

CAHIER DE RECHERCHE #1802E
Département de science économique
Faculté des sciences sociales
Université d'Ottawa

WORKING PAPER #1802E
Department of Economics
Faculty of Social Sciences
University of Ottawa

Tax-Free Savings Accounts: Who uses them and how?*

Adam M. Lavecchia[†]

January 2018

* Acknowledgements: I thank Kory Kroft, Derek Messacar, Kevin Milligan, Michael Smart, Frances Woolley and seminar participants at the University of Toronto, CEA 2015 and NTA 2015 for helpful comments. I also thank Carmina Ng from the Toronto Research Data Centre (RDC) for help with the data. Financial support from the H. Stanley Hunnisett Fund, the Social Sciences and Humanities Research Council (SSHRC) Doctoral Fellowship and the Ontario Graduate Scholarship (OGS) is gratefully acknowledged. This research was supported by funds to the Canadian Research Data Centre Network (CRDCN) from the SSHRC, the Canadian Institute for Health Research (CIHR), the Canadian Foundation for Innovation (CFI), and Statistics Canada. Although the research and analysis are based on data from Statistics Canada, the opinions expressed do not represent the views of Statistics Canada.

[†] Department of Economics, University of Ottawa, 120 University Private, Ottawa, Ontario, Canada, K1N 6N5; e-mail; alavecch@uottawa.ca.

Abstract

This paper studies the savings effect of Canadian Tax-Free Savings Account (TFSA) using microdata from the 2012 Survey of Financial Security. TFSA contributions are made with after-tax income, balances accumulate tax-free and withdrawals do not increase taxable income. The paper makes two important contributions. First, I characterize the profiles of TFSA owners, documenting new patterns in account ownership and balances. The age profile of TFSA ownership is U-shaped and balances are positively correlated with educational attainment and saving in other retirement accounts. Second, I develop a new instrumental variables strategy to estimate whether TFSA balances crowd-out saving in taxable financial assets and saving in traditional tax-deferred plans. The results suggest that TFSA balances crowd-out saving in taxable fixed income assets and have no statistically significant effect on balances in tax-deferred accounts.

Key words: Tax-preferred savings accounts; pre-paid versus post-paid; Tax-Free Savings Account; crowd-out

JEL Classification: H2, H31

1 Introduction

Persistent concerns about whether (and which) households are under-saving for retirement has been widely debated by researchers and policy makers. Many policies that aim to increase saving encourage the take-up of accounts that receive preferential tax treatment. Most tax-preferred savings accounts share the feature that contributions are deductible from taxable income in the year the contribution is made (subject to some restrictions), while withdrawals in retirement are taxable. A large literature in public economics studies the distribution of account owners and, importantly, whether contributions to these plans represent new saving or whether they crowd-out saving that would otherwise have been done in other forms (Bernheim (2002), Friedman (2016)).

In the last 20 years, however, several countries have introduced new tax-preferred savings accounts that reverse the timing of the taxation of savings. Contributions to these accounts, often referred to as ‘back-loaded’ or ‘tax pre-paid’ accounts, are not tax-deductible. In lieu of this deduction, investment income (interest, dividends and capital gains) accumulates tax-free and withdrawals of both principal and investment income are untaxed.¹ In contrast to traditional tax-deferred accounts, relatively little is known about whether contributions to ‘tax pre-paid’ accounts displace other saving.

This paper studies the savings effect of Tax-Free Savings Accounts, a new ‘tax pre-paid’ saving plan in Canada. Introduced in 2009, the TFSA has been extremely popular. In 2015, Canadians held \$194 billion in TFSA assets and annual contributions exceeded \$60 billion.² Similar to other tax pre-paid savings plans, contributions to TFSAs are not deductible and investment income is not taxed. Contributions to TFSAs do not reduce the ability of individuals to save in traditional tax-deferred accounts and unused contribution room can be carried forward to future years. Moreover, there are no restrictions on TFSA

¹This is in contrast to traditional tax-deferred savings accounts such as IRAs, 401(k) plans, RRSPs and RPPs that are sometimes referred to as ‘front-loaded’ or ‘tax post-paid’ savings plans. Throughout this paper, I use the terms tax pre-paid (post-paid) and back loaded (front loaded) interchangeably.

²<http://www.cra-arc.gc.ca/gncy/stts/tfsa-celi/2015/tbl03a-eng.pdf>

withdrawals. Recent proposals to increase the annual TFSA limit have led to a policy debate about the merits of the program.³

The analysis in this paper is organized into two parts. First, using data from the Survey of Financial Security (SFS), a nationally representative asset survey, I document new evidence on the correlates of TFSA ownership and balances. I focus on the similarities and differences between families that only own a TFSA, those that only own a tax-deferred RRSP account, and families that own both accounts. I find that families that own a TFSA only tend to have lower incomes. Moreover, families that own a TFSA only have heads that are typically young (age 18 to 29) or past the normal retirement age (over age 70). In contrast, families that own both accounts are middle aged and have higher incomes, similar to RRSP-only owners. The U-shaped age profile of TFSA ownership, especially among families that own a TFSA only is in sharp contrast to the hump shaped age profile of RRSP ownership and to the age-profile of U.S. Roth IRA and 401(k) ownership. Education attainment is positively correlated with owning both types of tax-preferred savings accounts. Being constrained by the annual RRSP contribution limit and owning taxable financial assets is correlated with TFSA balances, even after controlling for age, education, family size and marital status.

In the second part of the paper, I tackle the question of whether TFSA balances crowd-out other saving. Estimating the extent to which TFSA balances crowd-out other saving is difficult in practice because TFSAs are universally available and account ownership is voluntary. To address the endogeneity of TFSA ownership, I exploit plausibly exogenous variation in a family's annual TFSA contribution room. My identification strategy exploits differences in family structure and mimics the following thought experiment. Consider two families, each with three members; a married couple and a child. Moreover, suppose that these families are identical except for the fact that one has a child that is 17 years old, while in the other, the child is 18 years old. Given that TFSAs are available to all individu-

³See <http://www.budget.gc.ca/2015/docs/plan/budget2015-eng.pdf> and the discussion in Section 2.

als over the age of 18, the family with an adult child is eligible to contribute more to TFSAs than the family with fewer adults. For example, in 2012, the former family was eligible to contribute up to \$15,000 to TFSAs, while the latter could only collectively contribute up to \$10,000. This example motivates a difference-in-differences research design.

I restrict the analysis to families with children and define “additional TFSA room” or “treated” families to be those with children over the age of 18; families with children under the age of 18 are classified as “non-additional TFSA room” or “control” families. My difference-in-differences research design compares the TFSA and non-TFSA assets of these treated and control families before and after the introduction of TFSAs in 2009. Importantly, I control flexibly for family size and marital status so the identification assumption is that the non-TFSA assets of treated and control families would have evolved similarly in the absence of the introduction of TFSAs.

Pooling cross-sections from the 1999, 2005 and 2012 waves of the SFS, I find that there is no statistically significant effect of TFSA balances on holdings in total taxable financial assets or RRSPs. The statistically insignificant effect on saving in total taxable financial assets masks heterogeneity in the savings effect on its various sub-components. In particular, I find that higher TFSA balances crowd-out saving in taxable fixed income assets, especially balances in checking and savings accounts. My baseline estimates imply that a one percent increase in TFSA balances lowers taxable fixed income assets by 0.31 percent. This effect is robust to restricting the analysis to families with children around the age of 18, as in the stylized example described above. These findings are consistent with the predictions of standard models of saving and asset location, in which individuals lower their tax liability by holding relatively heavily taxed fixed income assets in tax-preferred accounts and hold equities in taxable accounts (Mintz and Smart (2002), Poterba (2002), Shoven and Sialm (2003), Dammon, Spatt, and Zhang (2004)).

These findings have important implications for our understanding of the savings effect of tax pre-paid savings plans, as well as for current proposals to reform TFSAs (Kessel-

man (2015)). Evidence on the relatively high take-up of TFSAs by young and moderate income families suggests that the account is benefitting some families that are not well served by traditional tax-deferred accounts. These benefits, however, are weighed against the fact that these families constitute a minority of TFSA owners and that the crowd-out estimates imply that TFSA balances displace saving that would otherwise be done in taxable financial assets. Ultimately, any reforms to the program should balance these costs and benefits.⁴

The remainder of the paper is structured as follows. In Section 2, I discuss the institutional background and review the literature on tax-preferred savings accounts, with a focus on tax pre-paid plans. Section 3 discusses the data. In Section 4, I report the correlates of TFSA ownership and balances and compare the similarities and differences between TFSA and RRSP owners. In Section 5, I estimate the causal effect of TFSA balances on other saving. Section 6 concludes by discussing the policy implications of the results.

2 Institutional Background and Review of the Literature

2.1 The rules and economics of TFSAs

The case for introducing a tax pre-paid retirement savings option in Canada began with Kesselman and Poschmann (2001). The authors argued for the creation of a tax pre-paid retirement savings plan to complement the existing tax-deferred plans on two grounds. First, they argued, a tax pre-paid plan would incentivize and improve the (tax) effectiveness of retirement saving for moderate-income workers (Kesselman and Poschmann (2001)). Participation rates in tax-deferred accounts, such as RRSPs and RPPs, have traditionally been low for moderate-income workers. Low participation rates may,

⁴Recent evidence from the U.S. and Denmark suggest that mandatory tax pre-paid savings plans may be more effective at raising overall savings rates (Beshears, Choi, Laibson, and Madrian (2014), Chetty, Friedman, Leth-Petersen, Nielsen, and Olsen (2014)).

in part, be due to the fact that these taxpayers often face higher effective marginal tax rates in retirement than while working. This makes saving in RRSPs and RPPs unattractive because income received from these plans in retirement is taxable and triggers clawbacks of income-tested government benefits. The second motivation for a tax pre-paid savings plan in Canada is that it would allow taxpayers constrained by RRSP and RPP contribution limits to save more in tax-preferred plans.⁵

Introduced as part of the 2008 Federal Budget, the TFSA retained many of the features proposed by [Kesselman and Poschmann \(2001\)](#), with some significant differences. Perhaps most notably, is that TFSAs were marketed as a vehicle through which individuals could save for a variety of life-cycle needs, not just retirement ([Department of Finance Canada \(2008\)](#)). There are no restrictions on withdrawals and funds withdrawn in any calendar year can be re-contributed in future years without affecting regular contribution limits. Also, withdrawals from TFSAs (principal and interest) are not taxable and do not affect eligibility for income-tested benefits (e.g. the Old Age Security (OAS) and Guaranteed Income Supplement (GIS) for seniors). A second important difference is that annual TFSA contribution limits are not linked to an individual's tax-deferred contribution room or earnings. The contribution limit was initially set at \$5,000 CAD per year and is indexed to inflation; for 2018 the statutory contribution limit is \$5,500.⁶ Unused contribution room can be carried forward to future years indefinitely.

Individuals are permitted to own a wide variety of assets in their TFSAs, ranging from cash and money market securities, certificates of deposit (GICs), fixed income securities, mutual funds and equities. In [Appendix A](#), I discuss the similarities and differences between TFSAs and other pre-paid savings accounts introduced in the United States and

⁵[Kesselman and Poschmann \(2001\)](#) also provide a horizontal equity argument for allowing more saving in tax recognized form. The argument is that two individuals with identical lifetime earnings profiles should face the same lifetime tax liability, regardless when they choose to consume.

⁶From 2009 to 2014, the TFSA contribution limit was indexed to inflation and rounded to the nearest \$500. By 2014, the nominal dollar contribution limit was \$5,500. Budget 2015 increased the annual contribution limit to \$10,000 per-individual per year, but removed the indexing. However, the new Liberal Government reinstated the \$5,500 nominal limit and indexing in December 2015, effective January 1, 2016. To date, eligible individuals over the age of 18 in 2009 have been able to contribute \$57,500 to TFSAs.

the United Kingdom over the past 20 years.

Proponents of TFSAs appeal to the program's popularity among middle-income families, and claim that the account encourages new saving that will stimulate investment and economic growth (Poschmann (2012)).⁷ Skeptics argue that TFSAs disproportionately benefit wealthy families (Donnelly and Young (2012), Kesselman (2015)). Since TFSAs increased the opportunity for Canadians to save in tax-recognized form, the account has important implications for government revenues. Relative to the pre-TFSA regime, federal and provincial tax revenues are expected to decline if assets that generate taxable capital income are instead redirected to TFSAs. Moreover, since withdrawals from TFSAs do not affect eligibility for income-tested government benefits for seniors, the program may also increase federal and provincial spending, as relatively high-wealth, low-income seniors become eligible for benefits (Milligan (2012), Shaw (2015)).

2.2 Literature Review

Unlike the large literature on tax-deferred savings accounts, relatively little is known how savers use tax pre-paid savings plans.⁸ In the U.S., Roth IRAs are similar to TFSAs in that contributions are made from after-tax income. Since most survey data sets do not ask households about their savings in tax pre-paid plans (or do not ask households to distinguish between tax-deferred and tax pre-paid plans), most of what is known about the use of Roth IRAs comes from administrative data.⁹ Hrungrung (2007) uses panel data from a randomly selected sample of individual tax returns and finds that low current marginal tax rates are positively correlated with Roth IRA contributions. This is consistent with

⁷In response to a question about the program during Question Period on April 22, 2015, Prime Minister Harper stated that: "Those billions of dollars that middle-class people are putting away will create tens of billions of dollars of long-term savings in our economy, which will drive jobs and growth." <http://www.cbc.ca/news/politics/tfsas-middle-class-focus-of-heated-question-period-as-harper-defends-oliver-1.3044231>

⁸Bernheim (2002) and Friedman (2016) provide two reviews of the literature on tax-deferred savings accounts.

⁹An exception is the Survey of Consumer Finances (SCF) that asks about asset balances but not contributions.

the prediction that those with moderate incomes that face rising tax rates in retirement are attracted to Roth IRAs. Using administrative data from mutual fund account owners, [Holden and Schrass \(2014\)](#) estimate that assets under management in Roth IRAs totalled more than \$500 billion in 2013.

[Beshears, Choi, Laibson, and Madrian \(2014\)](#) study the take up of employer-sponsored Roth 401(k) plans using administrative plan data from 11 firms that introduced a Roth option between 2006 and 2010. Consistent with the evidence on Roth IRAs, they find that contributors to employer-sponsored Roth 401(k) plans are younger and have lower incomes than those who contribute to traditional tax-deferred 401(k)s. [Beshears, Choi, Laibson, and Madrian \(2015\)](#) find Roth 401(k) contributors contribute the same fraction of their salary as traditional tax-deferred savers. Since Roth 401(k) withdrawals are not taxed in retirement, contributions purchase more consumption in retirement than similar dollar contributions to tax-deferred 401(k)s.¹⁰

TFSAs are most similar to Individual Savings Accounts (ISAs) in the U.K. Since their introduction in 1999, ISAs have also been popular. In 2005, more than 37 percent of individuals reported owning an account ([Her Majesty's Revenues and Customs \(2007\)](#)). Unlike Roth IRAs and Roth 401(k)s (and similar to TFSAs shown later), ISA ownership is positively correlated with income and age; nearly 50 percent of owners are over the age of 55. Consistent with the explanation that most ISA contributions complement other saving, two thirds of ISA owners also contribute to a pension plan. 70 percent of ISA owners report that their contributions would have been saved in other taxable accounts had ISAs not been available; another 14 percent report that they would have saved some of their ISA contribution had the account not been available ([Her Majesty's Revenues and Customs \(2007\)](#)). Overall, evidence from similar tax pre-paid accounts in the United States and the United Kingdom suggests that design features of TFSAs are important for understanding who ultimately uses the account.

¹⁰One interpretation of this result is that governments can encourage saving by offering tax pre-paid savings plans if individuals ignore the tax treatment of their retirement savings accounts.

As with Roth plans in the U.S. and ISAs in the U.K., little is known about the distribution of TFSA balances or how Canadians use the account. A few studies document the characteristics of TFSA owners ([Department of Finance Canada \(2014\)](#), [Kesselman \(2015\)](#)). Both papers use aggregate statistics published by the Canada Revenue Agency and report that TFSA owners are on average, older and have higher earnings than non-TFSA owners. In a paper that complements my work, [Al Zaman \(2017\)](#) documents the differences between Canadian families that own a TFSA and those that do not using the 2012 Survey of Financial Security. [Al Zaman \(2017\)](#) finds that TFSA ownership and balances are positively correlated with education attainment and RRSP account ownership and negatively correlated with the number of children in a family.

The paper makes two contributions. Like [Al Zaman \(2017\)](#), I document the correlates of TFSA ownership and balances. However, unlike the prior literature, I focus on the differences between families that own a TFSA only, a RRSP only and those that own both accounts. This distinction is important because families that own a TFSA only are very different from families that own both accounts. I also document evidence that some families the latter group may save in TFSAs because they are constrained by the annual tax-deferred account (RRSP) contribution limit.

The second contribution is to provide new evidence on the extent to which saving in TFSAs crowds-out saving in other tax-deferred and taxable assets. Beginning with [Venti and Wise \(1990b,a\)](#) and [Gale and Scholz \(1994\)](#), a large literature in public economics has sought to estimate whether contributions to tax-preferred accounts displace saving in taxable assets. Due to data availability and challenges associated with finding exogenous variation in tax-deferred contributions, however, evidence on whether tax-preferred savings crowds out other saving in Canada and the U.S. is mixed ([Bernheim \(2002\)](#), [Friedman \(2016\)](#)). To date, all of the evidence on crowd-out comes from papers that study tax-deferred accounts. To the best of my knowledge, this is the first paper to estimate whether balances in tax pre-paid plans crowds-out other saving. As mentioned earlier,

studying whether TFSA balances crowd-out other saving is also important for determining the impact of the program on federal and provincial tax revenues.

3 Data

I pool cross-sectional data from the master files of the 1999, 2005 and 2012 waves of the Survey of Financial Security (SFS). The SFS is a representative asset survey of Canadians in the ten provinces. SFS respondents are asked detailed questions about their ownership and balances for a variety of assets and liabilities, including checking and savings accounts, a variety of taxable (non-registered) assets, tax-deferred Registered Pension Plans (RPPS) and Registered Retirement Savings Plans (RRSPs), real estate, mortgages, installment loans and credit cards. The 2012 wave of the SFS is the first to ask respondents about their holdings in TFSAs. Detailed demographic information on family size and family structure and education was also available for every member of each SFS economic family over the age of 15. For the 2012 wave only, individuals in the SFS are linked to administrative tax data from the Canada Revenue Agency. These tax records provide additional information on earnings, tax credits, tax liabilities, taxable income and participation in employer-sponsored pension plans¹¹

My baseline sample is all families with a SFS respondent (household head) over the age of 18. However, I sometimes restrict the analysis to families whose head is between the ages of 18 and 64 or families with children. I also convert all dollar amounts from the first two waves of the SFS to 2012 dollars using the Consumer Price Index. Throughout the analysis, I use population weights provided by the SFS.

An important caveat to keep in mind is that the SFS only reports asset and liabilities at the family level. This is despite the fact that TFSAs, RRSPs and other assets are owned individually. On implication of this is that I cannot tell which members of a SFS family

¹¹Individual and family income for the 1999 and 2005 waves of the SFS is self-reported.

own a TFSA, or the distribution of TFSA balances across family members. An advantage of this feature of the data is that it allows me to estimate the extent to which TFSA balances crowd-out other saving, as demonstrated in Section 5.

4 Who uses TFSAs?

This section analyses the correlates of TFSA ownership and account balances. In section 4.1, I present summary statistics on TFSA ownership and the distribution account balances in 2012. Section 4.2 characterizes the profile of TFSA owners using the rich set of family characteristics in the SFS. In Section 4.3, I compare the profile of TFSA owners with RRSP owners and discuss the differences between these two groups.

4.1 Basic Facts

I begin by reporting some basic facts about TFSA ownership in Table 1. The top panel reports the TFSA ownership rate and account balances for the full sample (top panel). The bottom panel reports the same statistics for the sub-sample of families that own a TFSA. The first row in each panel reports the ownership rate (column 1) and average account balance (column 2). The second row reports the standard deviation, and the remaining rows report account balances at various percentiles of the TFSA balance distribution (p25, median, p75, p90 and p95). Four years after the account's introduction, 34 percent of Canadian families owned a TFSA (column 1). The unconditional average TFSA balance is \$4,527 (column 2). The TFSA ownership rate and average account balance imply that about 4.9 million families in Canada owned at least one TFSA and held approximately \$66 billion in TFSAs in 2012.¹²

Consistent with other evidence on the distribution of wealth in Canada, TFSA bal-

¹²This is consistent with TFSA data from tax returns which found that 8.2 million individuals held \$62 billion in TFSAs at the end of 2011. Conditional on owning an account, the average individual TFSA balance in 2011 was \$7,525 (Department of Finance Canada (2014)).

ances are unequally distributed, even after conditioning on account ownership. For example, while the TFSA balance at the 25th percentile is \$2,800, families at the 75th percentile hold \$20,000 in TFSA balances. Families at the 95th percentile report holding \$40,000 in TFSAs in 2012. Since TFSA ownership and balances are reported at the family level in the SFS, larger families are also likely to have higher balances because more individual members are eligible to open an account.

4.2 Characteristics of TFSA owners

One of the benefits of the SFS relative to administrative data is that it contains detailed information on household characteristics, such as net worth and its components and the education of family members. This level of detail allow me to explore TFSA ownership patterns across many family characteristics that would not be possible using tax return data. I begin with the relationship between TFSA holdings and age in Figure 1.¹³ Figure 1a plots the probability of owning a TFSA against the age of a SFS reference person.¹⁴ Approximately 30 percent of families whose reference person is between the ages of 18-29 own a TFSA. Ownership rates decline slightly until families approach retirement, then accelerate sharply. For families whose reference person is over the age of 65, the ownership rate is 45 percent. The age profile of TFSA balances is steeper than that of ownership rates (Figure 1b). For example, while families whose reference person is 35 to 39 hold \$2,400 in TFSAs, on average, those between ages 65 and 69 hold more than \$8,600.

Education is also strongly correlated with TFSA ownership (Figures 2a and 2b). Whereas 23 percent of families whose reference person has less than a high school diploma own a TFSA, nearly 50 percent of those with a Bachelor's degree or higher own a TFSA. Families whose reference person has less than a high school diploma hold just over \$3,000 in TFSA assets. This increases to \$4,000 for families whose reference person holds a two-year col-

¹³Tables B1 and B2 in the appendix show how TFSA balances vary by age group and family income quintile.

¹⁴A family's reference person is the person most knowledgeable about the family's finances.

lege diploma. Families whose reference person has a (4-year) university degree or higher hold even more in TFSAs. For families with a Bachelor's degree, the average TFSA balance is \$7,000; those with a graduate or professional degree hold more than \$8,000. Given the strong correlation between education and TFSA ownership, it is not surprising that both are also strongly correlated with family income. Tables [B1](#) and [B2](#) Appendix show this relationship. Families with incomes in the top quintile are nearly three times (two times) as likely to own a TFSA as those in the bottom quintile (second quintile). Balances are even less equally distributed; families in the bottom quintile hold an average of \$1,600 in TFSAs while those in the top quintile hold more than \$9,700.

In [Table 2](#), I explore whether these patterns hold in a multivariate regression framework. Column 1 reports OLS coefficients from a regression of the TFSA ownership dummy on various family characteristics. Included in the regression but omitted from the table for brevity are family size and marital status fixed effects, immigrant status, francophone status and province of residence dummies.¹⁵ As in the univariate case, the age profile of TFSA ownership is U-shaped after controlling for other family characteristics. Families whose reference person is between the ages of 30 and 54 are between 3 to 6 percentage points less likely to own a TFSA relative to the baseline group (18 to 29 years old). In contrast, families whose reference person is between the age of 65 and 79 are between 13 and 19 percentage points more likely to own a TFSA relative to the baseline group. Older families also have average TFSA balances that are between \$5,500 and \$6,300 larger than families in the baseline group, even after controlling flexibly for income and education (column 2). This contrasts with the negative correlation between age and Roth 401(k) ownership in the U.S. ([Beshears, Choi, Laibson, and Madrian \(2014\)](#)). As I discuss below, the popularity of TFSAs among seniors may be due to the fact that the account was not marketed solely as a retirement savings vehicle and the lack of age limits on TFSA contributions.

¹⁵Specifications that fully interact a reference person's age and education attainment or age and family income quintile lead to similar results.

Table 2 also shows that TFSA ownership rates and balances are increasing in the education attainment of the family reference person. Families whose head has a university degree are more than 20 percentage points more likely to own a TFSA than families whose reference person is a high school dropout. University graduates hold \$4,000 more in TFSA balances, on average. Even after controlling for factors such as age and education, TFSA ownership and balances are increasing in before-tax family income.

4.3 Similarities and differences between TFSA and RRSP owners

I complement the analysis in the previous subsection by comparing the profile of TFSA owners to that of RRSP owners. Columns 3 and 4 of Table 2 report the coefficient estimates from OLS regressions similar to those in columns 1 and 2, except that the dependent variables of interest are a RRSP ownership dummy (column 3) and family RRSP balances (column 4). RRSP ownership rates increase with age up to age 70, before falling sharply. This is not surprising given that RRSP balances must be withdrawn, transferred to a Registered Retirement Income Fund (RRIF) or used to purchase an annuity by age 71. RRSP ownership rates and balances are also positively correlated with education attainment and family income, consistent with previous research (Milligan (2002)).

Interestingly, the average TFSA owner is wealthier than both the average non-TFSA owner and the average RRSP owner. Figure 3 shows the net worth (going concern basis) of families in the 2012 SFS by their TFSA and RRSP ownership status. Whereas the average family that owns a TFSA has a net worth of \$885,700, families that do not own a TFSA have an average net worth of \$389,200. In contrast, families that are RRSP owners have an average net worth of \$826,600 (note that these groups are not mutually exclusive). This pattern holds for all percentiles of the net worth distribution. TFSA owning families at the 25th, 50th, 75th and 95th percentiles of the (conditional) net worth distribution are wealthier than RRSP owner counterparts. However, it is possible that less wealthy Canadians will comprise a greater fraction of TFSA owners as the program matures.

Given that TFSAs are marketed as a general purpose savings vehicle, it is not surprising that account owners are heterogeneous. In Table 3, I explore whether families that own a TFSA but not a RRSP differ from those that own both accounts (or those who own a RRSP only). The dependent variable in column 1 is a dummy variable equal to one if a SFS family owns a TFSA only. In column 2 the dependent variable is a dummy variable equal to one if a SFS family owns a RRSP only, and in column 3 the dependent variable is a dummy variable equal to one if a SFS family owns both a TFSA and a RRSP. Table 3 shows that the U-shaped age profile of TFSA ownership is driven by families that own a TFSA only. Even after controlling for other characteristics, families whose head is between the ages of 30 and 69 are 3 to 7.5 percentage points less likely to own a TFSA than families whose head is between 18 and 29. Families whose head is over 70 are between 12 and 24 percentage points more likely to own a TFSA than families whose head is between 18 and 29. In contrast, families that own both a TFSA and RRSP are to have a household head that is between the ages of 55 and 70. Table 3 also shows that family income is positively correlated with owning a TFSA and RRSP and with owning a RRSP, but not with being a TFSA owner only.

I also explore TFSA ownership rates among families that are likely constrained by the annual tax-deferred savings limit. To do so, I restrict the analysis to the sub-sample of families whose reference person is between the ages of 18 and 64. Focusing on this group allows us to better understand the patterns of TFSA ownership among families that are saving for retirement. In Canada, the annual tax-deferred account (RPP and RRSP) contribution limit is the smaller of (i) 18 percent of earnings and (ii) a fixed amount (\$22,970 in 2012).

I calculate a family's tax-deferred contribution room using information on the earnings and RPP contributions of the reference person. Contribution room is calculated as follows.

$$RRSP_{room} = \max(0, \min(0.18 * earnings - RPP_{contributions}, 22,970)) \quad (1)$$

Next, I define a dummy variable called “RRSP limit” which is equal to 1 for all families with positive earnings that have less than \$500 of available RRSP room, and equal to zero otherwise. Changing the definition of RRSP limit contributors to these that have less than \$1,000 or less than \$1,500 in available room does not significantly affect the results. Since unused RRSP contribution room can also be carried forward indefinitely, this measure definition of RRSP limit contributors overstates the true fraction of constrained tax-deferred savers.¹⁶

With this caveat in mind, I partition the age 18 to 64 sample into four groups based on whether a family is constrained by the RRSP limit and whether they own taxable financial assets (excluding checking and savings accounts). The intuition for this is that being constrained by the RRSP limit may more strongly predict TFSA ownership if families also have taxable assets than can be reshuffled into a TFSA.¹⁷

Table 4 (column 1) reports coefficients from an OLS regression of the TFSA ownership variable on dummies for these four groups (the omitted group is families that are not constrained by the RRSP limit and have no taxable financial assets). Column 3 reports coefficient estimates from a similar specification, except that the dependent variable is a family’s TFSA balance. In 2012, 22.8 percent of families in the omitted group owned a TFSA. For those in this group, the average TFSA balance among account owners was \$8,200. Families that are constrained by the RRSP limit are more likely to own a TFSA and have higher balances only if they hold taxable financial assets. In particular, of families constrained by the RRSP limit and with taxable financial assets, the TFSA ownership rate was 64.3 percent and the average conditional balance was \$15,700. These differences are

¹⁶I do not have information on unused RRSP contribution room from years before 2012.

¹⁷Tables B5 and B6 in the Appendix show families with taxable assets that are constrained by the RRSP limit are, on average, older, more educated, have higher incomes and are wealthier than unconstrained families. For example, the mean (median) before-tax family income of the families is \$116,000 (\$80,000), compared to a mean of \$79,000 for all families in the sample.

not statistically significant at conventional levels. Columns 2 and 4 confirm that these correlations hold even after controlling for a rich set of household characteristics.

To summarize, the evidence in this section shows that TFSA ownership and balances is positively correlated with education. However, the correlation between TFSA ownership, age and income is different for families that own a TFSA only and those that own both a TFSA and a RRSP. The former are more likely to be very young (18 to 29) or over the traditional retirement age, while the latter are more likely to be later in their working careers and wealthier. Being constrained by the RRSP limit increases the likelihood of TFSA ownership, but only if a family also holds taxable financial assets.

5 Do TFSA balances Displace Other Saving?

5.1 Empirical Strategy

An outstanding question is the extent to which TFSA balances crowd-out other saving.¹⁸ The economic relationship I wish to estimate is one between reported taxable or tax-deferred asset balances and TFSA balances for family i in year t . My empirical specification takes the following form.

$$A_{i(t)} = \beta_0 + \beta_1 TFSA_{i(t)} + X'_{i(t)}\beta_2 + \delta_t + u_{i(t)} \quad (2)$$

where $A_{i(t)}$ is family i 's holdings of asset A in year t , $TFSA_{i(t)}$ is family i 's TFSA balance, $X'_{i(t)}$ is a vector of family characteristics, δ_t are year fixed effects and $u_{i(t)}$ is the residual. All asset values are transformed using the inverse hyperbolic sine (IHS) transformation. This allows zero and negative asset values to be defined while retaining the convenient properties of the log transformation.¹⁹ The coefficient of interest, β_1 , can be interpreted as

¹⁸TFSA's may be desirable even if contributions to the account crowd-out other saving. In particular, the availability of the TFSA improves fairness by allowing families that are not well served by tax-deferred accounts to save in tax-recognized form.

¹⁹This IHS is defined as $\sinh^{-1}(A) = \ln(A + \sqrt{1 + A^2})$. See [Pence \(2006\)](#) and [Gelber \(2011\)](#) for examples

the semi-elasticity of balances in asset A with respect to TFSA balances. If TFSA balances crowd-out other saving, then β_1 will be negative.

Estimating the causal effect of TFSA balances on other saving is challenging because TFSAs are universally available and contributions are voluntary. Since families with large TFSA balances are more likely to own other assets, an OLS regression of equation 2 is biased upwards. My identification strategy attempts to overcome this challenge by exploiting plausibly exogenous variation in the maximum amount a family can contribute to a TFSA each year. Recall that all Canadian citizens and permanent residents over the age of 18 can contribute to a TFSA. Since I observe assets at the family-level, this means that all else equal, families with more adults are eligible to contribute more to TFSAs each year than similar families with fewer adults.

My identification strategy (roughly) approximates the following thought experiment. Consider two families (family A and B), each with a married couple and one child. In family A, the child is 18 years old, while the child in family B is 17 years old. Other than the difference in the age of the child, suppose these two families are identical. In 2012, individuals in family A were collectively eligible to contribute \$15,000 to TFSAs (\$5,000 for each member). On the other hand, members in family B were only eligible to contribute \$10,000. Thus, we expect family A to hold larger TFSA balances than family B (all else equal). These two types of families may have other differences that are correlated with unobserved tastes for saving. For example, families with an adult child living at home may have higher earnings and therefore higher savings. Consequently, I adopt a difference-in-differences research design that compares families with “additional TFSA room” to families without “additional TFSA room” before and after the introduction of TFSAs in 2009.

I restrict the analysis to families with children and define an indicator variable called “ $\text{adultchild}_{i(t)}$ ” equal to one if family i has an adult child in year t and zero otherwise.²⁰

of recent research that uses the IHS transformation.

²⁰Note that families with an adult child may also have children under the age of 18.

I then interact this variable with a dummy variable equal to one after 2009, the year the TFSA was introduced. This interaction is my instrument and is formally defined as follows.

$$\text{AdditionalTFSAroom}_{i(t)} = f(\text{adultchild}_{i(t)}; t) = \text{adultchild}_{i(t)} \times 1[\text{year} \geq 2009] \quad (3)$$

Importantly, all specifications reported below control flexibly for family size and household composition using family size and marital status fixed effects and their interaction.²¹ Therefore, my identification strategy involves comparing the TFSA, taxable and RRSP balances of similar families, with and without “additional TFSA room”, both before and after the introduction of the TFSA.

The difference-in-differences IV design is valid if (i) “adult child” families have larger TFSA balances than families without an “adult child” because they have more TFSA contribution room (first stage) and (ii) the counterfactual path of non-TFSA balances for “adult child” families follows the same pattern as families without adult children. Assumption (ii) is the standard parallel trends assumption. For brevity, I sometimes refer to “adult child” families as “treated families”. If assumptions (i) and (ii) hold, the estimate for β_1 is a Local Average Treatment Effect (LATE). That is, it is the average causal effect of a one percent increase in TFSA balances on non-TFSA balances for families that were induced to contribute more to their TFSA because of additional contribution room.²² I estimate the following first-stage and reduced form equations using 2SLS.

²¹To avoid small cell sizes, I group all families with seven or more members.

²²Lavaecchia (2018) estimates the causal effect of higher IRA and 401(k) limits on tax-deferred savings. To my knowledge, this is the first paper to estimate the causal effect of higher contribution limits on saving in tax pre-paid plans.

$$TFSA_{i(t)} = \pi_0 + \pi_1 \text{adultchild}_{i(t)} + \pi_2 \text{AdditionalTFSAroom}_{i(t)} + X'_{i(t)}\pi_3 + \omega_t + v_{i(t)} \quad (4)$$

$$A_{i(t)} = \alpha_0 + \alpha_1 \text{adultchild}_{i(t)} + \alpha_2 \text{AdditionalTFSAroom}_{i(t)} + X'_{i(t)}\alpha_3 + \gamma_t + e_{i(t)} \quad (5)$$

There may be remaining concerns with this identification strategy if the non-TFSA assets of treated families would have evolved differently than those of control families in the absence of the introduction of TFSAs. For example, treated families may have faced different financial or economic shocks than control families before or after 2009 that affected their willingness or ability to save. The financial crisis of 2008 and the ensuing recession are particularly noteworthy and may have affected the asset balances of these families differently. I address this concern in three ways. First, as is common in difference-in-differences designs, I visually inspect the pre-2009 trends in non-TFSA balances for both treated and control families. As shown below, it is reassuring that the pre-2009 paths for gross taxable assets and RRSPs are similar for these two groups. Second, I preform a number of robustness tests, including showing that a rich set of baseline family characteristics evolves similarly over the sample period for both treated an control families.

5.2 Results

Table 5 reports estimates of the coefficient on the “additional TFSA room” instrument (i.e. the first stage equation 4). The baseline specification in column 1 includes year fixed effects and family size fixed effects. The estimate in Panel A, column 1 can be interpreted as follows. Families with children that have additional TFSA room (because of the presence of an adult child) have TFSA balances that are 0.996 log points higher than those that do not have additional room. This difference is statistically significant at the one percent level and corresponds to approximately \$3,030 in additional TFSA assets.

The specification in column 2 augments the specification in column 1 by controlling

flexibly for family composition by interacting the family size fixed effects with marital status and education fixed effects. In this case, the estimate for π_2 implies that additional contribution room leads families to accumulate TFSA balances that are 1.072 log points higher than families that do not have additional contribution room. The specifications in columns 3-5 add additional controls for family composition. In all cases, the estimate for π_2 remains stable; the range is 0.708 to 1.346 log points (or \$1,299 to \$3,839).

Panel B of Table 5 reports estimates from specifications analogous to those in Panel A, except that the dependent variable is the TFSA ownership dummy. Across all columns, the estimates for π_2 imply that additional contribution room leads to a large increase in TFSA ownership. For example, the estimate in column 1 implies that additional contribution room increases TFSA ownership by 8.2 percentage points. To put this increase in context, the TFSA ownership rate among both treated and control families in 2012 is 31.7 percent. Thus, part of the increase in TFSA balances due to additional TFSA room is due to an extensive margin response.

Figure 4 illustrates the reduced form of my identification strategy. Figure 4a plots average log taxable financial assets over time for both treated (additional TFSA room) and control families. Figure 4b plots the same relationship for RRSP balances.²³ Both figures plot the raw data without controlling for family size or marital status and allow for an assessment of the parallel trends assumption. Across all years, families with adult children hold more taxable financial assets and RRSP assets than families with younger children. Importantly, however, the taxable financial assets and RRSP assets evolve similarly for both treated and control families between 1999 and 2005.²⁴ After the introduction of TFSA, the gap in taxable financial assets between treated and control families narrows and the gap in RRSP assets widens slightly. This is due to a slower growth rate in the taxable

²³Similar figures for taxable fixed income assets, taxable bond holdings, checking and savings account balances and net worth (going concern basis) are show in Appendix Figure B1.

²⁴I also tested whether the growth rates in taxable financial assets and RRSP assets differ between 1999 and 2005 for the treated and control groups in a regression framework. For all outcomes (including those reported in Table 7), I find no evidence that the pre-trends differ between the treated and control families.

financial asset accumulation of treated families. Taken together, Figures 4a and 4b suggest that the parallel trends assumption is plausible and that the higher TFSA balances for treated families may have been achieved by displacing saving that would otherwise have been done in taxable financial assets.

I supplement the graphical analysis by estimating the relationship between taxable financial assets, RRSP assets and TFSA balances using 2SLS. Table 6 reports estimates of the crowd-out parameter of interest, β_1 . In Panel A of Table 6, the dependent variable is log taxable financial assets and in Panel B it is log RRSP assets. The specification in column 1 includes a dummy for having an adult child, year fixed effects and family size fixed effects. In Panel A, the estimate for β_1 is -0.290 and implies that a one percent increase in TFSA balances reduces saving in taxable financial assets by 0.29 percent. However, this estimate is not statistically significant at conventional levels. Columns 2-5 add controls for family composition, the age and education of the head of household, as well as the interaction of these variables with year fixed effects. Across all specifications, the estimate for β_1 ranges between -0.4 and -0.15, with only the specification in column 4 being statistically significant at the 10 percent level.

Similarly, the estimates in Panel B suggest that additional TFSA balances have small, (mostly) positive but statistically insignificant effects on RRSP balances. It is reassuring that for both taxable financial assets and RRSP holdings that the inclusion of very flexible controls for family size and composition do not have a material effect on the coefficient estimate for β_1 . To summarize, the take-away from Table 6 is that TFSA balances do not have a statistically significant effect on overall saving in other assets.

I also explore whether the statistically insignificant estimates for β_1 in Table 6 mask heterogeneous effects in the sub-components of taxable financial assets. Taxable financial assets are comprised of saving in checking and savings accounts, GICs (certificates of deposit), Canada Savings Bonds (CSBs), holdings in other marketable bonds, as well as stock and mutual fund holdings. The variance of stock and mutual fund holdings is larger

than the other components of taxable financial assets. Consequently, it may be the case that some of the other components of taxable financial assets respond to increased TFSA balances but are not detectable in the aggregate.

The estimates in Table 7 suggests that this is the case. Specifically, Table 7 reports estimates of β_1 for several components of taxable financial assets. All specifications include year fixed effects and family size, marital status and education fixed effects (i.e. the specification in column 3 of Table 6). The dependent variable in column 1 is total fixed income assets, which is comprised of holdings in checking and savings accounts, GICs, CSBs and other marketable bonds. The coefficient estimate for β_1 is -0.308 and is statistically significant at the 5 percent level. The estimates in columns 2 and 3 show that this decline is driven primarily by a decline in holdings in checking and savings accounts. In particular, a one percent increase in TFSA balances leads to a statistically significant -0.27 percent decline in checking and savings account balances.

The dollar crowd-out estimates implied by these elasticities are sensitive to where they are evaluated in the asset distribution. With this caveat in mind, I convert the elasticities for the dependent variables that are statistically significant into dollar values; I assume they are evaluated at the 2012 means for the sub-sample of treated and control families. In 2012, the mean TFSA and taxable fixed income balance is \$4,125 and \$20,875, respectively. At these means, the dollar crowd-out estimate for taxable fixed income assets is $-0.308 \times (20,875 / 4,125) = -1.56$.²⁵ This estimate implies that the introduction of TFSA led to less private saving, at least among those induced to contribute more because of additional TFSA room (i.e. the group of compliers).

To summarize, the evidence in Tables 6 and 7 suggests that higher TFSA balances have a statistically insignificant effect on RRSP balances, but lead to a decline in taxable fixed income assets. The decline in the latter is driven by lower holdings in checking and savings accounts, and to a lesser extent, bonds. Appendix Tables B7 and B8 show

²⁵A similar calculation for holdings in checking and savings accounts leads to a dollar crowd-out estimate of $-0.267 \times (13,386 / 4,125) = -0.86$.

that higher TFSA contribution room also leads to a decline in the probability of owning taxable fixed income assets (i.e. an extensive margin effect). Thus, at least part of the stock of TFSA balances accumulated during the initial years of the program was achieved by crowding out saving in liquid taxable assets. This result may not be surprising given that there are no restrictions on withdrawals from TFSAs, and that the account was marketed as a multi-purpose savings vehicle.

The evidence in Tables 6 and 7 is consistent with the predictions of standard models of saving and asset location. In these models, households minimize their tax burden by holding relatively heavily taxed fixed income assets in tax-exempt accounts and holding equities in non-registered accounts (Mintz and Smart (2002), Poterba (2002), Shoven and Sialm (2003), Dammon, Spatt, and Zhang (2004)). The estimates in Table 7 provide suggestive evidence that some families may have been following this strategy in the years after the introduction of the TFSA. A recent survey by the Bank of Montreal found that 80 percent of TFSA owners held cash, GICs and bonds in their TFSA, further supporting the plausibility of this mechanism (Bank of Montreal (2015)).

5.3 Robustness

The validity of the crowd-out estimates discussed in the previous section relies on the assumption that the taxable and RRSP assets of treated and control group families would have evolved similarly in the absence of the introduction of TFSAs. There are a number of reasons why this assumption may fail to hold. For example, the parallel trends assumption may fail if the amount that families in the treatment group contribute towards their children's postsecondary education increases over time. In this case, I may attribute a decline in taxable financial assets to TFSA balances, when in fact all or part of this decline would be because families use these assets to help pay for tuition or other postsecondary expenses.

I check whether possible increases in expenditures for postsecondary education ex-

plain the results from the previous section by directly controlling for whether families have children enrolled in college or university. Specifically, I add a dummy variable for whether the family has a child enrolled in postsecondary education to the specification in column 3 of Table 6. The results are reported in Table 8. Reassuringly, the estimates for the crowd-out parameter β_1 are almost identical to those in Tables 6 and 7. For example, the estimate in of -0.205 in column 1 implies that a one percent increase in TFSA balances leads to a 0.21 percent decline in taxable financial assets; this estimate is statistically significant at the 10 percent level. Similarly, the estimates for RRSP assets, taxable fixed income assets, bonds and holdings in checking and savings accounts are unchanged.

As another robustness check, I check whether my estimates of the crowd-out parameter change when the sample is restricted to families with children between the ages of 15 and 21. Recall that the thought experiment described in Section 5.1 involved comparing the savings of two families that differed only in the age of their children; one had a child that was 17 years old while the other had a child that was 18 years old. However, my baseline sample is all families with children. Thus, the control group includes families with minors that range from newborns to 17 year olds, and the treated group includes families with adult children that are older than 18. Restricting the sample to families with children between the ages of 15 and 21 better approximates the thought experiment described above. The cost of restricting the sample in this way is that the sample size falls from 13,444 to 3,779.

One consequence of the smaller sample size is more imprecision in both the first stage estimates and in my estimate of the crowd-out parameter. For example, although the sign and magnitude of the first-stage estimates do not change, the first stage F-statistic for the relevance of the instrument falls from 54.87 to 6.34 in my preferred specification (i.e. the specification in column 3 of Table 6). Table B9 in the Appendix reports estimates of the crowd-out parameter β_1 when the sample is restricted to families with children between the ages of 15 and 21. Although none of the estimates are statistically significant

at conventional levels, the coefficient estimates for taxable financial assets, RRSP assets, taxable fixed income assets, taxable bond holdings and checking and savings account holdings are similar in sign and magnitude to those reported in Tables 6 and 7.

I also check whether higher TFSA balances predicts changes in baseline family characteristics such as immigrant status, education and income. The idea is that if the identification assumption holds, then higher TFSA balances should not be related to predetermined family characteristics. Specifically, I estimate equations (4) and (5) using 2SLS and control for family size fixed effects only. The results are reported in Table B10 in the Appendix. It is reassuring that higher TFSA balances only predict a small statistically significant change in one of the 10 baseline characteristics I consider; the likelihood that a household head has a university degree. However, as I show in Tables 6 and 7, controlling directly for education attainment and its interaction with year fixed effects does not have much of an effect on my estimate of the crowd-out parameter. I conclude that my baseline results are reasonably robust and that it is likely that higher TFSA balances displace saving in taxable fixed income assets, especially holdings in checking and savings accounts.

6 Conclusion

This paper presents new evidence on the take-up of TFSAs, a tax-preferred savings account introduced in Canada in 2009. Using information on TFSA ownership, balances and a rich set of individual and family characteristics from the 2012 SFS, I characterize the profile of TFSA owners. I find evidence of modest take-up of TFSAs among younger, moderate income families that likely face disincentives to save in traditional tax-deferred accounts. The account is extremely popular among older, highly educated, high wealth families, especially those that are constrained by the annual contribution limit for tax-deferred savings accounts. The latter group, although about only five percent of the pop-

ulation, comprises a larger fraction of TFSA owners and balances than the former group. This casts doubt on the likelihood that potential future TFSA limit increases will encourage saving for most Canadians.

I exploit plausibly exogenous variation in the maximum amount a family can contribute to a TFSA each year to estimate the causal effect of account balances on other saving. My estimates suggest that TFSA balances crowd-out (displace) saving that would otherwise be done in taxable financial assets. This effect is driven by a decline in taxable fixed income assets and checking and savings accounts. One important caveat, mentioned earlier, is that the crowd-out estimates are a LATE for families that are induced to accumulate larger TFSA balances because of more contribution room. This LATE may not be generalizable to other families.

These findings have important implications for the policy debate on the merits of increasing the TFSA limit. For example, on the grounds that further increases in the annual contribution limit will disproportionately benefit the wealthy with little net new saving, [Kesselman \(2015\)](#) argues that annual contribution limit should remain at \$5,000. He also argues that the TFSA contribution limit should be linked to the annual limit for tax-deferred accounts. My results suggest that while the TFSA is popular among middle-class and high income households, average account balances imply that these families are currently contributing far less than \$5,000 per year. Moreover, if the LATE I estimate in Section 5 is generalizable to other families then most TFSA balances accumulated to date do not represent new saving.

References

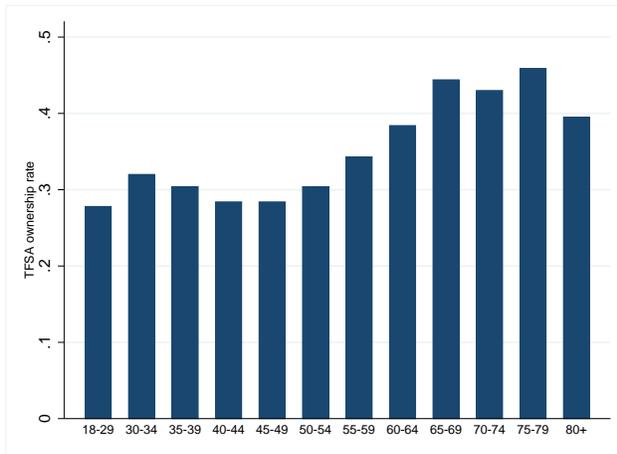
- AL ZAMAN, A. (2017): "The Distributional Impacts of Canada's Tax-Free Savings Accounts," *Canadian Public Policy*, 43(4), 331–349.
- BANK OF MONTREAL (2015): "BMO Annual TFSA REport: Contributions Expected to Rise 34 Percent," Web, <https://newsroom.bmo.com/press-releases/bmo-annual-tfsa-report-contributions-expected-to-tsx-bmo-201411060977357001>.
- BERNHEIM, B. D. (2002): "Taxation and Saving," in *Handbook of Public Economics*, ed. by A. J. Auerbach, and M. Feldstein, vol. 3, pp. 1173–1249. Elsevier.
- BESHEARS, J., J. J. CHOI, D. I. LAIBSON, AND B. MADRIAN (2014): *Discoveries in the Economics of Aging*chap. Who Uses the Roth 401(k) and How Do They Use It?, pp. 411–440. University of Chicago Press.
- (2015): "Does Front-Loading Taxation Increase Savings? Evidence from Roth 401(k) Introductions," *Journal of Public Economics*.
- CHETTY, R., J. N. FRIEDMAN, S. LETH-PETERSEN, T. H. NIELSEN, AND T. OLSEN (2014): "Active vs. Passive Decisions and Crowd-out in Retirement Savings Accounts: Evidence from Denmark," *Quarterly Journal of Economics*, 129(3), 1141–1219.
- DAMMON, R. M., C. S. SPATT, AND H. H. ZHANG (2004): "Optimal Asset Location and Allocation with Taxable and Tax-Deferred Investing," *Journal of Finance*, 59(3), 999–1038.
- DEPARTMENT OF FINANCE CANADA (2008): "The Budget Plan 2008: Responsible Leadership," .
- (2014): "Tax Expenditures and Evaluations: Part 2 - Tax-Free Savings Accounts: A Profile of Account Holders," Web. <http://www.fin.gc.ca/taxexp-depfisc/2012/taxexp1202-eng.asp>.

- DONNELLY, M., AND A. YOUNG (2012): "Policy Forum: Tax-Free Savings Accounts - A Cautionary Tale from the UK Experience," *Canadian Tax Journal*, 60(2), 361–374.
- FRIEDMAN, J. N. (2016): "Tax Policy and Retirement Savings," in *The Economics of Tax Policy*, ed. by A. J. Auerbach, and K. Smetters, chap. 10. Oxford University Press.
- GALE, W. G., AND J. K. SCHOLZ (1994): "IRAs and Household Saving," *American Economic Review*, 84(5), 1233–1260.
- GELBER, A. M. (2011): "How do 401(k)s Affect Saving? Evidence from Changes in 401(k) Eligibility," *American Economic Journal: Economic Policy*, 3(1), 103–122.
- HER MAGESTY'S REVENUES AND CUSTOMS (2007): "Individual Attitudes to Saving: Effects of ISAs on People's Saving Behaviour," Discussion paper, London, UK.
- HOLDEN, S., AND D. SCHRASS (2014): "The IRA Investor Profile: Roth IRA Investors' Activity, 2007-2012," ICI research report, Investment Company Institute, www.ici.org/pdf/rpt_14_ira_roth-investors.pdf.
- HRUNG, W. B. (2007): "Determinants of the Choice between Roth and Deductible IRAs," *Journal of the American Taxation Association*, 29(1), 27–42.
- KESSELMAN, J., AND F. POSCHMANN (2001): "A New Option for Retirement Savings: Tax-Prepaid Savings Plans," C.D. Howe Institute Commentary 149, C.D. Howe Institute.
- KESSELMAN, J. R. (2015): "Expanding Tax-Free Savings Accounts - Doubly Troubling," Research Paper 7, Simon Fraser University School of Public Policy.
- LAVAECCIA, A. (2018): "Do 'Catch-up Limits' Raise Retirement Saving? Evidence from a Regression Discontinuity Design," *National Tax Journal*, forthcoming.
- MILLIGAN, K. (2002): "Tax-Preferred Savings Accounts and Marginal Tax Rates: Evidence on RRSP Participation," *Canadian Journal of Economics*, 35(3), 436–456.

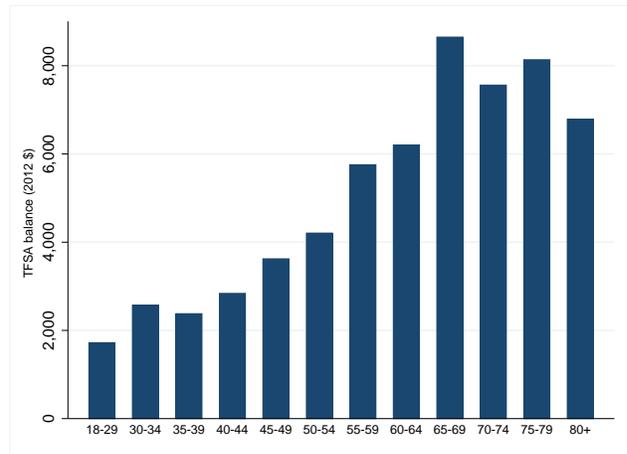
- (2012): “Policy Forum: The Tax-Free Savings Account - Introduction and Simulations of Potential Revenue Costs,” *Canadian Tax Journal*, 60(2), 355–360.
- MINTZ, J., AND M. SMART (2002): “Tax-exempt investors and the asset allocation puzzle,” *Journal of Public Economics*, 83(2), 195–215.
- PENCE, K. M. (2006): “The Role of Wealth Transformations: An Empirical Application to Estimating the Effect of Tax Incentives on Saving,” *B.E. Journal of Economic Analysis and Policy: Contributions to Economic Analysis and Policy*, 5(1), 1–24.
- PLAN SPONSOR COUNCIL OF AMERICA (2014): “PSCA’s Annual Survey Shows Company Contributions Are Bouncing Back,” Web, <http://www.pscs-a-annual-survey-shows-company-contributions-are-bouncing-back>.
- POSCHMANN, F. (2012): “Policy Forum: Why We Should Not Fear Expansion of Tax-Free Savings Accounts,” *Canadian Tax Journal*, 60(2), 391–399.
- POTERBA, J. M. (2002): “Taxation, Risk-taking, and Household Portfolio Behavior,” in *Handbook of Public Economics*, ed. by A. J. Auerbach, and M. Feldstein, vol. 3, pp. 1109–1171. Elsevier.
- SHAW, T. (2015): “The Tax-Free Savings Account,” Discussion paper, Office of the Parliamentary Budget Officer.
- SHOVEN, J. B., AND C. SIALM (2003): “Asset location in tax-deferred and conventional savings accounts,” *Journal of Public Economics*, 88(1-2), 23–38.
- VENTI, S. F., AND D. A. WISE (1990a): “The Determinants of IRA Contributions and the Effect of Limit Changes,” NBER Working Paper 1731, National Bureau of Economic Research, Cambridge, MA.
- (1990b): “Have IRAs Increased US Saving? Evidence from Consumer Expenditure Surveys,” *Quarterly Journal of Economics*, 105(3), 661–698.

Figure 1: TFSA ownership and balances by age of SFS reference person

(a) TFSA ownership rates

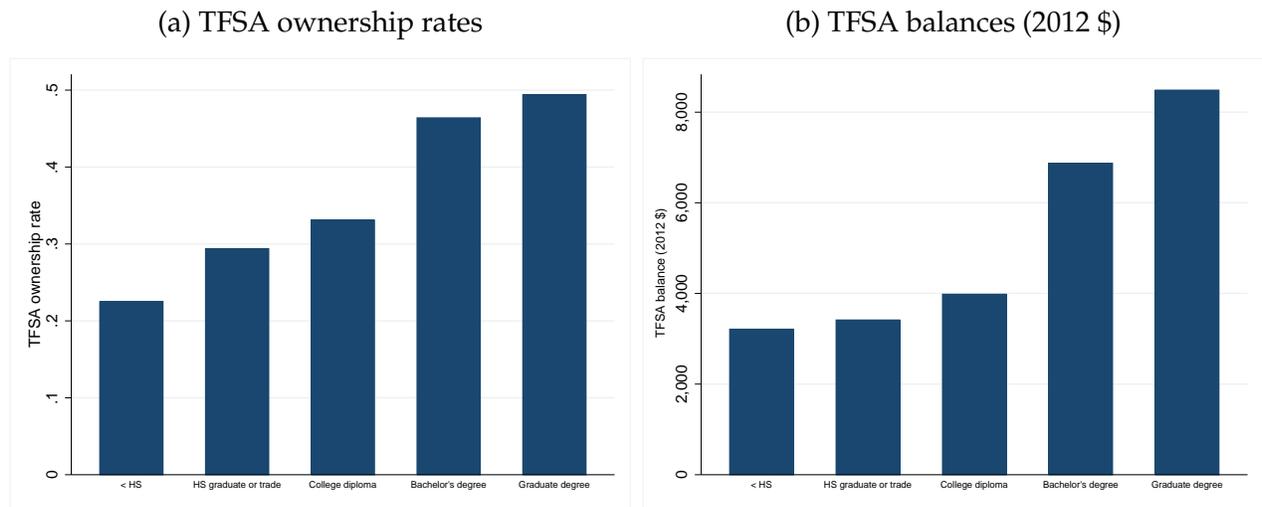


(b) TFSA balances (2012 \$)



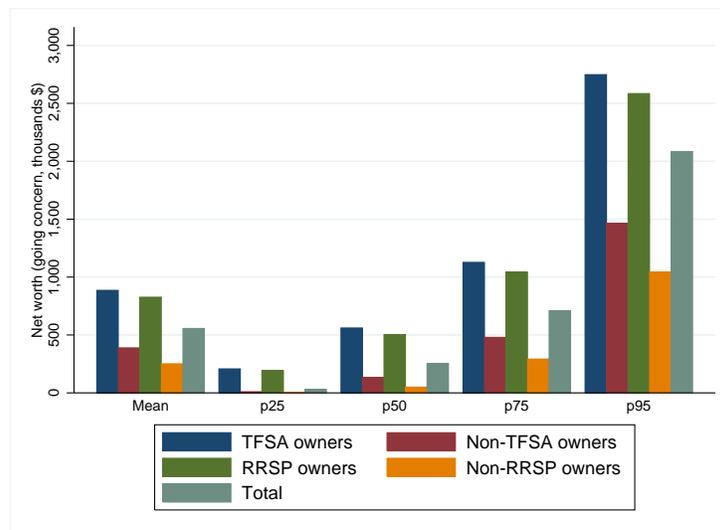
Notes: All dollar values are inflated to 2012 levels using the Consumer Price Index. Figure 1a shows TFSA ownership rates by the age of the family's SFS reference person. Figure 1b shows average TFSA balances by the age of the SFS reference person.

Figure 2: TFSA ownership and balances by education attainment of SFS reference person



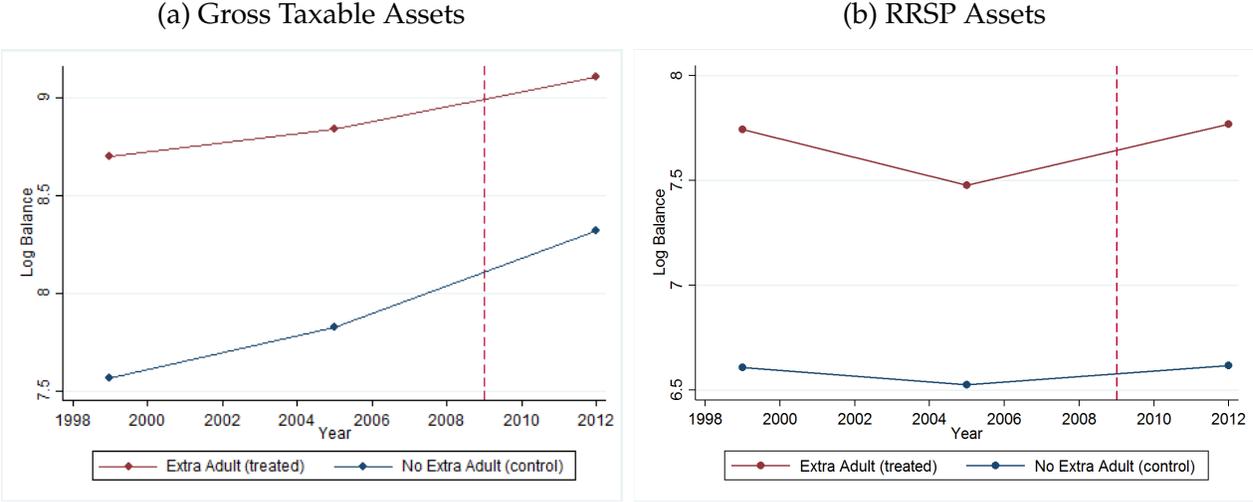
Notes: All dollar values are inflated to 2012 levels using the Consumer Price Index. Figure 1a shows TFSA ownership rates by the age of the family's SFS reference person. Figure 1b shows average TFSA balances by the age of the SFS reference person.

Figure 3: Net worth of TFSA owners and RRSP owners



Notes: All dollar values are inflated to 2012 levels using the Consumer Price Index.

Figure 4: Taxable and RRSP Assets for “Additional TFSA room” and “Non-additional TFSA room” Families



Notes: All dollar values are inflated to 2012 levels using the Consumer Price Index. Figure 4a plots average (log) gross taxable financial assets for “additional TFSA room (treated)” and “non-additional TFSA room” families, whereas Figure 4b plots average (log) RRSP balances for the same families. Taxable financial assets are comprised of holdings in stocks, mutual funds, checking and savings accounts, guaranteed investment certificates (GICs), Canada Savings Bonds, as well as holdings in marketable bonds. The dashed line represents the introduction of the TFSA in 2009.

Table 1: Basic facts about TFSA ownership and balances

	TFSA ownership rate	TFSA balance (\$)
	<i>Full sample</i>	
Mean	0.337	4,527
Standard deviation	0.473	10,178
p25	0.000	0
p50	0.000	0
p75	1.000	3,000
p90	1.000	20,000
p95	1.000	25,093
	<i>TFSA owners</i>	
Mean	1.000	13,430
Standard deviation	0.000	13,706
p25	1.000	2,800
p50	1.000	10,000
p75	1.000	20,000
p90	1.000	30,000
p95	1.000	40,000

Notes: All summary statistics use the sample weights provided in the 2012 Survey of Financial Security. The values for TFSA ownership rates are rounded to 3 decimal places. The values for TFSA balances are rounded to the nearest dollar. The sum of the sample weights is 14,570,110 and is nationally representative for Canadians in the 10 provinces. The number of families that own a TFSA is therefore $0.337 \times 14,570,110 = 4,910,127$. The sum of TFSA balances in 2012 is approximately \$66 billion.

Table 2: Characteristics of TFSA and RRSP owners

	TFSA owner (1)	TFSA balance (2)	RRSP owner (3)	RRSP balance (4)
age 30-34	-0.031 (0.031)	-730 (520)	0.050* (0.030)	-14,043*** (3,041)
age 35-39	-0.060* (0.032)	-1,342*** (388)	0.090*** (0.028)	-8,605** (3,656)***
age 40-44	-0.066** (0.029)	-655 (407)	0.124*** (0.030)	3,031 (3,863)
age 45-49	-0.065** (0.027)	42 (431)	0.137*** (0.027)	24,601*** (4,477)
age 50-54	-0.046* (0.026)	618 (409)	0.178*** (0.025)	30,599*** (4,132)
age 55-59	-0.010 (0.027)	2,058*** (477)	0.205*** (0.025)	64,683*** (7,570)
age 60-64	0.053* (0.028)	3,121*** (457)	0.217*** (0.028)	74,107*** (6,387)
age 65-69	0.126*** (0.028)	5,824*** (747)	0.191*** (0.025)	79,040*** (7,996)
age 70-74	0.153*** (0.031)	5,571*** (595)	0.032 (0.030)	47,843*** (6,768)
age 75-79	0.187*** (0.034)	6,277*** (640)	-0.134*** (0.029)	20,851*** (4,485)
age 80+	0.162*** (0.030)	5,919*** (530)	-0.122*** (0.028)	20,244*** (4,094)
HS grad or trade	0.080*** (0.016)	1,073*** (274)	0.100*** (0.018)	19,020*** (2,811)
College diploma	0.116*** (0.018)	1,866*** (314)	0.135*** (0.020)	19,686*** (2,922)
Bachelor's degree	0.221*** (0.022)	4,080*** (463)	0.185*** (0.022)	40,464*** (4,668)
Graduate degree	0.223*** (0.027)	4,710*** (630)	0.143*** (0.026)	71,606*** (9,708)
2nd Inc. Quintile	0.119*** (0.021)	1,468*** (268)	0.213*** (0.022)	11,738*** (3,049)
3rd Inc. Quintile	0.179*** (0.022)	2,197*** (305)	0.363*** (0.022)	17,640*** (2,953)
4th Inc. Quintile	0.246*** (0.023)	3,580*** (374)	0.531*** (0.021)	42,088*** (3,508)
5th Inc. Quintile	0.338*** (0.025)	7,070*** (507)	0.628*** (0.023)	120,968*** (6,11)
R^2	0.112	0.150	0.326	0.173

Notes: N = 11,996. All dollar values are inflated to 2012 levels using the Consumer Price Index. The sample is all 2012 SFS families whose reference person is over the age of 18. All specifications use sample weights provided by the SFS. The following additional characteristics are included in all columns but are omitted for brevity: family size and marital status fixed effects, immigrant status, francophone status, self-employment status and province of residence dummies. Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Characteristics of Various Groups of Tax-Preferred Savings Account Owners

	TFSA owner only (1)	RRSP owner only (2)	TFSA and RRSP owner (3)
age 30-34	-0.032 (0.021)	0.049* (0.027)	0.001 (0.027)
age 35-39	-0.049** (0.022)	0.101*** (0.026)	-0.011 (0.026)
age 40-44	-0.051*** (0.019)	0.139*** (0.029)	-0.015 (0.025)
age 45-49	-0.070*** (0.016)	0.131*** (0.025)	0.005 (0.024)
age 50-54	-0.073*** (0.016)	0.152*** (0.025)	0.027 (0.023)
age 55-59	-0.074*** (0.015)	0.140*** (0.024)	0.065*** (0.024)
age 60-64	-0.066*** (0.016)	0.098*** (0.025)	0.119*** (0.025)
age 65-69	-0.045*** (0.016)	0.020 (0.025)	0.171*** (0.026)
age 70-74	0.119*** (0.025)	-0.002 (0.026)	0.034 (0.024)
age 75-79	0.239*** (0.029)	-0.083*** (0.024)	-0.052** (0.024)
age 80+	0.192*** (0.026)	-0.093*** (0.022)	-0.029 (0.023)
HS grad or trade	0.027** (0.012)	0.047*** (0.018)	0.053*** (0.013)
College diploma	0.032** (0.012)	0.051*** (0.020)	0.084*** (0.015)
Bachelor's degree	0.052*** (0.015)	0.016 (0.022)	0.169*** (0.019)
Graduate degree	0.025 (0.015)	-0.055** (0.025)	0.198*** (0.024)
2nd Inc. Quintile	0.011 (0.017)	0.105*** (0.019)	0.109*** (0.016)
3rd Inc. Quintile	-0.001 (0.016)	0.184*** (0.019)	0.179*** (0.018)
4th Inc. Quintile	-0.021 (0.016)	0.264*** (0.021)	0.267*** (0.019)
5th Inc. Quintile	-0.046*** (0.017)	0.245*** (0.023)	0.384*** (0.021)
R^2	0.099	0.117	0.149

Notes: N = 11,996. All dollar values are inflated to 2012 levels using the Consumer Price Index. The sample is all 2012 SFS families whose reference person is over the age of 18. All specifications use sample weights provided by the SFS. The following additional characteristics are included in all columns but are omitted for brevity: family size and marital status fixed effects, immigrant status, francophone status, self-employment status and province of residence dummies. Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: Are Families Constrained By the RRSP Limit More Likely to Be TFSA Owners?

	TFSA owner		TFSA balance (\$)	
	(1)	(2)	(3)	(4)
RRSP limit	0.057 (0.037)	0.052 (0.035)	600 (501)	469 (500)
has taxable	0.289*** (0.017)	0.220*** (0.018)	6,223*** (359)	4,328*** (336)
has taxable*RRSP limit	0.068 (0.062)	0.080 (0.059)	1,392 (1,271)	1,302 (1,305)
Constant	0.228*** (0.009)	0.071 (0.051)	1,876*** (116)	-1,053*** (297)
Other Controls	N	Y	N	Y
R^2	0.082	0.149	0.097	0.201

Notes: N = 8,703. The sample is all 2012 SFS families whose reference person is between the ages of 18 and 64.. All specifications use sample weights provided by the SFS. The other controls include: family size and marital status fixed effects, immigrant status, francophone and province of residence dummies, a cubic term in before tax family income and fully interacted age group and education category dummies.

Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: The Effect of More Contribution Room on TFSA Balances (First-Stage Estimates)

	(1)	(2)	(3)	(4)	(5)
A. Log TFSA Balance (2012 Mean: \$4,125)					
$\text{adultchild}_{i(t)} \times 1[\text{year} \geq 2009]$	0.996*** (0.189)	1.072*** (0.185)	1.346*** (0.182)	1.313*** (0.180)	0.708*** (0.240)
B. TFSA ownership dummy (2012 Mean: 0.317)					
$\text{adultchild}_{i(t)} \times 1[\text{year} \geq 2009]$	0.082*** (0.020)	0.088*** (0.020)	0.116*** (0.019)	0.113*** (0.019)	0.081*** (0.026)
HH size FE	Y	Y	Y	Y	Y
HH size \times marital status \times Educ FE	N	Y	N	N	N
HH size \times marital status \times Educ \times Year FE	N	N	Y	N	N
Age+HH size \times marital status \times Educ \times Year FE	N	N	N	Y	N
Age \times Year FE + HHsize \times marital status \times Educ \times Year FE	N	N	N	N	Y

Notes: N = 13,444. The sample is all 1999, 2005 and 2012 SFS families with children. All specifications use sample weights provided by the SFS. All specifications include dummies for family size (1 to 7 members (1 member being the omitted category)). Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Do TFSA Balances Displace Other Saving?

	(1)	(2)	(3)	(4)	(5)
A. Log Taxable Financial Assets (2012 Mean: \$51,570)					
Log TFSA Balance	-0.290 (0.200)	-0.141 (0.165)	-0.156 (0.133)	-0.234* (0.137)	-0.409 (0.400)
adultchild _{<i>i(t)</i>}	1.186*** (0.118)	1.339*** (0.117)	1.340*** (0.109)	0.268** (0.130)	0.304* (0.156)
B. Log RRSP Assets (2012 Mean: \$61,537)					
Log TFSA Balance	0.068 (0.293)	0.228 (0.254)	0.157 (0.201)	0.086 (0.201)	-0.607 (0.644)
adultchild _{<i>i(t)</i>}	1.279*** (0.184)	1.596*** (0.176)	1.622*** (0.166)	0.276 (0.204)	0.419* (0.241)
HH size FE	Y	Y	Y	Y	Y
HH size × marital status × <i>Educ FE</i>	N	Y	N	N	N
HH size × marital status × <i>Educ</i> × <i>Year FE</i>	N	N	Y	N	N
Age+HH size × marital status × <i>Educ</i> × <i>Year FE</i>	N	N	N	Y	N
Age × <i>Year FE</i> + HHsize × marital status × <i>Educ</i> × <i>Year FE</i>	N	N	N	N	Y
F-statistic (First-stage)	27.70	33.53	54.87	53.05	8.66

Notes: N = 13,444. The sample is all 1999, 2005 and 2012 SFS families with children. All specifications use sample weights provided by the SFS. All specifications include dummies for family size (1 to 7 members (1 member being the omitted category)). Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Heterogeneity in the Crowding Out of Taxable Financial Assets

	Total Fixed Income (1)	Bonds (2)	Checking/Saving (3)	Net Worth (going concern) (4)
Log TFSA Balance	-0.308** (0.138)	-0.200 (0.157)	-0.267** (0.135)	-0.239 (0.206)
adultchild _{<i>i(t)</i>}	1.317*** (0.108)	1.038*** (0.135)	1.230*** (0.107)	1.918*** (0.142)

Notes: N = 13,444. The sample is all 1999, 2005 and 2012 SFS families with children. All specifications use sample weights provided by the SFS. All specifications include full interactions of household (family) size, marital status, education of the reference person and year (corresponds to specification 3 in the previous table). The first-stage F-statistic is 54.87. Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: Child in Postsecondary Education Robustness: Do TFSA Balances Displace Other Saving?

	Taxable Financial Assets (1)	RRSP As- sets (2)	Total Fixed Income Assets (3)	Bonds (4)	Checking/ Saving (5)	Net Worth (going concern) (6)
Log TFSA Balance	-0.205* (0.105)	0.206 (0.145)	-0.278*** (0.105)	-0.081 (0.124)	-0.278*** (0.103)	-0.074 (0.135)
adultchild _{<i>i(t)</i>}	1.199*** (0.087)	0.969*** (0.122)	1.123*** (0.085)	0.738*** (0.102)	1.079*** (0.083)	1.629*** (0.109)
Child in PSE	0.587*** (0.084)	1.206*** (0.120)	0.564*** (0.083)	0.687*** (0.104)	0.463*** (0.081)	0.635*** (0.098)

Notes: N = 13,444. The sample is all 1999, 2005 and 2012 SFS families with children. All specifications use sample weights provided by the SFS. All specifications include full interactions of household (family) size, marital status, education of the reference person and year (corresponds to specification 3 in Table 6). Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

A Comparison of TFSAs with other tax pre-paid savings plans

TFSAs share some similarities with tax pre-paid savings plans introduced in other developed countries over the past 15 years. In the United States, Roth IRAs are a tax pre-paid retirement savings account offered by financial institutions. Unlike TFSAs, contributions to Roth IRAs are earmarked for retirement consumption and withdrawals before age 59.5 incur a 10 percent penalty. Moreover, the Roth IRA contribution limit is linked to an individual's traditional tax-deferred limit.²⁶

The *Economic Growth and Tax Relief Reconciliation Act* allows employers to offer a tax pre-paid option as part of their defined contribution pension plan. Annual contributions for eligible employees are typically made through regular payroll deductions and are often supplemented by an employer match. Similar to tax-deferred pension plans, employee contributions are capped at \$18,000 in 2015. Initial evidence suggests that Roth 401(k)s have been extremely popular; in 2011 more than 49 percent of firms offering a defined contribution pension plan also offered a Roth option ([Plan Sponsor Council of America \(2014\)](#)).

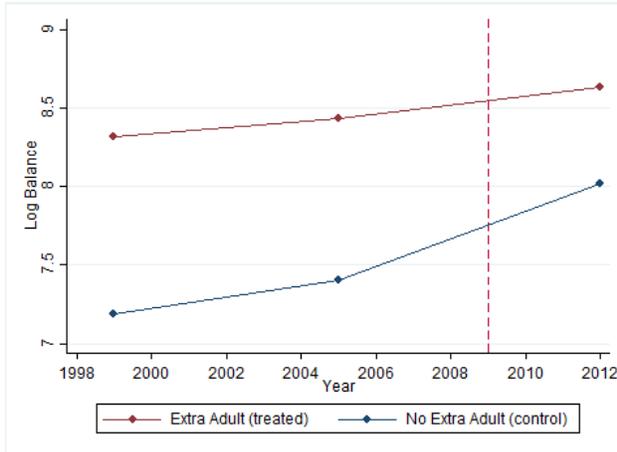
TFSAs are most similar to the U.K. Individual Savings Accounts (ISA). Savers can open an ISA with a bank, credit union or stock broker. Like TFSAs, annual ISA contributions not tax-deductible and are capped at £15,000. Interest accumulates tax-free and withdrawals are both unrestricted and untaxed. Another similarity between ISAs and TFSAs is that both accounts are designed to encourage saving for a variety of life-cycle needs, not just retirement.

²⁶In 2017, the joint Roth IRA and tax-deferred IRA contribution limit is \$5,500 for individuals under the age of 50 and \$6,500 for those over the age of 50.

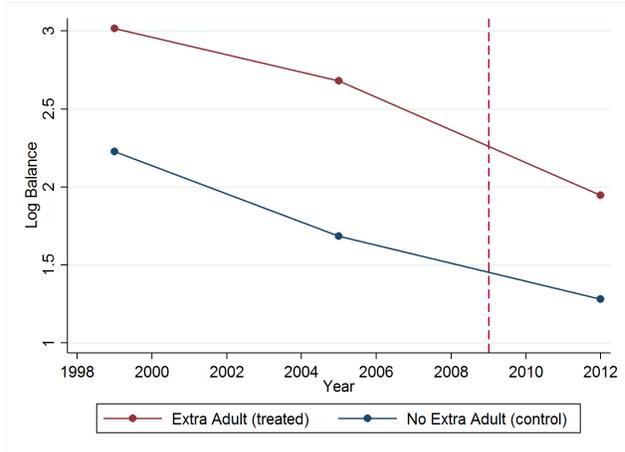
B Appendix Tables and Figures

Figure B1: Non-TFSA Assets for “Extra Adult” and “Non-Extra Adult” Families

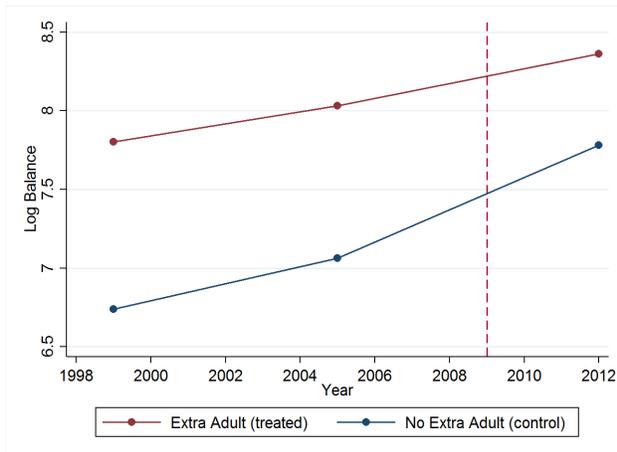
(a) Fixed Income Asset Balances



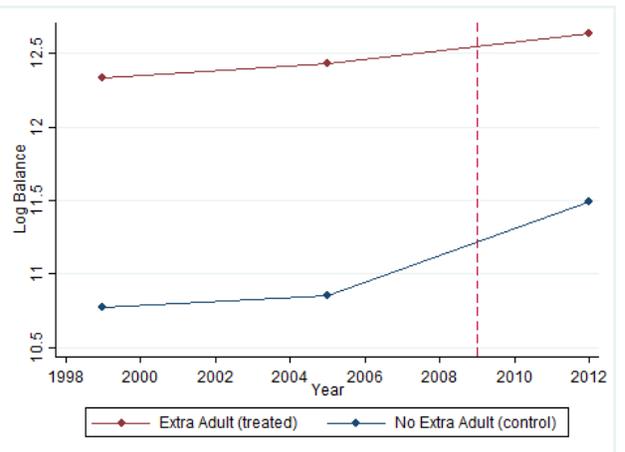
(b) Bond Holdings



(c) Checking and Savings Account Balances



(d) Net Worth (going concern)



Notes: All dollar values are inflated to 2012 levels using the Consumer Price Index. Figure B1a plots average (log) fixed income asset balances for “additional TFSA room (treated)” and “non-additional TFSA room” families over time. Figures B1b, B1c and B1d plot the same relationship for log bond holdings, log checking and savings account balances and log net worth (going concern), respectively. The dashed line represents the introduction of the TFSA in 2009.

Table B1: TFSA ownership rates by age and family income quintile

Age Group	Family Income Quintile					Total
	1	2	3	4	5	
18-29	0.186	0.279	0.382	0.438	0.494	0.278
30-34	0.158	0.219	0.321	0.391	0.620	0.320
35-39	0.137	0.263	0.266	0.367	0.442	0.304
40-44	0.201	0.159	0.289	0.282	0.448	0.284
45-49	0.183	0.183	0.232	0.244	0.495	0.284
50-54	0.132	0.216	0.278	0.390	0.421	0.304
55-59	0.152	0.339	0.278	0.401	0.510	0.343
60-64	0.193	0.336	0.449	0.419	0.633	0.384
65-60	0.238	0.392	0.546	0.552	0.655	0.444
70-74	0.205	0.432	0.624	0.561	0.624	0.430
75-79	0.304	0.446	0.578	0.554	0.704	0.459
80+	0.195	0.460	0.538	0.625	0.746	0.395
Total	0.187	0.309	0.368	0.391	0.508	0.337

Notes: The sample is 2012 SFS families whose reference person is over the age of 18.

Table B2: Mean TFSA balances rates by age and family income quintile

Age Group	Family Income Quintile					Total
	1	2	3	4	5	
18-29	785	1,741	1,571	4,782	4,652	1,721
30-34	494	846	2,221	2,388	10,516	2,571
35-39	186	1,393	2,104	2,885	4,727	2,378
40-44	1,376	920	1,731	2,151	7,319	2,839
45-49	1,387	942	2,315	2,507	8,915	3,623
50-54	888	2,213	2,140	5,548	7,961	4,206
55-59	1,537	4,514	3,900	5,980	11,488	5,755
60-64	2,564	4,002	6,754	7,194	13,534	6,202
65-60	3,317	6,702	10,271	9,636	20,213	8,649
70-74	2,499	6,662	11,113	13,236	13,719	7,561
75-79	3,307	7,293	12,564	11,678	14,758	8,137
80+	2,443	6,724	10,863	13,746	19,704	6,788
Total	1,578	3,550	4,584	5,140	9,709	4,527

Notes: The sample is all 2012 SFS families whose reference person is over the age of 18. All dollar amounts are inflated to 2012 levels using the Consumer Price Index.

Table B3: RRSP ownership rates by age and family income quintile

Age Group	Family Income Quintile					Total
	1	2	3	4	5	
18-29	0.094	0.400	0.517	0.688	0.750	0.321
30-34	0.125	0.449	0.484	0.779	0.872	0.522
35-39	0.088	0.387	0.643	0.754	0.888	0.583
40-44	0.247	0.434	0.617	0.715	0.892	0.609
45-49	0.212	0.416	0.548	0.780	0.948	0.631
50-54	0.303	0.479	0.651	0.853	0.878	0.665
55-59	0.230	0.589	0.751	0.878	0.926	0.688
60-64	0.321	0.610	0.734	0.820	0.934	0.651
65-60	0.217	0.531	0.800	0.828	0.929	0.606
70-74	0.139	0.400	0.484	0.621	0.674	0.380
75-79	0.096	0.159	0.281	0.417	0.466	0.211
80+	0.071	0.182	0.240	0.253	0.350	0.161
Total	0.169	0.421	0.592	0.764	0.885	0.530

Notes: The sample is all 2012 SFS families whose reference person is over the age of 18.

Table B4: Mean RRSP balances rates by age and family income quintile

Age Group	Family Income Quintile					Total
	1	2	3	4	5	
18-29	383	3,549	6,469	18,080	29,149	5,206
30-34	587	6,677	8,291	21,942	49,413	14,339
35-39	5,697	5,467	14,262	39,715	77,302	29,773
40-44	10,172	9,074	23,077	42,649	97,649	39,418
45-49	10,579	14,175	24,937	58,616	167,810	63,975
50-54	15,664	32,009	30,992	75,508	152,646	70,124
55-59	13,567	61,740	47,987	93,271	264,682	104,183
60-64	22,142	51,665	88,186	126,891	278,936	99,034
65-60	21,705	55,823	107,145	130,210	309,485	99,728
70-74	4,460	42,719	67,548	120,118	197,398	55,789
75-79	5,544	9,379	28,540	76,294	100,311	24,598
80+	3,630	7,813	30,256	27,393	43,010	12,664
Total	8,386	24,005	37,891	65,911	164,828	52,745

Notes: The sample is all 2012 SFS families whose reference person is over the age of 18. All dollar amounts are inflated to 2012 levels using the Consumer Price Index.

Table B5: Share of SFS Families Constrained by the RRSP limit with Taxable Assets

Year	No limit/taxable assets (1)	Taxable assets only (2)	RRSP limit (3)	RRSP limit and taxable assets (4)
1999	0.597	0.351	0.031	0.021
2005	0.640	0.292	0.048	0.019
2012	0.693	0.254	0.036	0.017

Notes: The sample is all 1999, 2005 and 2012 SFS families whose reference person is between the ages of 18 and 64.

Table B6: TFSA Ownership Hypothesis 2: Characteristics of Families

	No limit/taxable assets (1)	Taxable assets (2)	RRSP limit (3)	RRSP limit and taxable assets (4)
age	42.74	46.17	45.38	47.52
married	0.540	0.682	0.677	0.732
education category	2.667	3.100	2.883	3.145
home owner	0.528	0.799	0.761	0.872
family income (mean \$)	67,502	113,582	55,805	116,003
family income (median \$)	54,316	89,064	37,845	80,685
Taxable assets (gross \$)	0	121,385	0	174,589
Registered assets \$	92,372	270,208	132,250	320,533
Net worth (mean \$)	325,224	963,301	435,111	1,275,740
Net worth (median \$)	101,900	577,210	179,192	786,500

Notes: N = 8,703. The sample is all 2012 SFS families whose reference person is between the ages of 18 and 64. All dollar amounts are inflated to 2012 levels using the Consumer Price Index.

Table B7: Extensive Margin: Do TFSA Balances Displace Other Saving?

	(1)	(2)	(3)	(4)	(5)
A. Taxable Financial Assets Dummy (Mean = 0.906)					
Log TFSA Balance	-0.424** (0.215)	-0.327* (0.179)	-0.315** (0.137)	-0.353** (0.143)	-0.444 (0.305)
adultchild _{i(t)}	0.043*** (0.010)	0.052*** (0.010)	0.051*** (0.010)	0.008 (0.012)	0.010 (0.014)
B. RRSP Assets Dummy (Mean = 0.645)					
Log TFSA Balance	0.073 (0.316)	0.209 (0.276)	0.114 (0.209)	0.065 (0.214)	-0.531 (0.500)
adultchild _{i(t)}	0.076*** (0.016)	0.103*** (0.016)	0.106*** (0.015)	0.021 (0.019)	0.035 (0.021)
HH size FE	Y	Y	Y	Y	Y
HH size × marital status × Educ FE	N	Y	N	N	N
HH size × marital status × Educ × Year FE	N	N	Y	N	N
Age+HH size × marital status × Educ × Year FE	N	N	N	Y	N
Age × Year FE + HHsize × marital status × Educ × Year FE	N	N	N	N	Y
F-statistic (First-stage)	16.55	20.35	36.43	35.11	9.77

Notes: N = 13,444. The sample is all 1999, 2005 and 2012 SFS families with children. All specifications use sample weights provided by the SFS. All specifications include dummies for family size (1 to 7 members (1 member being the omitted category)). Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B8: Extensive Margin: Heterogeneity in the Crowding Out of Taxable Financial Assets

	Total Fixed Income Assets Dummy (1)	Bonds Dummy (2)	Checking/ Saving Dummy (3)	Net Worth Dummy (going concern) (4)
Log TFSA Balance	-0.386*** (0.149)	-0.222 (0.188)	-0.332** (0.151)	-0.145 (0.103)
adultchild _{<i>i(t)</i>}	0.054*** (0.010)	0.088*** (0.014)	0.057*** (0.011)	0.043*** (0.006)
Dep. Var. Mean	0.896	0.219	0.882	0.951

Notes: N = 13,444. The sample is all 1999, 2005 and 2012 SFS families with children. All specifications use sample weights provided by the SFS. All specifications include full interactions of household (family) size, marital status, education of the reference person and year (corresponds to specification 3 in the previous table). The first-stage F-statistic is 36.43. Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B9: Age Window Robustness: Do TFSA Balances Displace Other Saving?

	Taxable Financial Assets	RRSP As- sets	Total Fixed Income Assets	Bonds	Checking/Saving	Net Worth (going concern)
	(1)	(2)	(3)	(4)	(5)	(6)
Log TFSA Balance	-0.204 (0.361)	0.202 (0.555)	-0.334 (0.378)	-0.585 (0.458)	-0.259 (0.357)	-0.973 (0.632)
adultchild _{<i>i(t)</i>}	0.773*** (0.186)	0.960*** (0.285)	0.697*** (0.185)	0.982*** (0.221)	0.589*** (0.182)	0.592*** (0.211)

Notes: N = 3,779. The sample is all 1999, 2005 and 2012 SFS families whose oldest child under the age of 18 is between 15 and 17, or whose youngest child over the age of 18 is between the ages of 18 and 21. All specifications use sample weights provided by the SFS. All specifications include full interactions of household (family) size, marital status, education of the reference person and year (corresponds to specification 3 in Table 6). The first-stage F-statistic is 6.34. Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B10: The Evolution of Family Background Characteristics Around the Introduction of TFSA

	Kid in PSE (1)	Francophone (2)	Immigrant (3)	Self-Employed (4)	Family Income (5)	Married (6)
Log TFSA Balance	0.030 (0.023)	0.006 (0.022)	-0.015 (0.026)	-0.008 (0.018)	3900 (4109)	-0.020 (0.017)
adultchild _{<i>i(t)</i>}	0.541*** (0.015)	-0.025* (0.015)	0.094*** (0.016)	0.027** (0.011)	23,249*** (2144)	-0.021** (0.010)
	HS Drop (7)	HS Grad (8)	Some College (9)	University (10)		
Log TFSA Balance	-0.018 (0.020)	0.049* (0.027)	0.027 (0.025)	-0.058** (0.028)		
adultchild _{<i>i(t)</i>}	0.088*** (0.014)	-0.009 (0.016)	-0.052*** (0.015)	-0.022 (0.014)		

Notes: N = 13,444. The sample is all 1999, 2005 and 2012 SFS families with children. All specifications use sample weights provided by the SFS. All specifications include household (family) size fixed effects. Heteroskedasticity robust standard errors are reported in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.