Household Savings in Atlantic Canada, 1981-2015

By Jackson Doughart and David Murrell

ATLANTIC INSTITUTE FOR MARKET STUDIES

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Executive Summary

This paper examines household savings in Canada from 1981 to 2015, with a focus on Atlantic Canada. The authors employ Statistics Canada data from national and provincial accounts to report decade averages for per capita unadjusted savings, net savings, and net lending. The paper's purpose is to support commonly-voiced concerns about Canada's rising consumer-debt-to-personal-income ratio with additional information on household savings rates. It reaches two conclusions:

1. From 1981 to 2015, Canada's household savings rates, in the long run, declined. For example, the country's "net lending rate" — a savings rate that accounts for housing purchases and depreciation — declined from 7.5 percent in the 1980s to -5 percent in 2011-2015. But personal savings rates, which do not account for housing acquisition and depreciation, show a modest recent upturn across Canada after decades of steady decline. For example, the raw, "unadjusted savings rate" (personal disposable income minus total consumption only), declined from 7.5 percent in the 1980s to nearly -2 percent during 2001-2010, before increasing to a small 0.2 percent during 2011-2015.
2. For the three Maritime provinces, the "unadjusted savings rates" and the "net savings rates" have been considerably lower than the national average, showing worrisome rates from 2001 and beyond. The negative rates are especially noticeable for Nova Scotia and Prince Edward Island. These negative rates indicate two difficulties:
    a. Maritime households, in the aggregate, may be in precarious shape (saving very little or even dis-saving).
    b. Negative household savings rates point to a dearth of investment by non-incorporated, household-owned small businesses.

The authors offer several possible explanations for changes in the savings rate, the most significant for the Maritimes being an aging population. Policy prescriptions include tax decreases to the household sector and government policies to foster strong economic growth, to the end of increasing after-tax disposable incomes.

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I. Introduction

Media regularly report on Canada's rising consumer-debt-to-personal-income ratio, which in fourth-quarter 2016 reached 167.3 percent, according to Statistics Canada.[1] Though this statistic might be worrisome, the accompanying news is that Canadians' total assets, and net wealth, have been rising. This has implications for Canada's low savings rate, the subject of the present study. Our paper examines the components of, and influences on, household savings, with an emphasis on Atlantic Canada.

Having a sufficiently high savings rate is important for two reasons. First, savings are a measure of household economic health: households need positive savings for short-term income security, funds to finance children's higher education, and longer-run retirement security. Second, household savings are important for unincorporated business investment, since some small-scale investment comes from household savings.

This paper shows that, in recent years, the Maritime provinces — and especially Nova Scotia and Prince Edward Island — have had precariously low rates. In fact, Nova Scotia and P.E.I. savings rates have dipped into negative categories.

The Maritime net savings rate, averaged since 2011, is -1.5 percent, with the average Maritimer consuming $406 more than he saved, including pension contributions. This rate has declined considerably over a generation: in the 1980s, the per person net savings rate was 13.6 percent, with the average person saving an average of $1,270 per year above consumption. We also show that savings rates for Newfoundland and Labrador have remained reasonably high, given the strong growth in real per capita personal disposable income (i.e. earned income plus transfers, after taxes).

For the purposes of our discussion, we define the following terms:

Unadjusted savings rate: the rate of per capita savings in each examined period, calculated by subtracting total consumption from disposable income and expressing the difference as a percentage of disposable income.

Net savings rate: This figure adds to the unadjusted savings rate by accounting for pension contributions.

Net lending rate: This figure adds capital consumption and subtracts net non-financial investment.

The tables in this paper use Statistics Canada data on household earnings and savings for the 1981 to 2015 period. We separate the statistics into decade averages for our tables. Section II discusses the trend in several savings indicators across Canada over the

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past 3.5 decades, taking data from Statistics Canada personal sector accounts. Section III examines the situation in Atlantic Canada, with a focus on the very low savings rates of the Maritimes. Section IV explains several of the factors affecting savings rate, such as changes in disposable income, interest rates, capital gains, and demographic variables. The concluding Section V summarizes the paper's findings and suggests that more could be done to enhance greater personal disposable incomes, and hence greater savings. Improved economic policies include reducing taxes to households and measures to stimulate economic growth and reduce outmigration of the young. Finally, the appendix explains the tabular calculations.

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II. Canada's Savings Rates:

A Long Run Decline with a Recent Gradual Rise

Much of the media coverage on household finances dwells on the steady rise in the debt-to-personal-disposable-income ratio. Only a few stories mention low household savings rates.[2] We report in this section that Canada-wide savings rates have been declining steadily, but that in recent years this decline has stopped, with some modest increases taking place. For example, Canada's "net savings rate" — measuring the percentage of personal disposable income going to net savings — declined steadily from a high of 20.7 percent in 1982 to a low of 1.3 percent in 2005, before gradually rising to five percent in 2015.

Savings rates can be expressed in different ways. In Table 1, and in other tables in this paper, we express the data in decade-long averages to show longer-run trends. The "unadjusted savings rate" — showing unadjusted savings, personal disposable income minus consumption spending, as a percent of personal disposable income — declined steadily from the 1981-90 decade (at 7.5 percent) to the 2001-2019 period (at about –2.0 percent), before rising to a 0.2 percent average during 2011-2015.

TABLE 1

Components of Per Capita National Household Saving (current dollars)

	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Personal disposable income	11,478	16,328	23,299	29,551
Less: total consumption	10,623	16,090	23,736	29,508
Equals: unadjusted saving	**855**	**238**	**– 437**	**43**
Unadjusted savings rate*	**7.5**	**1.5**	**– 1.9**	**0.2**
Plus: Δ pension entitlements	819	1,071	1,150	1,337
Equals: net saving	**1,674**	**1,309**	**713**	**1,365**
Net Savings rate*	**14.5**	**8.0**	**3.1**	**4.7**
Capital consumption	600	882	1,211	1,504
Capital transfers received	17	– 87	– 73	– 38
Equals: gross saving	**2,291**	**2,104**	**1,851**	**2,813**
Gross saving rate*	**20.0**	**12.9**	**8.0**	**9.6**
Plus: non-fin capital investment	1,436	1,795	3,354	4,327
Equals: net lending (borrow...)	**855**	**309**	**– 1,502**	**– 1,481**
Net lending (borrowing) rate*	**7.5**	**1.9**	**– 6.5**	**– 5.0**

* Calculated as a percentage of personal disposable income, by the authors.
** Source: Statistics Canada, CANSIM Table #384-0072 and Table #051-0001.

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"Unadjusted savings" do not include savings put away as pensions, so in the table we also show "net savings," where the change in pension entitlements is included, displaying the same pattern as unadjusted savings. The net savings rate averaged a rather high 14.5 percent in 1981-90, and this declined to slightly over three percent during 2001-10, before rising to an average of 4.7 percent in 2011-15.

We know that households borrow (dis-save) to purchase housing, new or used. One can calculate a "net lending rate" (net lending as a percent of personal disposable income). Household net lending is net savings plus the depreciation of owned-homes and other durable goods, minus purchases of housing new and old. As can be seen by the bottom line in Table 1, the personal-sector net lending rate fell from 7.5 percent in 1981-90 to a worrisome -6.5 percent in 2001-10, before moderating slightly to a still-problematic -5 percent during 2011-15. This last result provides one clue to Canada's low personal savings rate: whereas the unadjusted and net savings rates managed to start rising during the first part of the current decade, the net lending rate remained significantly below zero. We therefore see that, at the nationwide level, the precarious state of household finances can be explained by the current housing boom.

From basic economic theory, there are several causal factors that influence the saving rate:

1. *Real personal disposable income.* As real incomes rise, households will save more. For example, in a recession when real incomes fall, households will maintain basic consumption needs, and save less. In prosperous times, most families will save some of the high incomes.

2. *Consumable durables and housing.* As interest rates fall, households consume more, particularly on big-ticket consumer durables, given that the interest-expenditure carrying charge to finance such outlay falls. Consequently, savings fall as interest rates fall.

3. *Demographic variables.* As the percentage of young people and seniors rises, per capita savings fall. Young adults tend to dis-save, to finance post-secondary education and early-family formation. Seniors dis-save, given accumulated lifetime savings, as they undertake withdrawals from RRSP, RRIF, and other accounts.

4. *Increased capital gains from owned assets.* Families save to attain a targeted dollar wealth at the point of retirement. But if families enjoy unexpected realized and unrealized capital gains, they will consume more, and save less, because of such gains in wealth. Economists use the jargon term "wealth effect" to explain this possible determinant of savings. Therefore, large capital gains decrease overall savings.

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5. *Other determinants of savings.* First, some economists believe that, as the total government debt rises, families will save more in anticipation of higher future taxes to pay for the debt. This is called the "Ricardian Equivalence Effect" theory. Second, increases in actual and expected inflation will cause families to consume more in the present period, given that the cost of most consumer goods will rise later. Third, if governments increase public pension benefits, households will save less on private pensions, such that total savings will fall. Fourth, governments can influence personal savings through personal income taxation rules and rates, and other policies such as the liberalization of RRSP rules and the introduction of additional savings vehicles (e.g. TFSAs, RESPs).

In the literature, Callen and Thimann used[3] international panel data to show that:

- increases in government taxation and transfers negatively affect savings,
- increases in government debt negatively affects savings,
- personal income growth positively affects savings
- the real interest rate is negatively related to savings
- the old-age dependency ratio is negatively related to savings, and
- the actual inflation rate is positively related to savings.

Gokhale, Kotlikoff and Sabelhaus, in an exhaustive study[4] looking at U.S. personal savings, concluded that demographics, and especially the long-run aging of the population, was by far the most important variable accounting for the decline in household savings. Finally, Berube and Cote,[5] looking at Canadian household savings, found that the real interest rate, expected inflation, government deficits, and the ratio of household net worth to GDP were the statistically significant causal variables.

The bottom half of Table 2 shows some possible determinants of national household savings rates, and the top half of the table simply restates the three savings rates under consideration.

Canada-wide savings rates before housing spending (unadjusted and the net savings rates) declined steadily before beginning to rise in 2011-15. But the "personal net lending rate," while also declining, has remained low, and less than zero (at -5 percent) during 2011-15.

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TABLE 2

Canada: National Savings Rates and Casual Factors

	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Savings Rates				
Unadjusted savings rate*	7.50	1.55	– 1.89	0.03
Net savings rate*	14.66	8.12	3.05	4.59
Net lending rate*	7.45	1.90	– 6.45	– 5.04
Causal Factors				
Real per capita disposable inc	$17,608.	$18,401.79	$21,488.	$23,974
% change in total CPI	5.99	1.99	2.02	1.68
Real 5-year mortgage rate	7.45	6.55	3.96	2.49
Percentage aged 65 and over	10.39	12.02	13.23	15.29
All-government net lending rate	– 25.15	–16.95	–1.57	– 8.16
Real per capita capital gains	n/a	$4,471	$4,698	$8,228
— real p-c non-fin cap. gains	n/a	$1,635	$2,853	$3,588
— real p-c fin cap. Gains	n/a	$2,836	$1,845	$4,691

* Calculated as a percentage of personal disposable income, by the authors.
** Source: Statistics Canada, CANSIM Table #384-0040, Current Accounts – Households, Provincial and Territorial, annual (dollars x 1,000,000).

As the bottom half of the table shows, real per capita incomes — in terms of decade averages — rose steadily from 1981-90 onwards. But savings rates fell, so one is unconvinced that rising personal after-tax incomes influenced savings. Similarly, the table shows that actual CPI inflation has, over the long run, slowed, so this variable cannot explain the fall in personal savings.

We use the real Canada five-year mortgage rate to proxy real interest rates — and we see that this rate has fallen steadily from 1981-90 onwards. Second, we also see from the table that Canada's population has aged, with the share of the population aged 65 years and over increasing from 10.39 percent in 1981-90 to 15.29 percent in 2011-15. Third, households have enjoyed positive capital gains from 1991-2000 onwards. It is true that the positive capital gains did not grow from 1991-00 to 2001-10 (financial capital gains grew and housing capital gains fell, while remaining positive). But as can be seen from the table, housing capital gains shot up during 2010-15. Finally, the table shows that all-governments' "net borrowing" fell from 1981-90 through 2001-10, before rising during 2011-15. During this time, personal savings exhibited the exact reverse pattern. This is consistent with the Ricardian Equivalence theory mentioned above: as governments improved their balance sheets up through 2001-10, households saved less. But as governments increased their borrowing during 2011-15, households began to curb their borrowing.

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Consequently, it is these last four factors — declining real interest rates, the aging of the population, positive capital gains and the Ricardian Equivalence effect — that are consistent with Canada's falling and low savings rates. This is not to say that other factors may play a role. But Canada, as much of the developed world, lives in an era of very low interest rates and buoyant capital gains, and where an increasing part of the population dis-saves from pension incomes.

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III. The Maritimes' Very Low Savings Rates

In this section, we employ Canada-wide numbers from provincial accounts in Table 3-C to provide a reliable comparison with the provinces. These numbers differ, if only slightly, from those national numbers in Table 1 because they originate from two different CANSIM tables. It is important, however, that the data source for each component of Table 3 be the same. According to our analysis of these data, the personal savings picture in the Maritimes differs significantly from the situation country-wide. As explained in the previous section, we calculate per capita rates of unadjusted and net savings over 3.5 decades, adjusting for inflation, to illustrate the trend of personal savings for the region.

Maritime Savings Rates

TABLE 3A

Components of Provincial Household Saving (dollars per capita).

MARITIMES	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Personal disposable income	9,540	14,127	20,115	26,500
Less: total consumption	9,154	14,203	21,808	28,486
Equals: unadjusted saving	**385**	**– 75**	**– 1,693**	**– 1,985**
Unadjusted savings rate*	**4.0**	**– 0.5**	**– 8.4**	**– 7.5**
Plus: Δ pension entitlements	885	1,358	1,522	1,579
Equals: net saving	**1,270**	**1,283**	**– 172**	**– 406**
Net Savings rate	**13.6**	**9.1**	**– 0.9**	**– 1.5**
PRINCE EDWARD ISLAND	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Personal disposable income	9,259	13,898	19,683	25,616
Less: total consumption	8,929	13,675	21,337	27,434
Equals: unadjusted saving	**330**	**223**	**– 1,654**	**– 1,818**
Unadjusted savings rate*	**3.6**	**1.6**	**– 8.4**	**– 7.1**
Plus: Δ pension entitlements	844	1,238	1,331	1,392
Equals: net saving	**1,174**	**1,461**	**– 323**	**– 426**
Net Savings rate	**12.7**	**10.5**	**– 1.6**	**– 1.7**
NOVA SCOTIA	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Personal disposable income	9,862	14,347	20,339	26,532
Less: total consumption	9,470	14,455	22,390	29,339
Equals: unadjusted saving	**392**	**– 108**	**– 2,051**	**– 2,051**
Unadjusted savings rate*	**4.0**	**– 0.8**	**– 10.0**	**– 10.6**
Plus: Δ pension entitlements	1,038	1,580	1,732	1,768
Equals: net saving	**1,430**	**1,473**	**– 339**	**– 1,039**
Net Savings rate	**14.5**	**10.3**	**– 1.6**	**– 3.9**
NEW BRUNSWICK	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Personal disposable income	9,194	13,897	19,914	25,640
Less: total consumption	8,808	13,986	21,166	27,622
Equals: unadjusted saving	**387**	**– 89**	**– 1,252**	**– 991**
Unadjusted savings rate*	**4.2**	**– 0.6**	**– 6.3**	**– 3.7**
Plus: Δ pension entitlements	705	1,104	1,293	1,380
Equals: net saving	**1,092**	**1,016**	**41**	**389**
Net Savings rate	**11.9**	**7.3**	**0.2**	**1.5**

* Calculated as a percentage of personal disposable income, by the authors

** Source: Statistics Canada, CANSIM Table #384-0040 and Table #051-0001.

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Our calculations show a grim savings performance in the Maritime Provinces. Taken together during 2011-15, their savings rates are the lowest in Canada, with unadjusted savings at -7.5 percent and net savings of -1.5 percent. From 2011 to 2015, the average Maritimer spent nearly $2,000 per year more than he earned in disposable income, and more than $1,500 per year more when accounting for pensions. And while the unadjusted savings rate improved from the 2000s by one percent, the net savings rate actually declined, with Maritimers dis-saving $234 more dollars per year in the 2010s than the 2000s.

The situation is worst in Nova Scotia, with a net dis-saving of 3.9 percent per year in the present decade, about $1,000 per person, per year — an increase in dis-saving from $339 per year in the 2000s. For unadjusted savings, the average Nova Scotian spends over $2,000 more in disposable income than he saves. New Brunswick has improved modestly by both metrics, though its unadjusted rate remains at a dis-saving average, with a savings rate of -3.7 percent in the 2000s. Its net savings rate increased from 0.2 percent to 1.5 percent, with the average New Brunswicker saving net $389 per year in the 2011-2015 period. Prince Edward Island's net savings rate has been roughly constant, with unadjusted savings improving slightly, though still in dis-saving categories. The average Islander net dis-saves $426 per year, compared with net savings of $1,172 in the 1980s at a rate of 12.7 percent.

These numbers suggest a concerning future for the Maritimes, with greater annual personal deficits, many doubtless financed by debt. As such, public finance concerns accompany personal finance problems. If nothing else, these data suggest that solving the issues of government budget deficits, debt servicing, and net debt through greater state revenues is untenable. With three of the four smallest per capita disposable incomes in the country, Maritime governments can scarcely hope to resolve these public finance issues by a greater squeezing, through high taxation, of an already dis-saving population. While consistent deficit spending by governments is a decades-long problem, Maritimers saved a net 13.6 percent of their disposable income a generation ago.

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Newfoundland and Labrador

TABLE 3B

Components of Provincial Household Saving (dollars per capita).

NEWFOUNDLAND AND LABRADOR	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Personal disposable income	8,191	12,855	19,550	30,166
Less: total consumption	8,015	12,683	20,867	28,845
Equals: unadjusted saving	**176**	**171**	**– 917**	**1,321**
Unadjusted savings rate*	**2.1**	**1.3**	**– 4.6**	**4.4**
Plus: Δ pension entitlements	542	835	1,089	1,269
Equals: net saving	**718**	**1,006**	**172**	**2,590**
Net Savings rate	**8.8**	**7.8**	**0.9**	**8.6**
ATLANTIC CANADA	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Ppersonal disposable income	9,203	13,827	20,078	27,316
Less: total consumption	8,871	13,844	21,600	28,566
Equals: unadjusted saving	**333**	**– 16**	**– 1,522**	**– 1,250**
Unadjusted savings rate*	**3.6**	**– 0.1**	**– 7.6**	**– 4.6**
Plus: Δ pension entitlements	800	1,235	1,426	1,510
Equals: net saving	**1,132**	**1,219**	**– 96**	**260**
Net Savings rate	**12.3**	**8.8**	**– 0.5**	**1.0**

* Calculated as a percentage of personal disposable income, by the authors

** Source: Statistics Canada, CANSIM Table #384-0040 and Table #051-0001.

Meanwhile, there has been a recovering savings performance in Newfoundland and Labrador in the past half-decade. Though the province's unadjusted savings rate (disposable income less consumption, without pension contributions) dipped to -4.6 percent for 2001-2010 — and its net savings rate, adjusted for pensions, fell to 0.9 percent in the same period — the 2011-2015 period shows significant improvement. The province's unadjusted savings rate stood at 4.4 percent for this half-decade, while the net savings rate rose to 8.6 percent. To put these rates in perspective, Newfoundlanders and Labradorians dis-saved an average of $917 per capita, per year in current dollars from 2001-2010, and saved just $172 per person, per year accounting for pensions. These were significant drops from more stable net savings in the 1980s and 90s. For the past half-decade, however, residents have saved $1,321 per person, per year and $2,590 per year including pensions.

According to the dataset (which ends before the effects of the decline in oil prices could be measured), Newfoundland and Labrador is outperforming the national average in these respects. Provincial accounts data show that the unadjusted savings rate for 2011-2015 is zero — Canadians in the past decade have, on average, consumed effectively all of their disposable income. Adjusting for pensions, the rate is 4.67 percent, an average of $1,357 per person per year. These numbers show a modest improvement from the preceding decade, with a negative unadjusted savings rate of 1.9 percent and a positive net savings rate of 3.1 percent in 2001-2010. Since the 1980s, these rates have dropped 9.4 and 10.03 percent, respectively.

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The Rest of Canada

TABLE 3C

Components of Provincial Household Saving (dollars per capita).

CANADA TOTAL	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Personal disposable income	11,411	16,296	23,227	29,558
Less: total consumption	10,555	16,044	23,666	29,550
Equals: unadjusted saving	**856**	**252**	**– 439**	**8**
Unadjusted savings rate*	**7.5**	**1.6**	**– 1.9**	**0.0**
Plus: Δ pension entitlements	817	1,071	1,147	1,350
Equals: net saving	**1,673**	**1,322**	**708**	**1,357**
Net Savings rate	**14.7**	**8.1**	**3.1**	**4.67**
QUEBEC	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Personal disposable income	10,268	14,554	20,718	25,646
Less: total consumption	9,739	14,701	21,498	26,235
Equals: unadjusted saving	**528**	**– 146**	**– 780**	**– 589**
Unadjusted savings rate*	**5.2**	**– 1.0**	**– 3.8**	**– 2.3**
Plus: Δ pension entitlements	775	1,138	1,472	1,715
Equals: net saving	**1,303**	**992**	**692**	**1,086**
Net Savings rate	**12.7**	**6.8**	**3.3**	**1.1**
ONTARIO	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Personal disposable income	12,536	17,761	24,046	29,360
Less: total consumption	11,151	16,827	24,174	29,545
Equals: unadjusted saving	**1,384**	**934**	**– 127**	**– 185**
Unadjusted savings rate*	**11.0**	**5.3**	**– 0.5**	**– 0.6**
Plus: Δ pension entitlements	911	1,080	1,031	1,261
Equals: net saving	**2,295**	**2,295**	**904**	**1,076**
Net Savings rate	**18.3**	**11.3**	**3.8**	**3.7**
WESTERN CANADA	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Personal disposable income	11,645	16,497	24,779	33,080
Less: total consumption	11,019	16,740	25,175	32,211
Equals: unadjusted saving	**626**	**– 243**	**– 395**	**868**
Unadjusted savings rate*	**5.4**	**– 1.5**	**– 1.6**	**2.6**
Plus: Δ pension entitlements	743	958	975	1,130
Equals: net saving	**1,369**	**715**	**580**	**1,999**
Net Savings rate	**11.8**	**4.3**	**2.3**	**6.3**

* Calculated as a percentage of personal disposable income, by the authors

** Source: Statistics Canada, CANSIM Table #384-0040 and Table #051-0001.

Quebec's performance has modestly improved for unadjusted savings from the 2001-2010 period, from an average rate of -3.8 percent to -2.3 percent. Its net savings rate, however, declined from 3.3 percent to 1.1 percent. Ontario's rates have remained constant through these periods, with the net savings rate declining from 18.3 percent in the 1980s to 3.7 percent in the 2010s. Western Canada's performance by both variables improved; these provinces' unadjusted rate increased from -1.6 percent in the 2000s to 2.6 percent in the 2010s. Adjusting for pensions, their savings rate improved from 2.3 percent to 6.3 percent. The average Western Canadian in the 2010-2015 period saved $1,999 per year.

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IV. Potential Causes of Low Savings Rates in the Maritimes

What, then, are the causes of declining savings rates in the Maritimes? Earlier in this paper, we used economic theory to explain changes in savings rates. These include changes in disposable incomes, interest rates, demographic variables, capital gains, expected inflation, government spending habits, and public policies related to personal finance. We will first discuss province-specific factors and then country-wide factors.

Region-Specific Factors

TABLE 4A

"Old Age Ratios" by Province, Region and Canada* (Percent)

Province and Region	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Newfoundland & Labrador	8.59	10.62	13.49	15.30
Prince Edward Island	12.60	13.13	14.51	17.27
Nova Scotia	11.66	12.92	14.58	17.67
New Brunswick	10.93	12.55	14.38	17.61
Maritime Provinces	**11.43**	**12.78**	**14.49**	**17.61**
Atlantic Canada	**10.72**	**12.27**	**14.27**	**17.41**
Quebec	9.75	11.93	13.94	16.64
Ontario	10.62	12.12	13.07	15.18
Western Canada	10.74	12.03	12.77	14.08
Canada	**10.41**	**12.43**	**13.25**	**15.30**

* Calculated as the percentage of total population aged 65 years and over.
** Source: Statistics Canada CANSIM Table # 051-0001 and calculations by the authors.

As the composition of the population changes, so to do rates of personal savings. This theory helps to explain the low unadjusted and net savings rates of the Maritime provinces, whose demographic reality emanates from several sources: Nova Scotia and New Brunswick have negative natural population growth rates, meaning that more people are dying every year than are born. Prince Edward Island's rate remains just north of replacement levels. To boot, the Maritimers must cope with the problem of outmigration, as people of working age move west in search of better economic opportunities — leaving a smaller working-age population to create wealth and fund services in the region. And with residents living longer into their retirement years, the proportion of seniors in the population likewise increases.

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The result is a higher proportion of seniors in the population of the Maritimes — and indeed Atlantic Canada — than any other region of the country. Table 4 uses Statistics Canada data of population and author calculations to show these numbers. Table 4-A displays "old age ratios" — the percentage of the total population aged 65 and older. Table 4-B calculates the rate of change in old-age ratios for the periodic scope of this paper, i.e. 1981 to 2015. It shows that, in addition to having the highest proportion of seniors in their populations, the Maritimes have also seen the fastest growth in their old age ratios in the country.

TABLE 4B

Increases in Percentage Points, of Old Age Ratios, from Previous Period*

Province and Region	1991-00	2001-10	2011-15
Newfoundland & Labrador	2.03	2.87	3.57
Prince Edward Island	0.52	1.38	2.76
Nova Scotia	1.26	1.66	3.09
New Brunswick	1.62	1.83	3.23
Maritime Provinces	**1.36**	**1.71**	**3.12**
Atlantic Canada	**1.55**	**2.00**	**3.22**
Quebec	2.18	2.01	2.70
Ontario	1.49	0.96	2.10
Western Canada	1.28	0.75	1.31
Canada	**1.62**	**1.22**	**2.06**

* Each number in this table represents the percentage point change from the previous period. The "1.62" for Canada, during 1991-00, shows the increased from 1981-90 (10.41 to 1991-00 (12.43). Source: Based on the data shown in Table #4-A above.

As a region, the Maritimes' old-age ratio for 2011-2015 was 17.61, an increase from 14.49 in the previous decade and rate of change of 3.1 percent. New Brunswick's rate of change was the starkest at 3.23 percent. Nova Scotia's ratio for 2011-2015 was the highest in Canada, at 17.67 percent, closely followed by New Brunswick at 17.61 percent and Prince Edward Island at 17.27 percent. Notably, the average rates of change only account for the past half-decade; at current rates, the proportion of seniors in Maritime provinces will soon increase to one in five people.

Certainly, aging populations are a national problem, with no region posting a negative rate of change at any point covered by this study. The Western Canadian provinces, with an old-age growth rate that actually slowed from the 1990s to the 2000s, had a ratio of 14.08 percent for the 2011-2015 period, up from 10.74 percent in the 1980s. Ontario's rate of change from the 1990s to the 2000s also slowed, before taking off again in the past half-decade, settling at 15.18 percent. Quebec has the highest

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old-age ratio outside the Maritimes, at 16.64 percent — well up from 9.75 percent in the 1980s. Newfoundland an Labrador's old-age ratio is precisely at the national average of 15.30. For Canada, the rate of change from the previous decade is 2.06 percent.

The higher old-age ratio in the Maritimes goes some length to explain the region's low population-wide personal savings rates. In retirement, people tend to save less and consume more of their disposable income. Therefore, a growing seniors portion of the population will affect a downward push on average savings rate. However, Newfoundland and Labrador also experiences an aging population but has not dipped in its net savings rate at the same level as the Maritimes.

TABLE 5A

Real Per Capita Personal Disposable Income (2002 $)

Province and Region	1981-1990 avg	1991-2000 avg	2001-2010 avg	2011-2015 avg
Newfoundland & Labrador	11,958	14,285	18,366	23,970
Prince Edward Island	13,861	15,668	17,911	20,136
Nova Scoria	15,034	16,306	18,659	20,965
New Brunswick	13,904	15,721	18,445	21,636
Maritime Provinces	**14,477**	**16,016**	**18,574**	**21,175**
Atlantic Canada	**13,847**	**15,608**	**18,487**	**21,796**
Quebec	15,544	16,232	19,284	21,054
Ontario	19,542	20,203	22,324	23,740
Western Canada	18,139	18,693	22,710	26,670
Canada	**17,608**	**18,402**	**21,488**	**23,974**

* Calculated as the percentage of total population aged 65 years and over
** Source: Statistics Canada CANSIM Table # 051-0001 and calculations by the authors.

A second regional factor is the per capita disposable income, adjusted for inflation. As disposable income decreases, personal savings follow, with a greater portion of disposable income going toward necessities. Table 5 reports changes in real disposable income, averaged for the decades covered in this paper, adjusted to the CPI benchmark of 2002. Throughout Canada, real per capita disposable incomes have increased since the 1980s, with a Canada-wide increase in the 2010s of $2,486 per person from the previous decade and $6,366 from the 1980s.

Western Canada enjoys the greatest real per capita disposable income this decade, at $26,670 per person, an increase of $3,959 from the 2000s. Ontario and Quebec saw equal increases from the 2000s of $1,417 per person. Newfoundland and Labrador's change in disposable income, compared with 1980s levels, is impressive: $23,970 per person in the 2010s, compared with $11,958 in the 1980s — a doubling of per person funds.

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TABLE 5B

Changes in Real Per Capita Personal Disposable Income from Previous Decade (2002 $)*

Province and Region	1991-00	2001-10	2011-15
Newfoundland & Labrador	2,330	4,081	5,604
Prince Edward Island	1,807	2,243	2,225
Nova Scotia	1,271	2,352	2,307
New Brunswick	1,817	2,724	3,191
Maritime Provinces	**1,539**	**2,498**	**2,661**
Atlantic Canada	**1,761**	**2,873**	**3,315**
Quebec	669	3,057	1,417
Ontario	611	2,120	1,417
Western Canada	554	4,017	3,959
Canada	**793**	**3,087**	**2,486**

* Each number in this table represents the disposable income change from the previous period. Source: Based on the data shown in Table #4-A above.

In the Maritimes, real per person disposable income has grown relatively more, in comparison with the 2000s, than the national average and well more than Quebec and Ontario. This growth is consistent with the neoclassical theory of income convergence of poorer regions with richer regions. The Maritime per person disposable income for 2011-2015, in 2002 dollars, is $21,175 — $20,136 in P.E.I., $20,965 in Nova Scotia, and $21,636 in New Brunswick. The Maritime growth in real dollars from the 2010s is $2,661 — $2,225 in P.E.I., $2,307 in Nova Scotia, and $3,191 in New Brunswick. Unfortunately, the dismal savings rate of the Maritimes confounds the theory that greater disposable income should produce greater savings, with increases in consumption outpacing increases in disposable income.

TABLE 6

Calculation of Household Non-financial and Financial Capital Gains: Canada*

Variable	1991-2000	2001-2010	2011-2015
Δ non-financial assets	90,254	196,509	291,982
Less: household non-financial new asset acquisitions	47,110	96,530	137,460.
Equals: n-f capital gains	**43,144**	**99,979**	**154,522**
Δ financial assets	122,959	91,745	252,172
Less: net saving	38,511	23,141	47,716
Equals: financial capital gains	**74,448**	**68,694**	**204,456**
Total capital gains	**117,592**	**168,583**	**358,978**

* all data in millions of nominal dollars.
Source: Statistics Canada CANSIM Table #378-0121 and Table 380-0072.

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National Factors: Capital Gains and Interest Rates

A final factor is capital gains. When households realize greater-than-expected returns on their investments, they consume more and consequently save less. Unfortunately, we cannot report province-specific data for capital gains because none exists. Section II above includes Table 2, which reports non-financial and financial capital gains across Canada. That table showed that while total real per person capital gains remained stable from the 1990s to the 2000s — with decade-long averages of $4,471 and $4,698, respectively — from 2011-2015 the average had increased to $8,228.

It is reasonable to speculate that Maritimers shared in the financial capital gains of the country, with greater returns putting a downward pressure on savings rates. This is because Maritime investors participate in the same integrated financial markets as do Canadians taken as a group. However, a more puzzling statistic is non-financial capital gains, i.e. housing. The country has seen an increase in these gains overall from the past decade, but these are doubtless driven by the housing booms in major cities, with prices growing significantly in Vancouver and Toronto, for example. The Maritimes, meanwhile, have a stable housing market, with house prices consistently among the most affordable in the country. This is, of course, good news for home buyers, but less favourable for sellers, who naturally realize fewer capital gains on home sales. As such, non-financial capital gains are doubtless a contributor to modest savings rates across Canada, but not an explanation for the low savings rates of the Maritimes.

Another national factor affecting personal savings is interest rates. As they fall, consumption increases and saving falls as the cost of borrowing declines. Using the real five-year mortgage rate as a proxy for real interest rate fluctuations, Table 2 shows how interest rates have declined considerably since the 1980s. In that decade, the average rate was 7.45 percent, which subsequently declined to 6.55 percent in the 1990s, 3.96 percent in the 2000s, and 2.49 percent in the first half of the 2010s. Like the growing capital gains effect, declining interest rates have perhaps led to a decline in Maritime savings rates.

Summary

The unadjusted and net savings rates of the Maritime provinces have remained below the rest of Canada, with Newfoundland and Labrador being an Atlantic regional outlier with savings above the national average. Some of the factors working against a higher savings rate for the Maritimes include an aging population, lower interest rates, and increased nation-wide capital gains in the last half-decade.

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V. Conclusion

The Maritime provinces, and especially Nova Scotia and Prince Edward Island, in recent years have shown worrisome negative household savings rates. For the 2011-2015 period, Nova Scotia averaged a -3.9 percent net savings rate and Prince Edward Island averaged a -1.9 percent net savings rates. As discussed above, the net savings rates include savings allocated for retirement (i.e. CPP, RRSP and other established pension plans). The "unadjusted savings rate," savings outside of that for retirement, was even worse. This rate, during 2011-15, averaged a very disappointing -10.5 percent for Nova Scotia and -7 percent for Prince Edward Island. In first-year university economics courses, all textbooks and nearly all university lectures teach students that nations (and sub-national regions) register positive savings flows. Note also that, for Nova Scotia and Prince Edward Island, these rates show a long-run decline.

New Brunswick has savings rates which reflect the Canada-wide long-run decline in savings rates, with a modest rise for 2011-15. For this province, the net savings rate rose to 1.5 percent in 2011-15 (up from near zero in 2001-10), and an unadjusted rate of -3.7 percent in 2011-15 (from -6.3 percent during 2001-10). Whereas savings for the Maritimes, taken as a whole, show worrisome numbers, the same cannot be said for Newfoundland and Labrador. During 2011-15, this province registered an unadjusted savings rates of 4.5 percent and a net savings rate of 8.5 percent. Both savings rates are rather healthy, and well above the national average. We suggest that this province shows the same aging population as elsewhere, so we suspect that the healthy household finances for Newfoundland and Labrador relate to the still-strong energy economy there. And as can be seen with the Western Canada numbers in Table #3-C, the robust savings data for these provinces emanate from the energy boom during 2011-15.

As stressed above, our discussion for Canada is based on a complete set of savings statistics, including the bottom-line "net lending rate," which incorporates housing expenditures and depreciation. Canada's net lending rate was negative during 2011-15 (at -5 percent), a rate only slightly higher than the -6.5 percent in 2001-10. The negative numbers reflect the ongoing housing boom, where Canadians are borrowing to purchase housing and complete home improvements. Looking at savings rates before housing expenditures, Canada's net savings rate inched up to 4.7 percent in 2011-15, from 3.6 percent averaged during the 2001-10 decade. Canada's unadjusted rate went from about -3 percent during 2001-10 to slightly over zero percent in 2011-15. These last numbers reflect the oft-told story of some Canadians living paycheck to paycheck.

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The causal factors explaining Canada's long-run decline in savings rates are three. First, Canada has an aging population. Retirees dis-save, spending from accumulated RRSPs, sales of real estate property, and other savings. Second, interest rates are at record lows, so households find it in their interest to consume more via low-interest credit lines and other credit means, and save less through ordinary savings accounts. Third, and this point relates to very low interest rates, households have enjoyed buoyant growth in financial and residential capital gains. Capital gains, realized and unrealized, have been replacing savings as a source of increased wealth.

The disappointingly-low savings rates for the three Maritime provinces are more difficult to explain, given the lack of data availability. We do have population age statistics (see Table 4). And the fact that the three Maritime provinces are aging faster than the rest of Canada clearly explains part of the record of low personal savings. Newfoundland and Labrador also has a fast-aging population, yet this province has posted better-than-national savings numbers. But this province has enjoyed a natural resource boom with high wages and incomes, and this boom has doubtless boosted savings. The disparate economies of the Maritimes and Newfoundland and Labrador are reflected in the regions' savings rates.

Negative personal savings rates raise two alarm bells. First, they may indicate a precarious financial position for the household sector. Households may be "just getting by," so to speak, something that ought to concern policy makers. Second, low household savings may lead to subpar investment, which implies sluggish economic conditions for a given region or province. True, in a perfect world of investment and financial markets, a small province or region could in theory welcome investment from outside the province – and in fact the Maritime provinces do so. But capital constraints, bounded information, and other factors mean that much of small business investment, by households, comes from internal savings. Here we suggest that a weak personal sector indicates one area of underachievement for the Maritime economy. In a 2016 paper, we documented the serious decline in constant dollar business investment in the three Maritime provinces.[6]

Possible Corrective Measures

The goal of this study is to report on the precarious state of household savings in the Maritimes. To address the issue of low household savings, governments should consider the following measures:

1. Increase the disposable income of residents by lowering tax rates, either consumption or income taxes. In recent years, the Maritime provinces have further increased their portion of the Harmonized Sales Tax, which in turn removes more money

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from households and the economy to supply government coffers. As increases in disposable income correlate with greater savings, this method would be the best for encouraging greater savings and investment by households.

In addition, residents of Nova Scotia and Prince Edward Island contend with "bracket creep," where inflation causes wages to fall into higher tax brackets, increasing their marginal tax rates without a real increase in income. Following all other Canadian provinces save Manitoba, these provincial governments should index their tax brackets and basic personal exemptions to inflation.

2. To encourage greater savings, allow deductions against taxable income on investments, financed from savings. For instance. if a person wishes to invest from disposable income, he or she would receive a tax credit reducing income tax. On one hand, this will reduce tax revenue; on the other hand, the program could be targeted and scaled so that low and middle-income earners would increase their savings rates. A tax credit on investment could be capped so that everyone can benefit, but proportionally those who need to save benefit more. It could also be scaled. For example, a 100 percent income tax credit could be applied on the first $5,000 of yearly savings, 50 percent on the next $5,000, and zero percent thereafter.

   While losing some revenue, government would benefit in three ways. First, it would still be able to collect taxes on the capital gains of the investment down the road. Second, more available capital and greater savings and investment would contribute to growing the overall tax base, a more sustainable solution than trying to grow tax rates. Finally, this may be a small way to contribute to Canada's capital formation problem. In short, there isn't enough investment money available for Canada's small- and medium-sized enterprises. Start-ups are critical to a flourishing economy, yet have a hard time attracting capital from risk-averse big banks. Creating a program where Canadian savers can invest their money into a fund for these companies would benefit the savers and the economy at large.

3. Address the aging population problem by enticing more international and interprovincial immigrants to the region. To combat the issue of outmigration from the native born and the problem of migrant retention, focus on sound economic policies: a consistent and fair tax code, reducing the costs of regulatory compliance, responsible public finance, lowering interprovincial trade barriers, and providing fewer subsidies to the private sector.

4. Examine the issue of household debt, particularly the extent to which easier borrowing conditions may create an incentive against household savings and responsible personal finance management.

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VI. Areas for Further Research

At first blush, the negative savings rates for Nova Scotia and Prince Edward Island seem unbelievable. Net savings rates for 2011-15 average -7.7 and nearly -4 percent respectively. One could question the official Statistics Canada figures, but this would be a fruitless exercise. First, the personal income and consumption statistics are reputable. The income data are based on personal income taxation statistics, massaged into national accounts standards. The consumption data are based on Statistics Canada's Family Expenditure Survey. Again, the survey is fine-tuned to adhere to national accounting standards, and this survey is comprehensive and accurate. It is true that Atlantic Canada has an informal or "underground" economy, and that income data might be under-reported. It could also mean the Consumer Survey might be understated. But if anything, over the 35-year period covered in this paper, the Atlantic Canada economy has modernized and urbanized, such that the informal economy would have become proportionately smaller.

This said, one should research and compare a parallel set of data to inquire about the financial vulnerability of the household sector. Bankruptcy statistics are available, and Statistics Canada publishes other surveys of household finances. One could research the comparative state of the three Maritime provinces to that of Canada.

The cold truth, we think, is that, if an economy is spending more than it takes in as disposable income, the additional money must come from only two other sources: internal household savings and financial-sector loans. We believe that this is happening in the three Maritime provinces. Consuming from accumulated personal savings comes from an aging population; consuming from financial loans has its limits. Both show signs of a dormant economy.

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VII. Appendix

The Appendix is divided into two sections: 1) how the data in each table are calculated and sources of data, and 2) how the gross capital gains data are calculated. We discuss each major section in turn.

Data Calculation and Sources

1. Table #1. The source data come from Statistics Canada, CANSIM Table #384-0072, Current Accounts – Households, Provincial and Territorial, annual (dollars x 1,000,000). These data were converted into annual data by averaging the quarterly (seasonally adjusted at annual rates) data. We then converted these data into decade averages, then used total population data (averaged by decade) to convert all these values into per capita numbers. The population data (for all the population numbers used in this paper) come from Statistics Canada CANSIM Table #051-0001 Estimates of Population, by Age Group and Sex, Canada, Provinces and Territories, Annually. We then calculated the three different savings rates data by dividing the various savings flows by total population, times 100.

2. Table #2. The first three rows show the same savings rate data as in Table #1. The sources and calculation of causal factors are as follows. The Consumer Price Index numbers come from Statistics Canada CANSIM Table # 326-0022. The data are first converted into annual numbers by averaging the monthly data, then converted into an inflation rate in the usual way. The CPI index number is also used to deflate current-dollar personal disposable income (collected from Table #1 above), to obtain real personal disposable income. The result is then converted into per capita real personal disposable income by dividing by Canada's total population, times 1,000,000.

   The 5-year mortgage rate is called the "Chartered Bank — conventional mortgage rate: 5 years", and is found in Statistics Canada, CANSIM Table 173-0043 Financial Market Statistics, last Wednesday Unless Otherwise Noted, Bank of Canada. This data series is converted into annual data (averaged), then converted into a real interest rate by subtracting the series by the CPI inflation rate. The "old-age dependency ratio" cited in the text is the percentage of total population aged 65 and over. These data can be obtained straight from Statistics Canada CANSIM # 051-0001 cited above. The population aged 65 and over can be found directly in the table, and is computed as a percentage of total population. Finally, the "all-government net-debt rate" can be calculated from numbers directly found in Statistics Canada, CANSIM Table #380-0079 Current and Capital Accounts — General Governments, quarterly. All of the data in this table are seasonally adjusted at annual rates, so to construct this series we first averaged two series (all-government disposable income and all government net lending) into annual numbers. We then

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divided the latter by the former, multiplied by 100, to get a government net lending rate. Note in passing that this rate is completely analogous to the personal sector's net lending rate. The two gross capital gains data will be discussed in section B of the Appendix below.

3. Table #3-A to 3-C. The source of these data come from Statistics Canada, CANSIM Table #384-0040, Current Accounts — Households, Provincial and Territorial, annual (dollars x 1,000,000) And, as is the case with all population data used in this study, the population data (for all the population numbers used in this paper) come from Statistics Canada CANSIM Table #051-0001 Estimates of Population, by Age Group and Sex, Canada, Provinces and Territories, Annually. The flow variables reported in these tables are first averaged over each decade, then divided by population times one million, to arrive at per capita dollar figures. The two savings rates for each province and region are calculated by dividing the associated savings flow variable by personal disposable income times 100.

4. Tables #4-A and #4-B. These population data care computed using source data from Statistics Canada CANSIM Table #051-0001 Estimates of Population, by Age Group and Sex, Canada, Provinces and Territories, Annually. This Statistics Canada table shows total population numbers, for each province and territory, and Canada, and by age cohorts. For Table #4-A, "population aged 65 and over" is available directly from this table, so we summed by variables over each decade, then divided population aged 65 and over by total population, then times l00 to obtain the percentages as shown in this table. For Table #4-B, we then take the numbers in Table #4-A and compute first differences across successive decades.

5. Tables #5-A and #5-B.The source data for this table came from the following sources: Statistics Canada, CANSIM Table #384-0040, Current Accounts — Households, Provincial and Territorial, annual (dollars x 1,000,000), for current-dollar personal disposable income, Statistics Canada CANSIM Table #051-0001 Estimates of Population, by Age Group and Sex, Canada, Provinces and Territories, for population, Annually, for population; and Statistics Canada CANSIM Table # 326-0021, Consumer Price Index (CPI), seasonally adjusted monthly, for the CPI indexes. We calculate real per capita disposable income, for each year, by dividing nominal personal disposable income by total population, then by the CPI, times 100. We then sum over the decades to obtain the data in Table #5-A. The data in Table #5-B then is derived by first differencing the numbers in Table #5-B.

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Calculating National Financial and Non-Financial Capital Gains.

Statistics Canada does not publish capital gains data, mostly because capital gains is not properly part of gross domestic product, and is not captured by the income and expenditure accounts. We unabashedly use the KISS approach ("keep it short and simple"), where we want to approximate changes in capital gains from one decade to the next. More sophisticated approaches can be found (see for example Eisner [1980] and Hill and Hill (1999). We use the term "gross capital gains" in the sense that we do not account for costs to households spent on financial wealth transactions, or on upkeep on housing.) "Net capital gains" as defined by the Canadian Revenue Agency — and expanded to include capital gains not taxable in shelters (e.g. RRSP's and TFSA's) — would include such costs.

We use data from two Statistics Canada sources: (1) CANSIM Table #378-0123 National Balance Sheet Accounts, Financial Indicators, Households and Other Non-profit Institutions Serving Households, and (2) CANSIM Table #380-0072 Current and Capital Accounts — Households. To derive non-financial capital gains, we, using annual data ending in December 31 of each year, first difference the value of non-financial assets in the household sector. We then subtract from that result household spending on new household assets (to new residential housing plus consumer durables). This yields gross non-financial capital gains. The published data in this paper (Tables #2 and #6) presumably are accounted for by rising housing prices. Although consumer durables are part of household wealth, one would expect little capital gains from this area, aside from gains from rare collectables. For financial capital gains, we again first difference annual financial wealth, and subtract from that net savings. Note that net savings includes net additions to pensionable earnings, and the stock of pensionable earnings are properly part of household wealth.

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Endnotes

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