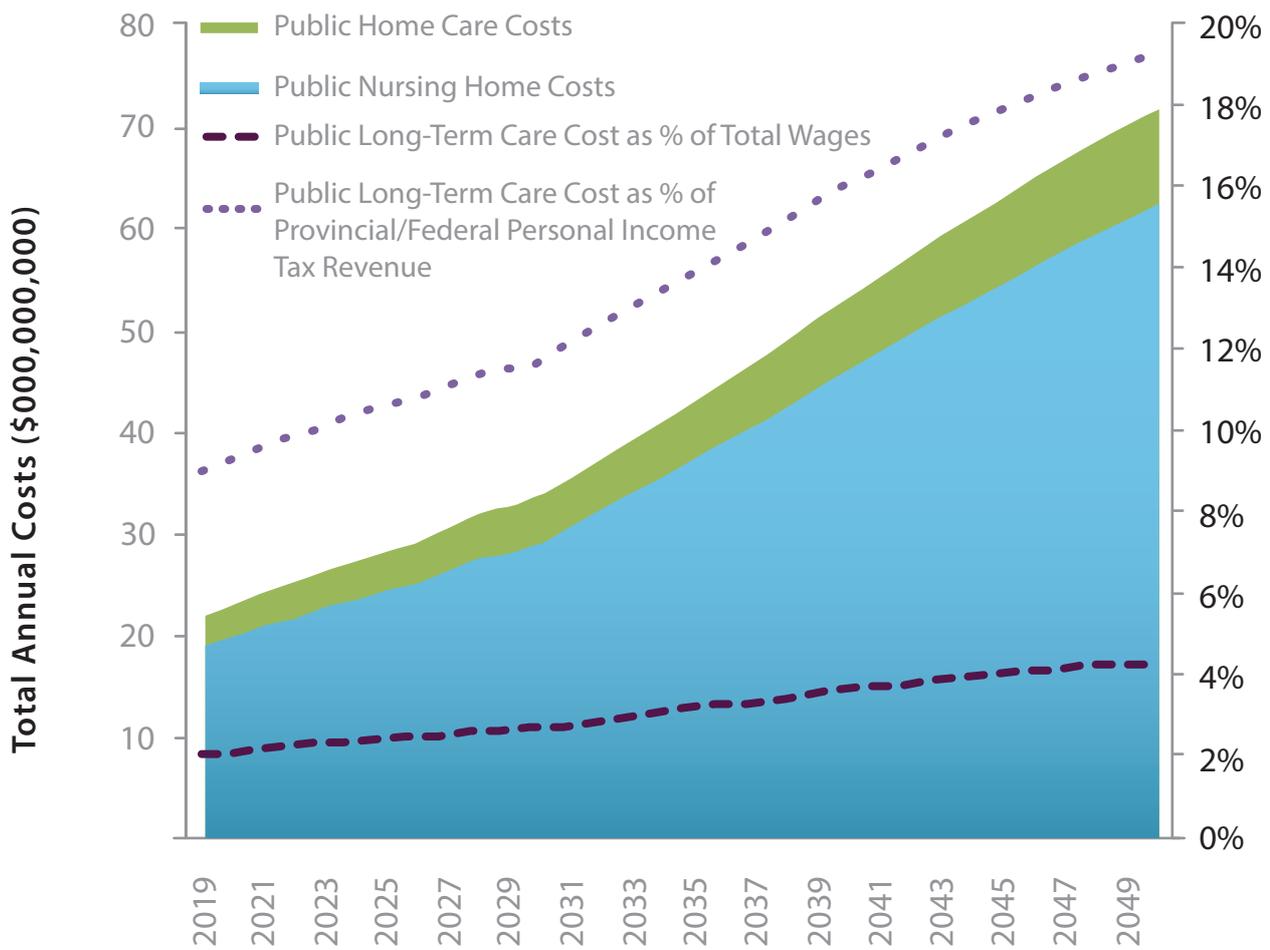
of family to continue supporting this level of unpaid care).

In Figure 3a, the public costs for nursing home and publicly-funded home care are calculated to cost \$22 billion in 2019, which translates into 9% of total annual personal income tax revenue (federal + provincial) and 2.1% of aggregate wages.

For the public to continue covering the same proportions of home care hours (by age, sex, disability status and residence), as well as the cost of care in nursing homes, the cost is projected to grow to \$71 billion by 2050 (in 2019 constant dollars) – equating to 19% of total personal income tax revenue and 4.3% of aggregate wages at that time (right axis).

Figure 3a: Public long-term care cost to maintain current coverage

As shown in Figure 3b, most long-term care costs are incurred on behalf of



Notes: Publicly-funded long-term care cost to maintain current coverage (nursing home/home care aggregate by the blue/green and left axis) and publicly-funded long-term care cost as percentage of (1) total personal income tax revenue (provincial and federal; dotted purple line and right axis) and (2) total wages (dashed purple line and right axis). 2019 constant dollars.

Source: Authors' LifePaths projections

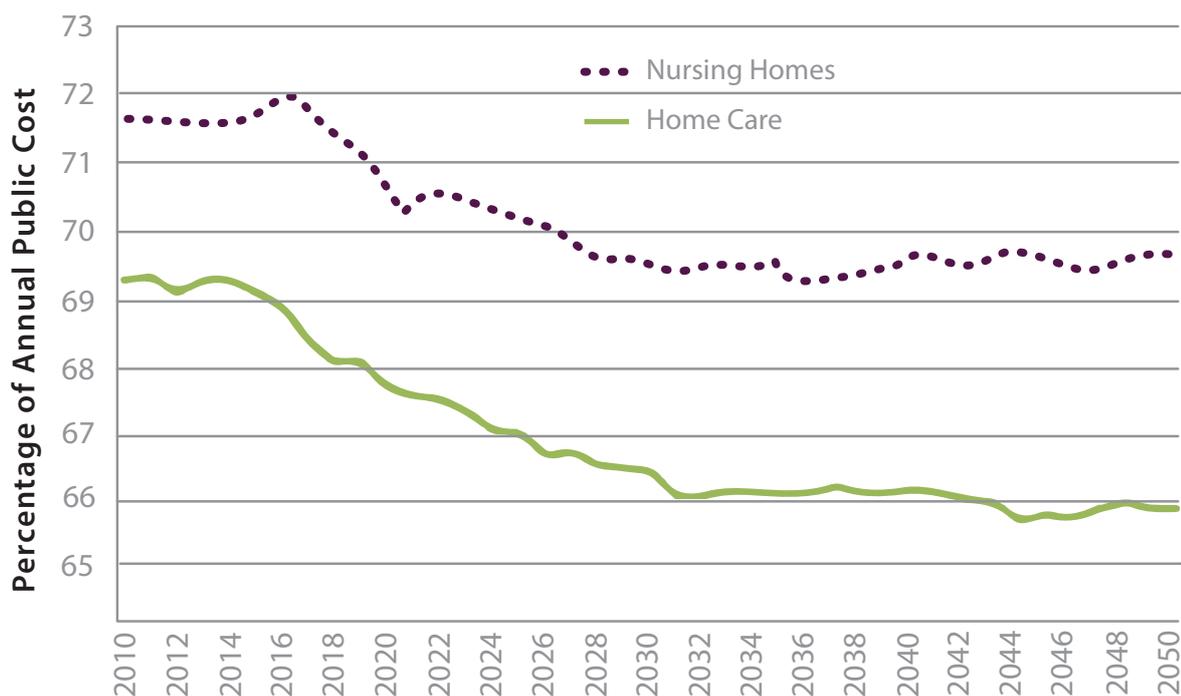
women – 72% of total nursing home costs, and 69% of home care costs. The proportions are higher in nursing homes, as these populations tend to be older and men have shorter life expectancies than women. Still, both proportions are expected to decline by several percentage points over the coming decades, given the projected faster increase in life expectancy for men than for women.

Rising costs are clearly a concern, but the elephant in the room is, who will provide these services? Long-term care is a labour-intensive sector, comprised mainly of female, often foreign-born personal support workers (PSWs)¹⁷ whose jobs are generally low-paying, physically and emotionally exhausting, and rarely

structured for career advancement. Analysis by Scheil-Adlung (2015) concluded there are significant shortfalls of formal long-term care workers in many countries, including Canada.

The projected growth in demand for long-term care workers will mean a significant increase in the share of the total Canadian workforce employed in the long-term care sector. Targeted immigration could help to fill this gap, but to attract and retain more people in this line of work, wage rates would likely need to rise more rapidly than has been assumed, in order to balance low supply and high demand for trained workers. Such wage increases would substantially increase the projected costs.

Figure 3b: Publicly-funded home care and nursing home care for women as percentage of annual public costs.



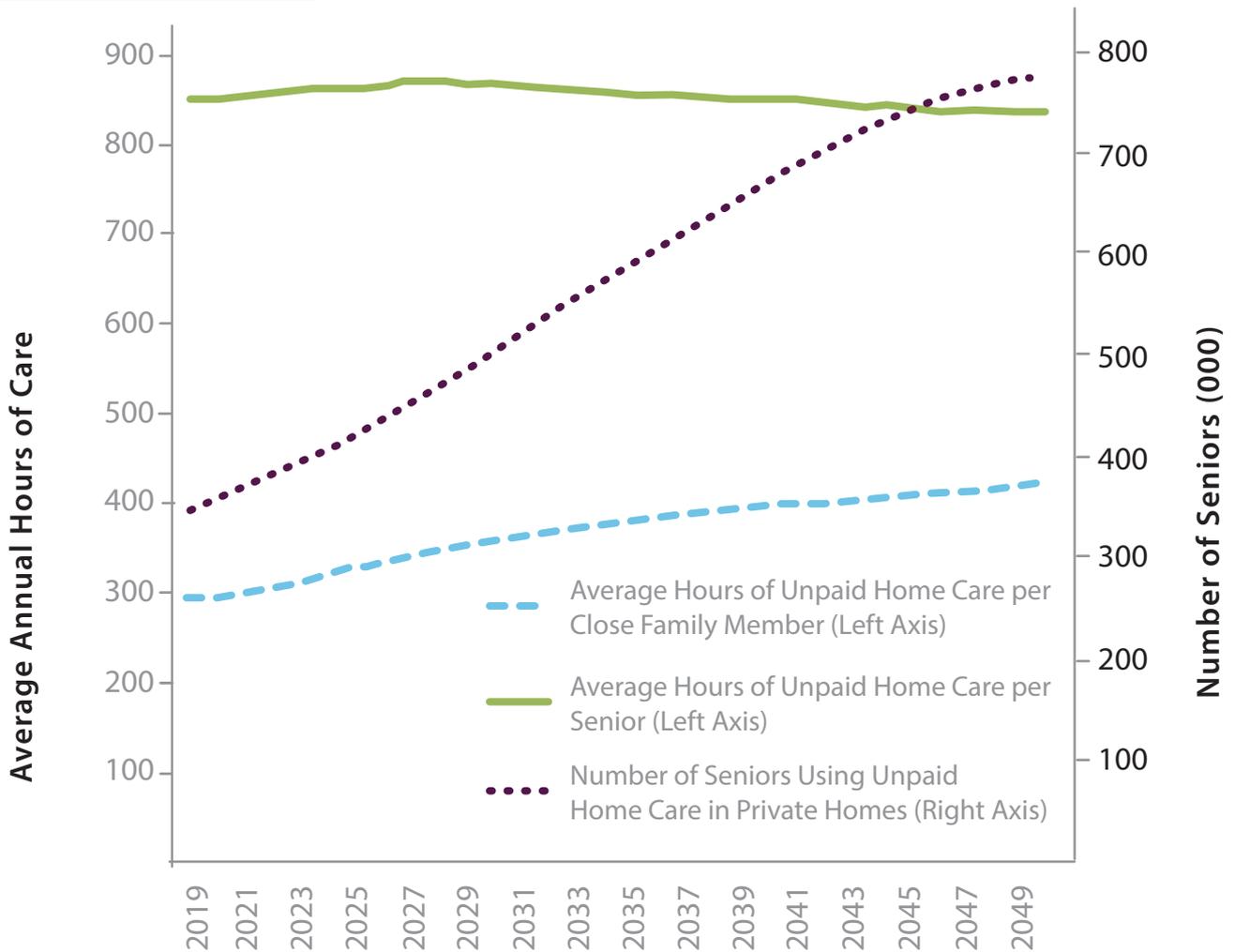
Source: Authors' *LifePaths* projections

3.2 Personal Costs for Seniors and their Families

As discussed, our aggregate projection estimates that about 75% of total home care hours are currently being met by unpaid caregivers. However, Canadian fertility rates declined significantly

after the mid-1960s, such that the projected senior population have fewer adult children than has historically been the case. Additionally, higher divorce and separation rates, along with a greater likelihood of never marrying compared to previous generations of seniors, is reducing the potential for unpaid support from spouses.

Figure 4: Unpaid Home Care Utilization



Notes: Average annual hours of unpaid home care per senior receiving care (top solid green line and left axis), average annual hours of unpaid home care per potential unpaid caregiver (adult children and spouses; bottom dashed blue line and left axis) and number of seniors using unpaid home care in private home (dotted purple line and right axis).

Source: Authors' *LifePaths* projections

Figure 4 (left axis) shows demands on seniors' potential unpaid caregivers (adult children and spouses) will grow by 43%, on average (125 hours/unpaid caregiver/year) – from 290 hours/unpaid caregiver/year in 2019, to 415 hours/unpaid caregiver/year in 2050. The left axis also shows this growth is despite a projected 3% decline in average hours of unpaid care per senior receiving home care (from an average of 850 hours/year to 825 hours/year) on account of seniors living both longer and healthier lives than previous generations.

Not only will the average number of needed hours increase per potential unpaid caregiver, many more Canadians will find themselves in this situation. The number of seniors requiring unpaid care is projected to increase by 120% between 2019 and 2050, from 345,000 to 770,000 (see dotted purple line, right axis, in Figure 4).

Despite careful modeling of these social trends, this baseline projection may be conservative. For one, our projection estimates the number of close family members, but the availability of those caregivers could be a much different story. We can project how many there will be, but not whether they will actually provide support.

And although we have projected the number of children, we have not considered their geographic proximity to their parents, which plays a major role in their capacity to provide daily care.¹⁸ Higher female participation in the formal labour market and greater expectations of the government to provide care are also likely to contribute to a decline in availability of unpaid caregivers (although this anticipated trend may be somewhat offset by greater levels of care provided by spouses, given their higher co-survival rate). It is also worth noting that spouses (or caregivers who co-reside) are more willing and able to take on more care responsibilities than adult children living separately (Mitchell et al., 2015; Betini, 2017).

Absent an increase in care hours provided by unpaid family caregivers, future seniors who are unable to pay out of pocket for long-term care services are at risk of greater unmet care needs.

3.3 The Economic Value of Unpaid Care in Canada

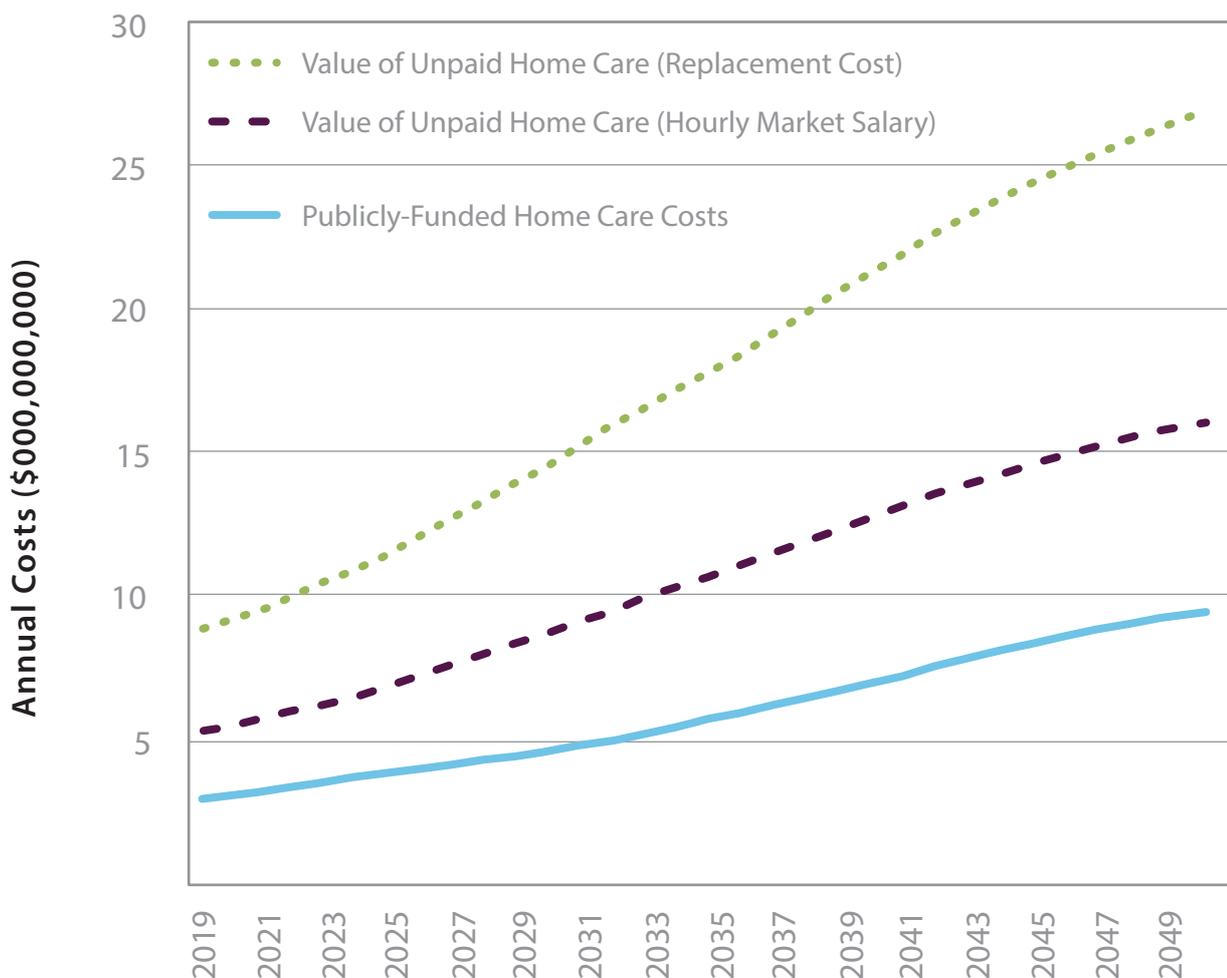
There are a variety of approaches to valuing unpaid caregiving support [see, for example, Hollander et al. (2009) and Poss et al. (2008)]. One approach is to ask, what would be the cost for government to replace unpaid care with formalized paid

care? The “replacement cost” is set in this study as \$30/hour: \$18/hour for salary and \$12/hour for overhead (including administration and travel times between visits) (see “Analytical Methods”).

The magnitudes of unpaid care valued from this perspective are shown in Figure 5: aggregate costs for unpaid care valued

at replacement costs (dotted green line) and valued at the direct hourly wage costs of unpaid care (dashed purple line), as well as the cost of publicly-funded paid care (solid blue line). The aggregate public sector cost to replace unpaid care with public care in 2019 (at an assumed \$30/hour) is just under \$9 billion. Based on direct salary alone (at an assumed \$18/hour), this cost would be \$5.4 billion.

Figure 5: Annual aggregate value of home care



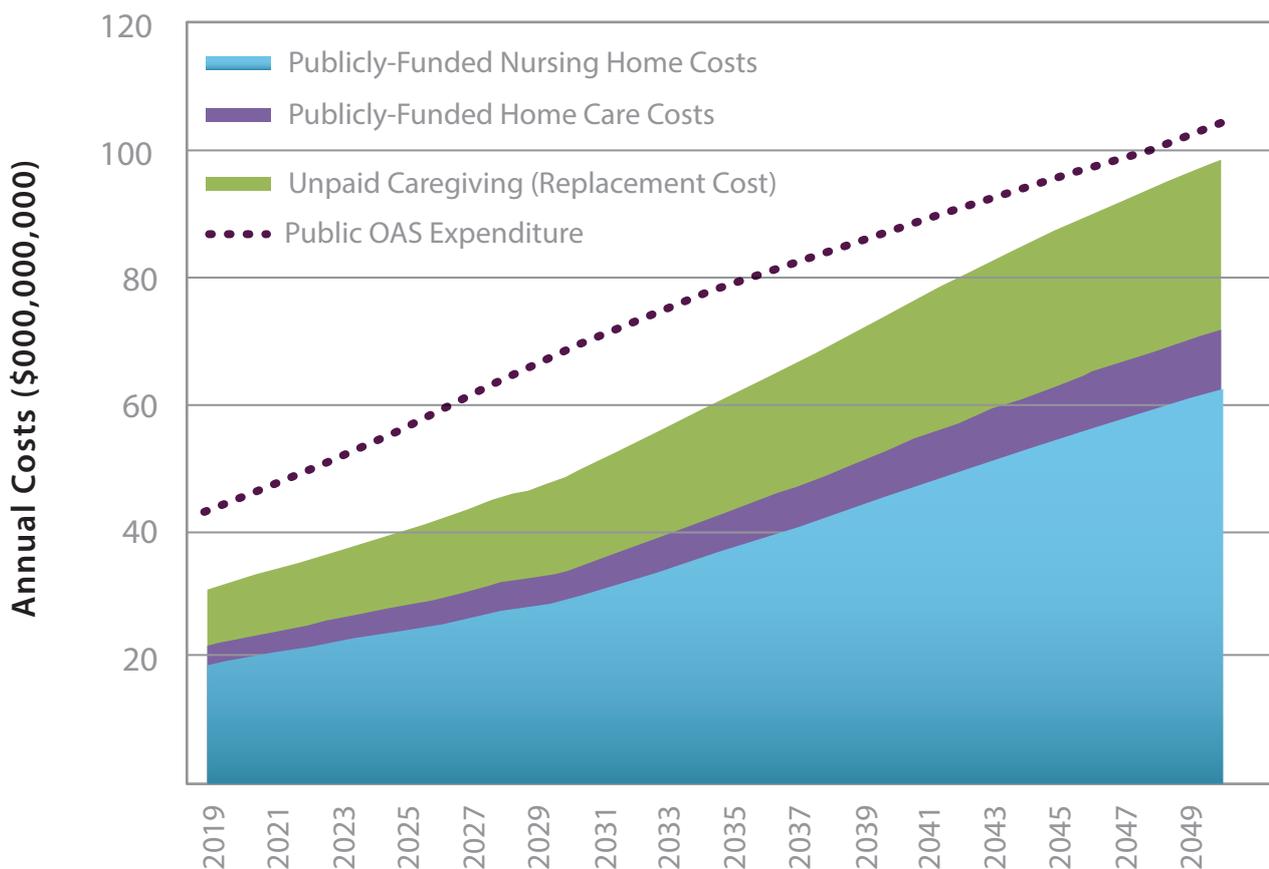
Notes: Annual aggregate cost of publicly-funded home care, unpaid care at replacement cost and unpaid care at hourly market salary (note: lines are not stacked). 2019 constant dollars.

Source: Authors' *LifePaths* projections

Previous literature has reinforced the important economic value of unpaid care [see, for example, Hollander et al. (2009) and AARP(2015)], and the trajectory of Figure 5’s top two lines indicate this value is projected to grow threefold between 2019 and 2050. Figure 5 also compares the value of unpaid care services to publicly-funded care.

The growing spread between the dotted green line (unpaid care) and the blue line (publicly-funded care) highlights the value of unpaid caregivers to Canada’s senior population, and how much more important it will be in the future.

Figure 6: Annual aggregate cost of long-term care



Notes: Annual aggregate cost of publicly-funded home care and nursing home care, in addition to the replacement cost of unpaid care across Canada. (Old Age Security expenditure projections also tracked). 2019 constant dollars.

Source: Authors' *LifePaths* projections

3.4 Putting Together the Public and Personal Costs of Long-term Care

What if unpaid care is not sustained at its historical path? Figure 6 shows the aggregate publicly-funded long-term care costs as projected in our baseline scenario, to which we've added the replacement cost of unpaid care. It also tracks OAS expenditures over the same period, under the assumption that OAS benefits are updated to stay in line with average wages.

Figure 6 shows that if all unpaid hours of home care were fully publicly-paid – using an assumed \$30/hour (in 2019, and growing in line with average wages at assumed 1.1% per annum) – this would add \$27 billion to public costs by 2050. In this case, rather than moving from \$22 billion to \$71 billion between 2019 and 2050 (in constant dollars), the public sector cost would grow instead to \$98 billion – representing nearly a quarter of all projected personal income tax revenue (provincial and federal) and 6% of aggregate wages, and approaching the size of OAS benefit expenditures over time.

Interestingly, over the projection period, the steepness of the slope of the curve for OAS costs declines, while the slopes of the

curves for the long-term care components increase. The reason is that OAS costs depend primarily on the size of the age 65 plus population, whose growth peaks in the 2030s, while long-term care costs depend more on the size of the age 85 plus population, which peaks further into the future.

As already discussed, these projections could well be underestimating the costs of long-term care labour in the future. Increased demand for paid services may put upward pressures on PSW wages, due to the decline in availability of unpaid care. Moreover, if baby boomers expect better quality and more responsive long-term care than the status quo, such pressures may exacerbate the challenges of containing public expenditures in this area.

At present, the Ontario interRAI data show that less than 8% of total home care hours, including unpaid hours, are paid for privately. If the supply of long-term care (both in terms of long-term care workers and unpaid caregivers) does not keep up with needs, another potential repercussion is a growing divide in access between Canadians who have the financial capacity to pay privately for care versus those who do not.

3.5 Canada in an International Context

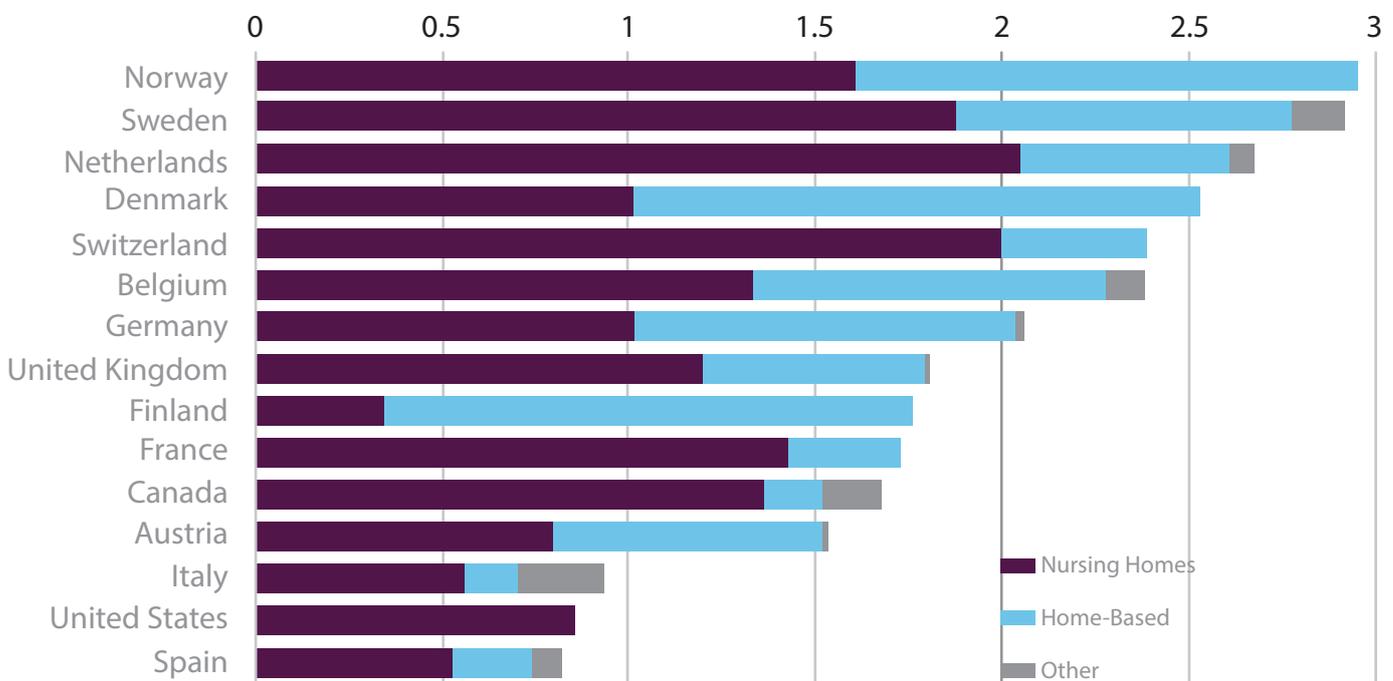
Canada is not alone in facing significant pressures on long-term care as a result of population ageing – indeed, a number of OECD countries already have higher proportions of their populations at ages 65 plus and 85 plus.

Figure 7 draws on the OECD health database for selected countries in 2017,

showing annual long-term care expenditures as a percentage of each country’s GDP.

For those countries able to supply the data (many countries face data challenges), expenditures are broken down into nursing home-based or home-based services. Figure 7 suggests that while Canada’s spending is higher than in the U.S., it is below the levels

Figure 7: Long-term care expenditures as a percentage of GDP for selected OECD countries



Source: Authors’ calculations based on OECD health database for selected countries in 2017.¹⁹

in Europe. Figure 7 also shows the variation in government spending on long-term care among OECD countries.

Perhaps the most sophisticated periodic examination and projection of government expenditures related to population ageing is the previously noted “Ageing Report,” conducted every three years by the EU Directorate-General for Economic and Financial Affairs. Notwithstanding the data challenges, it generally projects a doubling of public long-term care expenditures as a proportion of GDP between 2016 and 2070 (EU, 2018, Graphs II.3.5 - II.3.10). While this report compares long-term care expenditures to GDP, our analysis only projects wages. But, as wages form a major component of GDP and are highly correlated, our results fall within a similar range: we project public long-term care costs will approximately double – increasing by 115%, from 2.0% to 4.3% of aggregate wages.

4. Strengths, Limitations and Future Research

Building on Statistics Canada's *LifePaths* model has enabled a microanalytic approach to our projections of the utilization and costs of long-term care. To the extent possible, the analysis is based on data disaggregated not only by age group and sex, but also by the severity of disability and where individuals are living (i.e., their own homes, privately-paid retirement residences or nursing homes).

While the *LifePaths* model has not been updated by Statistics Canada since 2010, the core modules on wages and demographic transitions generate realistic results that are well aligned with those at Statistics Canada and the Office of the Chief Actuary, including population counts, and senior social benefits (OAS/GIS). Given the availability of many detailed parameters, the modules for income taxes and cash transfers have generally been made current. Further, the disability dynamics, which are based on the National Population Health Survey, use the most recent high quality longitudinal data in Canada. We have updated and extended *LifePaths* for this analysis – in particular, by incorporating links from its demographic and disability dynamics modules to long-term care utilization and unit costs.

Updates to the model were also made both to the historical wage and consumer price index (CPI) growth rates, and for the future, adjusting projection assumptions to match those in the latest report on the CPP/QPP by Canada's Chief Actuary (2016a, 2016b, 2017).

Data quality remains a major challenge for this analysis, and for the Canadian long-term care research more generally. Canada is (again) not alone:

"Due to the global demographic ageing, all countries are challenged by growing long-term care (LTC) needs for older persons. However, these needs are largely ignored and range very low on the policy agendas of most countries.

The neglect of LTC needs is also reflected in the widespread lack of national, regional and global data on coverage and access to related benefits and services. As a result, the impacts of LTC deficits experienced by older persons cannot be evaluated and remain hidden. Further, in the absence of such information, policy makers cannot identify priority areas for political interventions and prepare for the growing LTC demand of older persons in ageing societies." (Ortiz in Foreward, p. iii, in Scheil-Adlung, 2015)

There are no standardized Canada-wide data on the costs of home care or nursing homes, nor on the range and character of services provided. Both the OECD and CIHI produce annual data on health care expenditures but, as Grignon and Spencer (2018) observed, both series have substantial data quality issues. Similarly, data on the demographics of individuals using these services as well as unpaid home care remain weak. One major exception is the interRAI data (referenced earlier); another is the occasional Statistics Canada household survey, such as the General Social Survey (GSS).²⁰

Home care was identified as a top priority in the First Ministers' Health Accord in 2004, when \$41 billion in health care funding was provided in fiscal transfers from the federal government over the following decade – and more recently, in a similar 2017 accord, where \$6 billion was earmarked specifically for improved home care services. Better data should be key to guiding these efforts.

Future research could include expenses arising from the portion of hospital care associated with ALC (alternative level of care) beds, community-based long-term care, post-acute care, palliative care, care from workers who are not PSWs, and jurisdiction-specific costs for home care and nursing home care.

This analysis does not include capital costs to the public sector and communities that would be required for the increase in physical facilities needed to provide the projected levels of services. Finally, there is evidence of considerable unmet or under-met needs for long-term care services. However, as the available survey data show a number of inconsistencies, issues relating to unmet needs have not been included in this analysis.

An important area of future research is assessing the sensitivity of our baseline results to varying assumptions about major future trends affecting long-term care, including life expectancy, disability trends and unit costs. For example, our projection assumes the health of Canadian seniors will improve in parallel with their increased lifespan, following a recent Statistics Canada report that examined these trends over the past two decades (Bushnik et al., 2018). Testing alternative health trend scenarios would be a key area of investigation. It is also important to investigate a range of policy options – for example, establishing a “social insurance” fund, as in a number of OECD countries, or providing direct cash payments to unpaid caregivers.

With a shift in focus from acute care to supporting healthy “ageing in the community”, long-term care policy options extend beyond health care and immediate social services to encompass transportation, housing and urban structures more generally. These are policy areas where significant reforms require long lead times – and the direction that Canadian decision-makers take now will be essential to their success.

An advantage of the *LifePaths* microsimulation model as the analytical tool is that it enables further investigation of future alternative scenarios. In forthcoming research, we intend to undertake sensitivity analyses to key projection assumptions and explore policy options that, ideally, both bend the cost curve and provide better services to meet the needs of seniors and their families.

5. Conclusion

Studies on the Canadian retirement income system and prospective health care costs – especially in the context of population ageing – generally overlook long-term care, and this is a serious omission. Based on Statistics Canada’s *LifePaths*, policy-oriented population microsimulation model, we have projected long-term care costs and utilization for both the public sector and individual Canadian seniors (and their families) – and the results are concerning.

If public policy on long-term care continues on its current track, public sector long-term care costs will more than triple by 2050 (from \$22 billion to \$71 billion, in constant dollars). Further, we project significantly increased pressure on unpaid care, where the average unpaid caregiver will need to increase his/her efforts by 40%, and the number of Canadians using such care is projected to rise by 120%. If the public sector were to absorb these unpaid service costs, rather than a tripling of the cost between 2019 and 2050 as our baseline projection shows, the cost would quadruple from \$22 billion to \$98 billion.

Most Canadians are projected to remain healthy well into older ages, but a minority will face care needs that can become very expensive and long-lasting – and private savings won’t be an adequate solution for most individuals.

In Canada, private long-term care insurance has not worked as intended and is unlikely to work in the future.

This challenge suggests the need for a collective response from a public policy lens. It also reinforces the individual responsibility of Canadians to appreciate and plan for potentially long lives – including expectations around the costs of care and family support.

In little more than a decade, the first wave of baby boomers will begin to move into the age ranges where an important minority of this population will need significantly higher levels of care. Understanding the trends and developing thoughtful policy options should be a high national priority.

For policy- and decision-makers, addressing the long-term care challenge should be an immediate and broad pan-Canadian undertaking. To the extent they have the financial means and flexibility, individual Canadians are advised to envision and consider the “what-ifs” of their own personal situations (and their potentially more vulnerable selves) at older ages.

The time is now to find workable solutions that will avoid unmet needs for care and unsustainable burdens on unpaid caregivers while also balancing the fiscal implications – with the important goal of enabling Canadian seniors to age with support and dignity.

Endnotes

- 1 For more information on the NIA's definition of long-term care, associated terminology, and the differences across Canadian jurisdictions, see the NIA's report: *Enabling the Future Provision of Long-Term Care*, by Dr. Samir Sinha (NIA, 2019).
- 2 Surveys and focus group studies by the Society of Actuaries (SOA) over the past 20 years have consistently found that the biggest financial concern among seniors is not having enough income to pay for the expenses typically associated with advanced age: the costs arising from long-term care and health care, as well as lost purchasing power on account of inflation (SOA, 2016).
- 3 Between 2019 and 2049, the number of Canadians over the age of 85 is projected to grow from 844,000 to 2,630,000 (Statistics Canada, 2019).
- 4 Previous research has consistently found that unpaid care provides at least 70% of the care for seniors in the home. Alongside CIHI (2011) and authors' calculations reported in Endnote 7, see also Carriere et al. (2008) for a summary of supportive evidence in Canada, and Fujisawa and Colombo (2009) in other OECD countries. Indirect costs of unpaid caregivers could include foregone income and associated reductions in income and sales tax revenues, reduced productivity, and adverse physical and mental health impacts on the caregiver. Direct costs born by provinces and territories to unpaid caregivers can include respite care programs. For evidence and discussion, see NIA (2018) and Health Council of Canada (2012).
- 5 See, for example, NIA (2018), Keefe et al. (2012), and Pickard (2008).
- 6 Insufficient unpaid support leads to a higher demand for public services (Kuluski et al., 2012).
- 7 According to the 2016 interRAI clinical assessment data employed in this study, the aggregate proportion of home care hours that those age 65 plus in Ontario receiving longer duration home care services are: 8% from private-pay, 17% publicly-funded, and 75% informally provided unpaid by friends and family.
- 8 Leading financial planning academic analyst Bajtelsmit and retirement financial security expert Rappaport explained, "a general conclusion from our previous research reports is that retirement strategies that focus on making small adjustments to spending or retirement age are insufficient to outweigh the tail risks associated with health, long-term care, and longevity." (Bajtelsmit and Rappaport, 2014, p. 2). In other words, seniors can often adapt to smaller financial set-backs in retirement by adjusting their spending and dipping into savings – but developing a chronic condition that requires extremely large, ongoing paid care is not, by nature, one of them.
- 9 See Boyer et al. (2018) for a discussion of the long-term care puzzle in the context of Canada. See International Actuarial Association (2017) for a worldwide perspective on long-term care insurance as well as other key issues.
- 10 See, for example McCaffery (2017). For summary of survey evidence, see Carrick (2018).
- 11 Adams and Vanin (2016) was published alongside a series of insightful responses to this essay from experts across Canada, all of which addressed the future of the Canadian long-term care system. Of particular relevance to risk-sharing solutions were Blomqvist and Busby (2012), Grignon and Bernier (2012), Hebert (2016), Grignon (2016), Torjman (2016), Blomqvist and Busby (2016).

- 12 See Table 7.1 in Columbo et al. (2011) for description of the developed countries around the world with universal long-term care systems (defined as providing publicly-funded nursing and personal care to all individuals assessed as eligible due to their care-dependency status). For example, European and Asian countries – such as Germany, Japan, Korea, the Netherlands and Spain – have implemented universal coverage for long-term care through a prefunded national social insurance fund (financed much like the Canada/Quebec Pension Plan).
- 13 An overview of *LifePaths* can be found at the Statistics Canada Modelling Division (Spielauer, 2013), which is publicly available to the interested reader and can be found on the Statistics Canada website: <http://www.statcan.gc.ca/microsimulation/lifepaths/lifepaths-eng.htm>. The assumptions and calculations underlying the simulation results were prepared by the authors, and the responsibility for the use and interpretation of these data is entirely that of the authors.
- 14 Examples of studies that employed *LifePaths* for projecting retirement income outcomes for Canadians include Moore et al. (2010), TD Economics (2010), MacDonald et al. (2011, 2014, forthcoming), Wolfson (2011, 2013), and Baldwin and Moore (2016).
- 15 Large-scale dynamic population microsimulation models are increasingly the tool of choice by policy-makers throughout the industrialized world for public policy analysis. Interested readers are directed to Li and O'Donoghue (2013) for a recent survey of dynamic microsimulation models internationally, including their uses, model structure and methodology. For an overview of social science microsimulation modeling, see Spielauer (2011).
- 16 This assumption is also similar to that made in the most recent EU Ageing Report (EU, 2018).
- 17 Labour Force Survey data over the past two decades show that approximately one-third of Canadian PSWs are immigrants, and about 90% are women (Sweetman, 2019).
- 18 For discussion, see Taylor and Quesnel-Vallée (2017) as well as Badawy et al. (2019).
- 19 See OECD for data source: <https://stats.oecd.org/Index.aspx?DataSetCode=SHA#>
- 20 The GSS has the advantage of gathering data on individuals who receive unpaid care at home but are not in the interRAI database, because they are not receiving any publicly-funded home care. However, the contents of these two important data sets are not well aligned with one another, nor with the various disability surveys Statistics Canada has fielded since the 1980s. One key reason is that the specific questions about disability have been repeatedly changed in these surveys over the years.

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