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Measuring the age distribution in Canadian social spending

Abstract: Canadian governments do not report how their spending breaks down by age. To help fill this void, we document a method to measure total annual social spending per capita for older and younger parts of the population. We estimate that governments combined in 2012 to spend between \$33,321 and \$40,152 per person age 65+, \$13,635 and \$14,800 per person age 45 to 64, and \$10,406 and \$11,614 per person under 45. Measuring the annual age distribution in social spending is necessary for evaluating Canadian commitments to intergenerational equity, and making policy adaptations to socioeconomic and demographic trends facing older and younger citizens.

Sommaire : Les gouvernements canadiens n'indiquent pas comment leurs dépenses sont ventilées selon l'âge. Pour tenter de combler cette lacune, nous documentons une méthode pour calculer le total des dépenses annuelles par personne relatives aux programmes sociaux pour les tranches les plus jeunes et les plus âgées de la population. Nous estimons qu'en 2012, les gouvernements dans leur ensemble ont dépensé de 33 321 \$ à 40 152 \$ par personne pour les plus de 65 ans, de 13 635 \$ à 14 800 \$ par personne pour les 45 à 64 ans, et de 10 406 \$ à 11 614 \$ par personne pour les moins de 45 ans. Le calcul de la ventilation annuelle selon l'âge des dépenses relatives aux programmes sociaux est nécessaire pour évaluer les engagements du Canada envers l'équité intergénérationnelle, et pour adapter les politiques aux tendances démographiques et socio-économiques auxquelles font face les citoyens les plus jeunes et les plus âgés.

Introduction

Canada's population is aging. Nine per cent of the national population was age 65+ in 1976. By 2011, 15 per cent of the population were seniors. Statistics Canada projects that the population age 65+ will rise to 23 per cent over the next two decades (Statistics Canada 2014a).

Canada is not alone in adapting to an aging population. Lee and Mason (2011: 3) report that the share of the working age population is in decline in East Asia, Latin America and OECD countries as the share of the elderly

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population grows. They note that “many concerns have been raised: bankruptcy for publicly funded health care and pension systems, slower economic growth and possibly decline, unfair treatment of children vis-à-vis the elderly, the collapse of financial markets, and the burdening of future generations.” Evaluating such concerns suggests a need for objective, empirical data about the age distribution of government spending. This is a challenging task that requires drawing together data from a range of public finance sources and making evidence-based assumptions that are admittedly blunt when complete data are unavailable. The purpose of this study is to perform this task for Canada because no Canadian government annually reports the age distribution of spending, which leaves an unhelpful vacuum for public administration decisions and for public debate more generally.

Background and approach

Several researchers have produced international comparisons of OECD countries that include Canada in their analyses (for example, Bradshaw and Holmes 2013; Tepe and Vanhuyse 2010; Vanhuyse 2013). Generally, even the strongest comparative studies omit spending on medical care, tax expenditures, and sometimes even education. Such omissions undermine the utility of these studies because most medical care spending is consumed in later life, while education spending is disproportionately consumed earlier. Likewise, the omission of tax expenditures means that one country’s baby bonus or retirement income subsidy will be counted as a traditional demogrant when another country’s child tax credit or retirement savings tax deduction will not, although the two are functionally equivalent. Some comparative scholars, like Lynch (2006), compensate by producing additional comparisons of health spending and tax expenditures; but do so without integrating all spending into a comprehensive analysis.

No Canadian government annually reports the age distribution of spending, which leaves an unhelpful vacuum for public administration decisions and for public debate more generally.

Given these limitations, more scholars are producing country-specific analyses. Bradshaw and Holmes (2013) develop a UK case study in response to shortcomings in comparative data. Similarly, the anthology by Lee and Mason (2011: 30) features over twenty single country studies in recognition that “many important general lessons” can be learned from

comparative analysis. However, “designing effective policy . . . is a complex, detailed, and inherently country-level task that is best carried out one country at a time.”

It is timely to examine the annual age distribution of social spending in Canada given the election of a new federal government interested in federal-provincial collaboration on age-related policy areas that include retirement income security, medical care, housing, education, as well as child care; and because the Premiers appointed a Task Force on Aging in 2014 (Council of the Federation 2014), which so far has reported little to the public. The age distribution in spending has not received much attention domestically since the late 1990s when reorganizing contributions for the Canada and Quebec Public Pensions featured prominently in public dialogue. Several publications then explored the sustainability of Canadian government spending across generations. Much of this work responded to Oreopoulos and Kotlikoff (1996), who found that total government spending in 1995 required taxes of future generations that were twice what current generations were paying. Statistics Canada published an anthology focusing on government finances and generational equity edited by Corak (1998). This included an updated study by Oreopoulos and Vaillancourt (1998), who concluded that government spending cuts, tax increases and revisions to C/QPP announced between 1995 and 1998 set Canada back on path to restore balance in tax collection between contemporary and future generations of citizens.

The generational accounting methodology utilized by Oreopoulos and Kotlikoff focuses primarily on questions of intergenerational justice between future generations and those who live now, and less on the distribution of annual spending between contemporary age groups. The latter distribution is important for considering how governments balance the aspiration to adjust budgets for the growing elderly population with the aspiration to maximize the well-being and productivity of the proportionately smaller working age population, as well as the children they raise. Such considerations have been emphasized by the United Nations as part of its vision for a “society for all ages.” This vision has guided multiple World Assemblies on Aging along with UN work on intergenerational solidarity and the needs of future generations. The former emphasizes the rights of older persons to independence, participation, care, self-fulfillment and dignity (United Nations 2002), while the latter insists that pursuit of welfare for one generation “should not diminish the opportunities of succeeding generations for pursuing a good and decent life” (United Nations 2013: 3).

Hicks (1998) formerly examined the age distribution of components of Canadian social spending in 1995 using microdata available from Statistics Canada. Her study did not synthesize the separate components to produce

an overall estimate of the age distribution in social expenditure. Nor have her analyses been updated in the literature in the last 15 years. Here we revise the use of microdata from Statistics Canada to produce what we believe is the first comprehensive age analysis of total social spending in Canada, one that addresses limitations in the comparative literature by including spending on medical care, education and tax expenditures. The results fill the void left by Canadian governments, which currently do not report how their spending breaks down by age. We provide detailed costing information about the full range of social policy levers at play in adaptations to the aging population.

We are guided by Lynch (2006: 20) in selecting age categories. Her book, foundational for more recent studies, analyzed spending on the elderly compared to non-elderly. While she concedes that “these categories are rather ungainly as compared with seniors and children, or labor market participants versus dependents,” she emphasizes that the “definition of the relevant age groups is compelled... by the considerable overlap between the well-being of children and non-elderly adults, and the scant similarity between the well-being of seniors and of their children’s and grandchildren’s age groups.” She adds that these broad categories “are useful because public debates so often posit a trade-off between continuing to support the elderly at a high level and devoting resources to other kinds of needs in the non-elderly population.”

We adapt Lynch’s approach to identify three age groups of interest, providing particular detail about social spending on citizens under 45 and 65+. The portion allocated to the group age 45 to 64 is the residual, but we omit this information from Tables for the sake of brevity. We focus on those under age 45 because research shows that these generations face worsening income trends and high housing prices (Kershaw 2015; Moos 2014), which increases pressure on governments to adapt policy for their demographic at the same time governments plan for the aging population. The cohort under age 45 is also likely to be caring for young children. Because epidemiology, neuroscience and epigenetics literatures reveal that human beings are especially biologically sensitive to their environments in their earliest years (Boyce 2007; Keating and Hertzman 1999), there are new opportunities for public policy to further life-long health and productivity by investing in the generation raising young children.

We organize our analysis in four sections. The first summarizes consolidated data about total direct annual government spending. The second describes why and how we integrate non-refundable tax expenditures into the estimate of total spending. In the third section we use microdata from Statistics Canada to assign social spending to age cohorts based on their estimated benefit from each type of expenditure and divide the total social spending on each cohort by the total number of Canadians per age group

to calculate average per capita social spending. The final section interprets the results in the light of comparative literature and contemporary policy questions.

Consolidated government social spending

Our calculation of total government social spending relies on Statistics Canada's (2009a) Consolidated Government Expenditures, compiled using methods stipulated in the Financial Management System (FMS) of government statistics. The FMS is presently "the only system which permits inter-provincial or inter-level comparisons on a programmatic basis" (Statistics Canada 2009b: 4). Regrettably, the most recent consolidated data that lend themselves to age attribution are 2008/09 estimates. We update this information to 2012 when possible.

The initial column in Table 1 summarizes consolidated funding in 2008/09. Total health care spending was \$121.6 billion, and total education spending was \$95.7 billion. The broad category of social services equaled \$190.3 billion, while recreation and culture added \$16.3 billion; labour, employment and immigration \$2.4 billion; and spending on housing \$6.1 billion.

Statistics Canada breaks down social services into sub-functions, some of which are at a level of detail that facilitate our age analysis. However, the largest sub-function, "social assistance," along with the non-descriptive "other social services," include a wide array of expenditures that vary by age, including the key components of Canada's retirement income security programs. Accordingly, we utilize several information sources to estimate the expenditures on major programs in these subcategories, guided by definitions in the FMS Operating Manual.

The first is spending on the Canada & Quebec Public Pension (C/QPP) plans, which equaled \$38.9 billion in 2008/09 (Statistics Canada 2009a). Old Age Security spending was \$33.4 billion, and Employment Insurance (EI) Benefits equaled \$16.3 billion (Government of Canada 2012: Table 10), of which \$3.1 billion was specifically allocated to maternity and parental leave (Treff and Ort 2012: Table 8.2). Spending on the Universal Child Care Benefit (UCCB), Canada Child Tax Benefit (CCTB), and National Child Benefit Supplement (NCBS) totaled \$11.9 billion (Government of Canada 2012: Table 10). The Working Income Tax Benefit and the GST/HST credits are also large refundable tax expenditures that are counted by Statistics Canada in the consolidated spending, representing \$1 billion and \$6.4 billion respectively (Government of Canada 2013b).

After subtracting these sub-components from the \$121.8 billion total allocation for social assistance, we assume the remaining funds (approximately

Table 1. *Total Social Spending*

	Consolidated Budget 2009	Updated to 2012
Health	\$121,577	\$144,638
Hospital Care	\$41,203	
Medical Care	\$49,072	
Preventive Care	\$5,210	
Other health spending	\$26,092	
Education	\$95,732	\$101,732
Elementary & Secondary	\$50,941	
Postsecondary	\$39,670	
Special retraining	\$3,615	
Other education	\$1,506	
Social Services	\$190,276	\$204,543
<i>Social Assistance</i>	\$121,813	\$136,079
CPP/QPP	\$38,866	\$44,217
OAS	\$33,377	\$40,100
Employment Insurance (net of parental leave)	\$13,236	\$14,428
Employment Insurance (parental leave)	\$3,072	\$3,072
UCCB	\$11,900	\$2,747
CCTB/NCBS		\$10,153
Working Income Tax Benefit	\$1,030	\$1,030
GST/HST Rebate	\$6,380	\$6,380
Other Social Assistance	\$13,952	\$13,952
<i>Workers Compensation</i>	\$7,356	\$7,356
<i>Veterans' Benefits</i>	\$3,281	\$3,281
<i>Motor Vehicle Accident Compensation</i>	\$786	\$786
<i>Other social services</i>	\$786	\$786
Child Care	\$3,839	\$3,839
Other social services less child care	\$29,811	\$29,811
<i>Employee Pension Plan Benefits, Changes in Equity</i>	\$23,391	\$23,391
Recreation and Culture	\$16,306	\$16,306
Labour, Employment and Immigration	\$2,395	\$2,395
Housing	\$6,120	\$6,120
Total Social Spending in Consolidated Budget Tables	\$432,406	\$475,734
Add Tax Expenditures Not Included in Consolidated Tables (See Table 2)		\$73,416
TOTAL SOCIAL SPENDING		\$549,149

Budget figures reported for 2009 and 2012 are current dollars, not inflation adjusted. Sources: Statistics Canada 2009a, 2009b; Government of Canada 2012, 2013a, 2013b; Canadian Institute for Health Information (CIHI) 2012; Treff and Ort, 2012; Friendly et al. 2013.

\$14 billion) cover the balance of the programs identified by the FMS Manual for which specific spending amounts are not readily identifiable. This includes “the general welfare payments to disadvantaged individuals,” as well as various smaller refundable tax credits (Statistics Canada 2009b: 43).

We treated the “other social services” subcategory of spending in a similar manner. The FMS manual indicates it includes spending on child care services. This totals \$3.8 billion when direct federal funding for programs like Aboriginal Head Start, First Nations and Inuit Child Care, and the Military Family Resource Programs (Government of Canada 2007) are added to provincial and territorial spending (Friendly et al. 2013: Table 11). Unfortunately, no information is readily available to further breakdown the “other social services,” so we treat the remaining \$29.8 billion as one spending block. This balance includes expenses related to the provision of services to old age (excluding C/QPP, OAS, and GIS), persons with disabilities, those temporarily unable to work due to sickness, households with dependent children, and survivors of a deceased person. The subcategory also includes expenditures by hospitals, residential care facilities and other organizations when they provide lodging to elderly persons, children and families; or legal aid; home care services; transport services; and rehabilitation services for alcohol, drugs, etc. (Statistics Canada 2009b: 44).

The remaining sub-function that requires explanation in Table 1 is “employee pension plan benefits and changes in equity.” These represent nuances in the treatment of pension benefits paid to some retired public servants, including the Public Service Superannuation Plan of Saskatchewan. The decision by Statistics Canada to classify these payments as a social service expenditure has implications for our analysis, which we discuss below.

After utilizing consolidated budget data to identify categories of public spending, we update spending figures in areas that experienced material change since 2008/09. When we conducted the study, 2012 was the most recent year for which budget information was available. These updated numbers are also reported in Table 1. We updated figures with caution, only using more recent data when their sources could be reconciled with the 2008/09 consolidated figures. Our resulting 2012 estimate of total direct social spending is \$475.7 billion.

Tax expenditures

The principal function of the tax system is to raise funds to pay for public expenditures. However, governments also devise tax measures which depart from the system’s normative revenue raising structure in order to achieve other social spending objectives by directly reducing the taxes that individuals or corporations owe through credits, deductions, deferrals and exemptions. Some tax expenditures are refundable, meaning that the full

value of the expenditure is distributed to all tax filers regardless of their income and corresponding tax liability. Other tax expenditures are non-refundable, reducing one's tax liability only if the individual owes income taxes. Whereas Statistics Canada's consolidated budget includes expenditures delivered by refundable tax credits, our analysis also counts the billions in social spending delivered through non-refundable tax expenditures reported by federal or provincial governments because their inclusion is critical to understanding total social spending.

We rely on the Government of Canada (2013b) annual estimates for federal tax expenditures. Our analysis excludes non-refundable tax measures that the Finance Department categorizes as "memorandum items," because their status as tax expenditures or mechanisms integral to the normative revenue raising structure of the tax system is not settled. For provincial tax expenditures, we focus on the governments of BC (2013: 122-127), Manitoba (2012: C16-18), Ontario (2012) and Quebec (2011), because only they provide budget documents that include accessible tax expenditure data. Although not exhaustive, these four provinces represent the large majority, 78.7 per cent, of the Canadian population (Statistics Canada 2012). We estimate the full provincial/territorial cost of each tax expenditure by grossing up the total reported for the four provinces (100/78.7). This approach underestimates actual tax expenditures for two reasons: (1) some of the other provinces may issue tax expenditures not available in these four provinces; and (2) many tax expenditures were not reported by all four provinces even though we know their revenue is affected by federal tax measures.

Table 2 shows tax expenditures omitted from the consolidated reporting. These dollars are delivered by a range of health, education, retirement, family, income maintenance, employment, and housing expenditures. Governments calculate the cost of each tax expenditure separately, presuming that other tax expenditures do not exist. As a result, the Government of Canada does not add up their sum in recognition that this total depends on the interaction of the various tax expenditures. However, for this study, we do add together the separately accounted for values, which represent \$73 billion. We add this value to the consolidated spending from Table 1 to estimate total social spending in 2012 to be \$549.1 billion. We do so knowing the limitations, and believe we are underestimating the true costs of the tax expenditures for the two reasons noted above. To omit \$73 billion from the analysis – even if a blunt estimate – would exclude approximately 15 per cent of total government social spending and would be a substantial distortion of reality.

Analyzing social spending by age

The primary source on which we rely to allocate social spending by age is Statistics Canada's (2013) Longitudinal Administrative Databank (LAD).

Table 2. Tax Expenditures Not Included in Consolidated Budget Tables

	Federal	BC	Manitoba	Ontario	Quebec	PT Total (extrapolated)	FPT Total
Health							
Medical Expense, Disability, etc. Tax Expenditures	1,755	64	53	265	512	1,135	6,346 2,890
Non-taxation of business paid health & dental benefits	3,155	146				186	3,341
Children's Fitness Tax Credit	115						115
Education							
Post-secondary tax expenditures, various (mainly for tuition, textbook, etc.)	1,881	61	56	342		584	2,465 2,465
Social Services							
<i>Re Retirement/Seniors</i>							49,157 41,590
Age credit	2,260	56	34	275	174	684	2,944
Pension Income Credit	975	22		115		174	1,149
Pension Income Splitting	925	50	17	250	105	536	1,461
RPPs	15,625	724	90	900	1,684	4,317	19,942
RRSP	9,910	459	144	2,100	1,879	5,822	15,732
Seniors, other tax expenditures	105		15	30	156	256	361
<i>Re Families with kids</i>							5,550 1,704
Families with kids tax expenditures, various: (e.g. Child Tax Credit, Children's	1,625		62			79	
Eligible Dependent Credit	805		17	85		129	934
Spouse or Equivalent-to-Married Credit	1,400	77	24	205		389	1,789
Child Care Expense Deduction	810	38	13	195		313	1,123

Table 2. Continued

	Federal	BC	Manitoba	Ontario	Quebec	PT Total (extrapolated)	FPT Total
<i>Re Income maintenance</i>							2,018
Income Maintenance tax expenditures, various (excluding specifically for seniors)	100			45	525	724	824
Non-taxation of social assistance benefits	145			30		38	183
Veterans Disability	175						175
Non-taxation of workers compensation	645			150		191	836
Labour, Employment & Immigration							6,838
Employment tax expenditures, various (eg. union dues, moving, other)	2,962		19	820	618	1,851	4,813
Canada Employment Credit	2,025						2,025
Housing							8,610
Non-taxation of capital gains on principal residences, etc.	4,235				1,287	1,635	5,870
Property Taxes, various: (eg. Homewoners grant under 65, transfer taxes, etc.)		935		1,011		2,473	2,473
Senior Homeowners grant				210		267	267
TOTAL TAX EXPENDITURES	51,633	2,632	542	7,028	6,940	21,783	73,416

Authors' calculations. Sources: Government of Canada (2013b); Government of BC (2013); Government of Manitoba (2012); Government of Ontario (2012); and Government of Quebec (2011).

The LAD is a random, 20 per cent sample of a yearly cross-sectional file of all taxpayers and their families. The databank contains information on demographics, income and other taxation data from 1982-2011, with new years of data added as information becomes available. We supplement the LAD data with other sources discussed below, along with Canadian population data broken down by age. Statistics Canada (2012) estimated the population at 34.9 million as of 2012 with 19,817,606 people under the age of 45 (56.8 per cent); 9,876,063 people 45 to 64 (28.3 per cent); and 5,186,822 (14.9 per cent) age 65+.

We report the results in Table 3, beginning with the age distribution of annual health care spending. Canadian Institute for Health Information (2012: Table E.1.1) data show that provincial and territorial governments combine to spend \$9,264 per newborn under age 1; less than \$2,000 per person age 1 to 24; and in the low \$2,000 range for those age 25-44. Thereafter, annual spending rises, reaching \$6,223 per person age 65-69, \$15,768 per person age 80-84; and \$25,970 per person age 90+. In combination with population age breakdowns, these spending data reveal that 45 percent of the \$144.6 billion in consolidated health care spending goes to Canadians age 65+, compared to 30 per cent for the larger cohort under 45. Similarly, LAD data show that 45 per cent of medical care expenses claimed for tax savings are reported by Canadians 65+, and only 19 per cent by those under 45. We use Statistics Canada (2014b) data about employment rates for different age groups to calculate that three per cent of employees are age 65+, compared to 58 per cent under 45. We attribute spending that results from the non-taxation of business paid health and dental benefits accordingly. Finally, LAD data indicate that 77 per cent of the small Children's Fitness Tax credit is received by Canadians under age 45. We divide total health care spending for those 65+ and under 45 by the number of Canadians in those age groups to generate per capita spending for the health category: \$12,820 per person age 65+ and \$2,341 per person under age 45.

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Education is the second category in Table 3. While children benefit directly from developmental opportunities provided by education services, so too do parents. First, they benefit from the time made available to pursue other activities while children are in school, including employment.

Table 3. Social Spending by Age Cohort

column	Total Spending													
	a	b	c	d	e	f	g	h	i	j	k	l	m	n
	Total Spending	% to 65+	\$ to 65+ (millions)	Per capita 65+	% to <45	\$ to <45 (millions)	Per capita <45	Per Employee Pension Reallocated	% to 65+	\$ to 65+ (millions)	Per capita 65+	% to <45	\$ to <45 (millions)	Per capita <45
Health Care														
Consolidated Spending	150,983	45%	66,495	12,820	30%	46,384	2,341	157,701	45%	69,454	13,390	30%	48,447	2,445
Medical Expense, Disability, etc. tax expenditures	2,890	45%	1,297	250	19%	550	28	3,019	45%	1,354	261	19%	575	29
Non-taxation of business paid health & dental benefits	3,341	3%	112	22	58%	1,931	97	3,489	3%	117	22	58%	2,017	102
Children's Fitness Tax Credit	115	0%	0	0	67%	77	4	120	0%	0	0	67%	80	4
Education														
Elementary & Secondary	104,197	0.1%*	466	90	86%*	82,235	4,150	108,832	0.1%*	487	94	86%*	85,893	4,334
Postsecondary	54,441	0.5%*	73	14	72%*	46,855	2,364	56,863	0.5%*	77	15	72%*	48,939	2,469
Postsecondary tax expenditures	42,170	0.5%*	225	43	72%*	30,350	1,531	44,046	0.5%*	235	45	72%*	31,701	1,600
Other education (e.g. retraining)	2,465	0.5%*	13	3	72%*	1,774	90	2,574	0.5%*	14	3	72%*	1,853	93
Social Services														
Social Assistance	5,121	3%	155	30	64%	3,256	164	5,349	3%	161	31	64%	3,400	172
CPP/QPP	253,700		135,040	26,035		58,631	2,959	240,556		96,347	18,575		75,993	3,835
OAS	44,217	75%	33,151	6,391	1%	598	30	46,184	75%	34,626	6,676	1%	625	32
RPPs*	40,100	99%	39,607	7,636	0%	-	-	41,884	99%	41,369	7,976	0%	-	-
RRSP*	19,942	75%*	14,952	2,883	0%*	-	-	20,829	2%	337	65	44%	9,249	467
Age credit	15,732	75%*	11,795	2,274	0%*	-	-	16,432	7%	1,216	234	33%	5,505	278
Pension Income Credit	2,944	100%	2,944	568	0%	-	-	3,075	100%	3,075	593	0%	-	-
	1,149	72%	822	158	1%	6	0	1,200	72%	858	165	1%	6	0

Table 3. Continued

	Total Spending	% to 65+	\$ to 65+ (millions)	Per capita 65+	% to <45	\$ to <45 (millions)	Per capita <45	Total Spending Employee Pension Reallocated	% to 65+	\$ to 65+ (millions)	Per capita 65+	% to <45 (millions)	Per capita <45
Pension Income Splitting	1,461	67%	976	188	0.2%	3	0	1,526	67%	1,019	196	0.2%	3
Seniors, other tax expenditures	361	100%	361	70	0%	-	-	377	100%	377	73	0%	-
Employment Insurance (including parental leave)	17,500	3%	528	102	64%	11,125	561	18,279	3%	551	106	64%	11,620
CCTB/NCBS	10,153	0.3%	27	5	80%	8,163	412	10,605	0.3%	28	5	80%	8,526
UCCB	2,747	0.1%	2	0	96%	2,633	133	2,869	0.1%	2	0	96%	2,750
Child Care services	3,839	0%	1	0	94%*	3,594	181	4,009	0%	1	0	94%*	3,754
Child Care Expense Deduction	1,123	0%	0	0	94%*	1,051	53	1,173	0%	0	0	94%*	1,098
Child related tax expenditures, various	1,704	0.3%	5	1	72%	1,229	62	1,779	0.3%	5	1	72%	1,284
Spouse or Equivalent to Married Credit	1,789	9%	157	30	45%	808	41	1,868	9%	164	32	45%	844
Eligible Dependent Credit	934	1%	6	1	72%	672	34	976	1%	6	1	72%	702
GST/HST Rebate	6,380	23%	1,445	279	53%	3,373	170	6,664	23%	1,509	291	53%	3,523
Working Income Tax Benefit	1,030	1%	15	3	70%	718	36	1,076	1%	15	3	70%	750
Other Social Assistance	13,952	19%*	2,588	499	46%*	6,436	325	14,573	19%*	2,703	521	46%*	6,723
Other Income Support tax expenditures	2,018	19%*	374	72	46%*	931	47	2,108	19%*	391	75	46%*	972
Workers Compensation	7,356	20%	1,464	282	23%	1,664	84	7,683	20%	1,529	295	23%	1,738
Veteran's Benefits	3,281	19%*	609	117	46%*	1,514	76	3,427	19%*	636	123	46%*	1,581
Motor Vehicle Accident Compensation	786	19%*	146	28	46%*	363	18	821	19%*	152	29	46%*	379

Table 3. Continued

	Total Spending	% to 65+	\$ to 65+ (millions)	Per capita 65+	% to <45	\$ to <45 (millions)	Per capita <45	Total Spending Employee Pension Reallocated	% to 65+	\$ to 65+ (millions)	Per capita 65+	% to <45	\$ to <45 (millions)	Per capita <45
<i>Other Social Services: Institutions & Services for Elderly, Disabled, Counselling, etc.</i>	29,811	19%*	5,530	1,066	46%*	13,752	694	31,138	19%*	5,776	1,114	46%*	14,364	725
<i>Employee Pension Plan benefits/equity changes*</i>	23,391	75%*	17,537	3,381	0%*	-	-							
Recreation and Culture	16,306	15%*	2,425	467	57%*	9,264	467	17,031	15%*	2,533	488	57%*	9,677	488
Labour and Immigration	9,233		530	102		4,980	251	9,644		553	107		5,202	262
Consolidated Spending	2,395	11%*	269	52	50%*	1,203	61	2,502	11%*	281	54	50%*	1,257	63
Employment tax expenditures, various	4,813	4%	179	35	54%	2,615	132	5,027	4%	187	36	54%	2,732	138
Canada Employment Credit	2,025	4%	82	16	57%	1,162	59	2,115	4%	85	16	57%	1,213	61
Housing	14,730		3,308	638		4,732	239	15,385		3,455	666		4,943	249
Consolidated Spending	6,120	19%*	1,135	219	46%*	2,823	142	6,392	19%*	1,186	229	46%*	2,949	149
Non-Taxation of capital gains on principal residences, etc.	5,870	23%	1,341	259	23%	1,343	68	6,132	23%	1,401	270	23%	1,403	71
Property Tax expenditure	2,473	23%*	565	109	23%*	566	29	2,583	23%*	590	114	23%*	591	30
Senior Homeowners grant	267	100%	267	51	0%	-	-	279	100%	279	54	0%	-	-
TOTAL SOCIAL SPENDING	549,149		208,264	40,152		206,226	10,406	549,149		172,828	33,321		230,155	11,614

Authors' calculations. Sources for age attributions: Statistics Canada (2009b, 2012 and 2013, custom tabulation 2014b); Canadian Institute for Health Information (2012).

*Identifies age attributions for which complete data are unavailable and therefore integrate assumptions which merit ongoing review.

Second, guardians have a personal stake in the developmental well-being of their children. These two direct benefits are clear during preschool years, when many parents pay thousands of dollars to purchase early education services, and/or forgo thousands of dollars in earnings to provide this care directly. Parents would continue to pay such amounts and/or opportunity costs if governments did not cover the full cost of elementary and secondary school. Similarly, from children's earliest years, many parents plan for postsecondary education costs by contributing to registered education and other savings plans. Government spending on tertiary education directly reduces the earnings parents must save in support of their children's development, and their own goals for their children.

To estimate what proportion of education expenditure to allocate to our age cohorts of interest, we make the following admittedly blunt assumptions. We divide the spending on elementary and secondary education equally between children and caregivers, attributing half of the \$54.4 billion directly to students. For the remaining half, we use LAD data to calculate that 72 per cent of Canadians claiming a child under age 18 on their income taxes are themselves under age 45, with most of the remaining amount going to those age 45 to 64 years. This results in our attributing 86 per cent of grade school spending to the under 45 group, 13.9 per cent to the middle cohort, and just 0.1 per cent to those over 65.

Whereas our assumptions about grade school divide the benefit evenly between student and parent, we allocate three-quarters of postsecondary spending to the enrolled student in recognition that the adult chooses to attend regardless of any previous parental plan. We allocate the remaining quarter to guardians in recognition that many families save for years for their kids to attend postsecondary. Following these assumptions, LAD data show that 93 per cent of tuition spending reported for an income tax credit by students is claimed by Canadians under age 45. By contrast, 90 per cent of tax credits for tuition spending claimed by a parent or other caregiver of a student is done by someone age 45 to 64. Guided by these LAD data, we attribute 72 per cent of the \$42.1 billion in postsecondary spending to those under 45, almost all of the remaining amount to those 45 to 64, and 0.5 per cent to those age 65 and older.

The final item in Education is for "other" spending, primarily on re-training. We use LAD data about the rate of employment insurance claimed by different age groups as a proxy to attribute this spending, allocating 64 per cent to those under age 45 and 3 per cent to those age 65+. In combination with elementary, secondary and postsecondary spending, we calculate total per capita education expenditures as \$4,150 per person under age 45 and \$90 per person age 65+.

The third section of Table 3 focuses on social services. Spending related to retirement is by far the largest component of this diverse spending

category. LAD data show that 75 per cent of the \$44.2 billion spent on C/QPP goes to those 65+, and just one per cent goes to those under 45, primarily for benefits available to spouses or children under 25. Ninety-nine per cent of the \$40.1 billion in OAS (including GIS) spending is received by those age 65+, with none going to the under age 45 group. Per capita spending for these budget lines is \$6,391 and \$7,636 per person 65+ for the C/QPP and OAS respectively.

We calculate total per capita education expenditures as \$4,150 per person under age 45 and \$90 per person age 65+.

Other large expenditures on retirement include annual tax expenditures on Registered Pension Plans (RPPs), \$19.9 billion, and Registered Retirement Savings Plans (RRSPs), \$15.7 billion. We allocate this spending in two different ways. First, we allocate these tax expenditures primarily to the population age 65+ in recognition that the purpose of the public expenditure is to increase the private funds available for Canadians to set aside income for their retirement years. Canadians receive a reduction in taxes only if they keep those funds in specially-designated accounts; and they forfeit the tax reductions if they do not save their money with this narrow purpose in mind. Accordingly, we use the share of CPP funding going to the age group 65+ as a proxy for the share of Canadians drawing on retirement income, and allocate 75 per cent of RPP and RRSP tax expenditures to seniors. Under these assumptions, the RPP and RRSP tax expenditures allocate respectively \$2,883 and \$2,274 per person over age 65.

However, some may argue that younger Canadians should be allocated a portion of RPP and RRSP expenditures because they are the immediate beneficiaries of reduced taxes. We therefore also measure the impact of allocating these expenditures according to the age at which Canadians claim the tax deductions (see column 1 in Table 3). LAD data show that 2 per cent of RPP deductions are claimed by seniors, as are 7 per cent of RRSP deductions. The corresponding numbers for the under age 45 cohort are 44 per cent, and 33 per cent, signaling that the 45 to 64 age group enjoy the bulk of RPP and RRSP tax savings. Under these assumptions, the RPP and RRSP tax expenditures allocate respectively \$467 and \$268 per person under age 45.

Other significant tax expenditures for retirement income include the Age credit from which an individual 65+ can claim an exemption if annual income is under approximately \$82,000. This tax mechanism spends \$2.9 billion annually. The pension income credit and pension income splitting further subsidize income in retirement at total annual costs of \$1.1 billion

and \$1.5 billion. LAD data show that 72 and 67 per cent of this spending is received by Canadians age 65+, compared to one and zero per cent for those under age 45. Retirement spending is rounded out by smaller tax expenditures on seniors that add to \$361 million.

After retirement expenditures, Employment Insurance is the next largest category of social service spending, at \$17.5 billion. LAD data indicate that 3 per cent of this spending is received by Canadians age 65+, while 64 per cent goes to those under age 45. This includes spending on maternity and parental leave.

Canada Child Tax Benefit (CCTB) spending of \$10.1 billion annually allocates \$1,446 per child under age 18, clawing back the benefit for income that exceeds \$43,953. The CCTB includes expenditures on the National Child Benefit Supplement which increase the allocation per child in working poor families. LAD data report that 80 per cent of this spending goes to Canadians under age 45, and nearly none to the group age 65+. Similarly, 96 per cent of the \$100/month Universal Child Care Benefit payments per child under age 6 is received by the group under age 45. Other child related tax expenditures are received primarily (72 per cent) by younger Canadians. We complete our analysis of expenditures specifically for families with children by allocating 94 per cent of child care service spending to the under age 45 cohort. This attribution follows our method for allocating grade school spending: half of the expenditure is allocated to the children in the program; the other half to their parents/caregivers. LAD data show that 87 per cent of child care service costs are claimed by parents under the age of 45.

The spouse and equivalent to married tax expenditure of \$1.8 billion annually subsidizes couples in which one partner earns little. Nine per cent of this spending goes to the group age 65+, along with 45 per cent to those under age 45. The related eligible dependent credit, which costs just under a billion dollars annually, subsidizes single individuals caring for a dependent child or parent. One percent of this funding is received directly by a taxfiler age 65+, and 70 per cent goes to the under 45 cohort.

The social assistance spending category includes a range of tax expenditures that supplement low-income households. LAD data show that 23 per cent of the \$6.4 billion GST/HST rebate is received by those age 65+, compared to 53 per cent for those under age 45. Seventy per cent of the \$1 billion spending on the Working Income Tax Benefit goes to the under 45 age group, and nearly none to those over 65. Workers' Compensation benefits cost \$7.4 billion annually. LAD data show that 20 per cent are received by those age 65+. Twenty-three per cent are received by those under age 45.

We allocate the remaining \$14 billion in the "other social assistance" category based on the proportion of adults in each age cohort: 19 per cent are age 65+ and 46 per cent are under age 45. We follow the same assumption

for the remaining \$2 billion in various income maintenance tax expenditures, as well as spending on veteran's benefits, motor vehicle accident compensation, and "other social services for the elderly, disabled, drug and alcohol counselling, etc." This approach likely underestimates the attribution to seniors.

The last line item in the social service spending category is "Public Employee Pension Plan Benefits and Equity Changes." The decision by Statistics Canada to classify these payments as a social service expenditure suggests they be allocated to retirees in our primary analysis. We therefore attribute 75 per cent of this particular retirement spending to our older cohort in recognition that some will claim the benefit before age 65, as is the case with C/QPP spending.

However, since this line item represents atypical social spending, we ran a sensitivity analysis that allocates these pension costs as operating expenses incurred in the delivery of goods and services across government departments (see column h of Table 3). We spread the \$23.4 billion in pension and equity benefits across other expenditures in proportion to the percentage of total spending represented by each line item in column a. Our sensitivity analysis then allocates these higher total spending costs according to the same percentage attributed to the age cohorts in our primary analysis (with the exception of RRSP and RPP expenditures as discussed above).

The final components of social spending are recreation and culture, labour and immigration, as well as housing. We attribute the \$16.3 billion in recreation and culture spending on a per capita basis. Labour and employment spending is done primarily through tax expenditures. LAD data show that 4 per cent of total spending on the Canada Employment credit is claimed by Canadians 65+ and 57 per cent is received by Canadians under age 45. LAD data also allow us to calculate a summary attribution for a range of employment tax expenditures that include union dues, moving expenses, and other allowable employment expenses, finding that 4 per cent are received by those over age 64 and 54 per cent by those under age 45. Our age attribution for consolidated labour/employment and immigration spending is weaker than we would like, because there are no age data for immigration spending that we could find. For this purpose, we divided the \$2.4 billion figure into two parts, attributing half according to the LAD data about employment expenses, and the other half on a per capita basis to represent immigration spending. Although imprecise, the dollar value is a rounding error in our estimates.

We attribute \$6.1 billion in consolidated budget spending on housing in proportion to the number of adults in each age cohort. LAD data show that 23 per cent of the expenditure on the non-taxation of capital gains on principal residences is received by Canadians age 65+, and that the same

percentage is received by those under age 45. Savings generated by the non-taxation of capital gains provides a useful proxy to estimate the interaction of home ownership and the value of homes as these vary by age, so we attribute the same age percentages to other property tax expenditures. Finally, tax expenditures for senior homeowners are attributed to those age 65+.

Given these specific age attributions for each social spending component, we calculate total per capita expenditures for the different age cohorts. Table 3 shows that total social spending on the 5,186,822 Canadians age 65+ equals \$208.3 billion in our primary analysis, which is 38 per cent of overall social spending. Total social spending for the 19,817,606 Canadians under age 45 equals \$206.2 billion, also 38 per cent of overall spending. We divide the aggregate spending by the total population for each age cohort to arrive at an annual per capita expenditure of \$40,152 per person age 65+ and \$10,406 per Canadian under age 45. The corresponding per capita figure for the cohort age 45 to 64 is \$13,635.

Our estimate that governments spend \$33,321 to \$40,152 per senior compared to \$10,406 to \$11,614 per person under 45 anticipates that a second question is equally important: are we spending appropriately on younger Canadians?

When we allocate select public pension and equity expenditures as operating expenses across social spending categories in our sensitivity analyses, the per capita expenditure for the group age 65+ falls by \$1,788. If RPP and RRSP spending is distributed in proportion to the age at which citizens incur the tax savings, the expenditure per person age 65+ drops by between \$4,870 to \$5,086 depending on whether the alternate age attribution is made only to RPP and RRSP spending, or made to RPP and RRSP expenditures grossed up by their share of the reallocated select public pension and equity expenditure. The sensitivity analysis in Table 3 presumes the latter in order to produce a low per capita estimate for the 65+ cohort of \$33,321; and a high per capita estimate for the under 45 group of \$11,614. The corresponding per capita amount for the cohort aged 45 to 64 is \$14,800.

Discussion

Much of the public discourse about aging presumes that the primary question should be: how do we sustain spending on retirees as their proportion of the population grows? Our estimate that governments spend \$33,321 to

\$40,152 per senior compared to \$10,406 to \$11,614 per person under 45 anticipates that a second question is equally important: are we spending appropriately on younger Canadians? These two questions must be considered together if Canada is to promote a “society for all ages” as recommended by the UN.

Answering both questions requires a methodology by which governments, NGOs and citizens can monitor the annual allocation of public funds between age cohorts now and in future budgets. We provide such a methodology in this paper, one that reveals the contribution from a diverse range of policy tools to the total social spending pattern. While our methodology is guided by precise age distribution data from the LAD when available, it also involves a number of assumptions that invite debate. Readers should interpret our findings as providing new evidence about the order-of-magnitude by which spending on retirees exceeds spending on younger Canadians. Given the imprecision of some assumptions (identified with * in columns b, d, i and l in Table 3), we encourage further research to link age distribution data more systematically to government budgets. Future research should also consider the age distributional implications that flow from spending on infrastructure, environmental protection and debt financing.

The results of our study suggest that Canadian governments spend between 2.9 and 3.9 times more per person age 65+ than per person under age 45. The elderly/non elderly ratio of per capita social spending is slightly lower at 2.6 to 3.5. The bulk of the age gap in both cases is driven by medical care spending, and retirement income subsidies, particularly OAS and C/QPP.

The results of our study suggest that Canadian governments spend between 2.9 and 3.9 times more per person age 65+ than per person under age 45.

Our results urge caution when interpreting country-specific spending patterns from international comparisons. They offer important corrections to the work of Lynch (2006: Tables 2.7-2.8), who reported Canada’s elderly/non-elderly ratio at either 14 or 0.7 depending on whether she included education expenses in her calculation. Conversely, our findings align with Vanhuyse (2013: Figure 6) who estimated that Canadian spending on seniors was slightly less than four times higher than spending on the non-elderly. Although this would seem to support his analysis of Canada, we remain cautious in interpreting any corroboration our study lends to the accuracy of his calculations for specific countries. Not only does his method exclude medical care, it also excludes tax expenditures which, in the case

of Canada, means that the majority of income support for Canadian families with children is ignored. By contrast, many other countries have functionally equivalent spending counted in Vanhuyse's work because the spending is delivered as demogrants. It is therefore not clear whether alignment between our comprehensive country-specific results and his indicator is other than coincidental.

That there is a large age gap in social spending does not necessarily suggest intergenerational unfairness, because the adequacy of social spending depends on existing need. We would expect spending per person age 65+ to be higher than spending for younger Canadians because we are more likely to become sick and require health care in our later decades. In addition, Canadian social norms support significant investments in income security for retirees to minimize the expectation that citizens must commodify their labour throughout old-age.

Future research

Recognizing the age pattern in spending should not be flat, our study lays the foundation to explore additional questions that are pressing for Canadian governments as they contemplate trade-offs between spending on retirement income security, health care, education, child care and housing. These include: (1) How has the age distribution evolved over time? (2) How has it been financed? (3) Is the current distribution appropriate to contemporary circumstances, or are there unmet needs? (4) How should it evolve?

Evolution of the age distribution should be examined in the light of age trends in income, wealth, debt, major costs of living, etc., along with outcome measures like low-income status and other indicators of vulnerability. Kershaw (2015), Moos (2014), Beaudry and Green (2000), among others, provide evidence that speaks to these trends. For example, they find that inflation adjusted earnings, returns on postsecondary investments, and the ratio of housing prices to earnings have deteriorated for young adults today compared to when the aging population started out as young adults in the mid-1970s. Simultaneously, seniors today report more housing wealth than did the seniors in 1976 (Kershaw 2015), along with markedly lower rates of low-income. In fact, all three low-income measures used by Statistics Canada reveal that seniors currently report less income insecurity than the working age population or children under age 18 (Statistics Canada 2016).

However, the normative appropriateness of the current age distribution in social spending does not rest entirely with the adequacy of the expenditure relative to current socioeconomic circumstances. The appropriateness must also be considered in light of evidence about the intergenerational

fairness of revenue contributions over the life course by members of different age cohorts. This will require retrospective research to examine per capita revenue contributions by today's aging population during the previous decades of their working lives in order to compare these contributions to those projected for today's working population at current levels of taxation, and at taxation levels required to sustain per capita social spending for those age 65+ as the proportion of seniors grows.

The detail with which we breakdown the current age distribution in spending anticipates the importance of this further research for decision makers who must explore the demographic implications of social spending for which citizens prepay a large component (contribution financed), compared to spending for which the country pays as it goes (general-tax-financed). For example, at least \$26,000 of the total allocation per senior is financed from general tax revenue. Whereas the \$6,391-\$6,676 allocated on average per senior by the C/QPP is financed somewhat directly by recipients' contributions, the approximate \$13,000 spent on medical care and the nearly \$8,000 spent on OAS is not.

We therefore recommend that all provincial and federal governments begin reporting the age distribution of their spending and revenue collection in annual budget documents.

When paying for these programs out of general revenue, our tax rates over the last decades reflect what is possible for governments to collect when a relatively small cohort of seniors is supported by a larger working age population. This has generated savings for those who paid taxes at these favourable rates while in their prime earning years. Multiple studies now question whether tax rates can be sustained at current levels as the population over age 65 grows relative to the working age population (Ragan 2012; Robson 2010). To the extent this is the case, we can ask whether today's aging cohorts will pay the full share of the medical care and income security they intend to consume. This question is not only integral to the discussion of how to preserve public policies that have dramatically reduced economic and health insecurity for seniors today compared to the past, but also to find funds to address evolving circumstances for today's younger generations. These themes will be important for governments to examine as they pursue a Canada that works for all generations. We therefore recommend that all provincial and federal governments begin reporting the age distribution of their spending and revenue collection in annual budget documents.

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