The Relationship between Budgeting and Indicators of Financial Well-Being

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Abstract

Financial well-being is an emerging topic among financial literacy practitioners. Financial well-being is linked to financial behaviours such as day-to-day money management, and planning and saving for the future,both of which are influenced by an individual's ability to apply their financial knowledge and skills in order to manage their expenses. Such courses of action can be linked to the development of a budget. It is the goal of this research to explore the role that budgeting, in addition to further financial behaviours, has on the achievement of financial well-being outcomes. An analysis of the 2014 Canadian Financial Capabaility Survey was used to explore the relationship between how budgeting and financial behaviours impact indicators of financial well-being. This analysis finds always staying within a household budget helps individuals control their spending by imposing restraints while also encouraging savings practices. Together, this aids individuals in achieving positive financial well-being outcomes. The findings of this paper also suggest that individuals who partake in budgeting practices do so because they are facing constraint.However, this constraint affects the probability an individual will always stay within their household budget. Finally, this paper finds that other predictors of financial well-being are financial confidence, financial knowledge, and impulsivity.

1. Introduction

1.1 The Relation between Budgeting, Financial Literacy, Capability, and Well-Being

Strengthening the financial well-being of Canadians is a priority for the Government of Canada. According to its November 2017 Financial System Review, the Bank of Canada cited household debt, specifically the amount of debt held by highly indebted households, as the most important vulnerability of the financial sector. In order to combat the financial vulnerability of households, the Government of Canada expanded the mandate of the Financial Consumer Agency of Canada (FCAC) to promote financial literacy and financial inclusion among Canadians in 2013. In 2015, FCAC released the *National Strategy for Financial Literacy – Count me in, Canada*, with a vision to strengthen the financial well-being of Canadians and their families.

Financial well-being is important when considering money management in the short-, medium-, and long-term (CFPB, 2015). In 2017, the Consumer Financial Protection Bureau (CFPB) found that the management of day-to-day finances has a strong and positive relation with financial well-being. A useful tool to manage day-to-day finances is a budget. Budgeting is considered by financial literacy practitioners as a fundamental skill. Budgets provide the opportunity to set financial objectives and outline ways to achieve them.

Budgeting is important because it is linked to self-control, savings, and having longer time horizons in considering financial obligations (Rabinovich and Webley, 2007). Individuals and households use budgets to make rational trade-offs between expenditures that compete for the same monetary base. Budgets, combined with mental accounting also allow individuals to track and control their expenses (Thaler, 1999).[1] This was evidenced in a 2015 study performed by Fernbach et al who found that the use of a budget leads to fewer dysfunctional behaviours such as overspending. Indeed, a 2016 financial capability study conducted on behalf of the Financial Industry Regulatory Authority (FINRA) found that Americans who used household budgets spent less than their income and saved for unexpected expenditures as compared to those who did not have a household budget. By promoting self-control and limiting unnecessary expenditures, budgets are a useful tool with which individuals can organize and track their spending habits.

There are gaps in the literature when it comes to our understanding of the factors that contribute to budgeting behavior. For instance Kempson et al (2017) found that the factors able to predict financial well-being behaviours related to savings, spending, and debt-management, did not have large explanatory power when predicting budgeting behaviours. This indicates that further research is required to identify predictors of budgeting behaviours. In addition, a gap in the understanding of the relationship between budgeting and financial well-being requires further exploration.

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[1]Mental accounting is defined as "a cognitive bookkeeping process" (Cheema & Soman, 2006).

The main objective of this research is to explore predictors of financial well-being, specifically how the use of a budget relates to financial behaviours and outcomes. The first question relates to predicting budgeting behaviour. The benefits gained by following a budget are dependent on the frequency with which an individual stays within his or her budget. Consistent budgeters always stay within their budgets while inconsistent budgeters may occasionally or frequently exceed their budgets. A question of interest is to explore the financial behaviours and socio-economic and demographic factors which differentiate consistent budgeters from inconsistent or non-budgeters. The remaining questions relate to the effect that always staying within a household budget has on the financial well-being indicators of household debt levels, owing outstanding credit card balances and absorbing an unexpected expenditure with savings.

This paper is presented as follows: the remainder of this section discusses key terms. Section two discusses the methodology, including a description of the Canadian Financial Capability Survey (CFCS), the sample of interest and the econometric model used for analysis. Section three describes the effect that behavioural, socio-economic and demographic factors have on the likelihood a Canadian household always stays within their household budget and explores the relationship between always staying within a household budget and indicators of financial well-being. Section four presents a discussion for further exploration. Section five concludes.

1.1.1 Financial Literacy

Financial literacy is defined as the knowledge, skills, and confidence a person needs in order to make informed financial decisions. Financial literacy is the base for which informed decisions are made and is associated with money management and budgeting behaviours (OECD, 2017). Furthermore, financial literacy is described as "an essential life skill" by the Organization for Economic Co-operation and Development (2017).

1.1.2 Financial Capability

The CFPB (2015) links financial literacy to financial capability by way of the ability and skills needed to implement financial knowledge in financial management decisions. Financial capability is defined as an *"ability of applying appropriate financial knowledge and performing desirable financial behaviours to achieve financial goals and enhance financial literacy"* (Xiao, 2016). As such, Kempson et al (2005) use a model of financial capability which is defined by knowledge and understanding, skills, confidence and attitudes. These factors are linked to experience, circumstance, and personality. Financial capability is a stepping stone to achieving financial well-being due to its inclusion of financial behaviours, personality, and influence of external factors in predicting financial outcomes.

Financial capability can also be associated with the use of a budget; after exploring the relationship between financial capability and individual behaviours among focus groups in the

U.K., Kempson et al (2005) found that two of the four behavioural aspects of financial capability had a relation to budgeting (i.e., managing money to live within one's means and planning ahead to develop financial goals and cushions to absorb financial shocks).[2] In addition, they found that financially capable individuals are more likely to budget for unexpected expenditures.

1.1.3 Financial Well-Being

Financial well-being is an emerging concept which has recently gained increasing attention. In their 2017 study seeking to develop a financial well-being scale, the CFPB provided a definition of financial well-being as *"a state of being wherein a person can fully meet current and ongoing financial obligations, can feel secure in their financial future, and is able to make choices that allow enjoyment of life."* The four aspects of financial well-being identified were control of daily and monthly finances, ability to reach financial goals, having financial freedom, and being able to absorb an unexpected expenditure (Kempson et al, 2017). The importance of controlling daily and monthly finances is evidenced by Gutter and Copur (2011) who found that college students who use the full limit of their credit card, make late payments, and/or carry a balance on their credit cards, report a lower level of financial well-being then those who do not.

Financial well-being is a complex measure and is not restricted to high income households. Using their financial well-being scale, the CFPB (2017) found that higher financial well-being scores are more prevalent among higher earning households. However, financial well-being scores varied widely among income levels which suggests that financial well-being is influenced by other factors in addition to income. After implementing a nation-wide survey of American citizens, the CFPB found the strongest marker of individuals who report a higher level of financial well-being is their level of accessible savings. This was also true of their ability to respond to an unexpected expenditure. Other predictors of financial well-being include financial knowledge, confidence, employment status, income, and education level (CFPB, 2017).

Financial well-being is linked to financial satisfaction (i.e., comfort in financial position), which in turn, is positively related to life satisfaction (Xiao, 2016). Financial satisfaction is most strongly influenced by financial behaviours such as budgeting and financial planning (Joo and Grable, 2004). When conducting interviews with focus groups consisting of consumers and financial practitioners, the CFPB (2015) found both parties stressed the importance of budgeting as a key tool to achieving financial well-being and improving their financial security. A possible explanation is the role of a budget to control spending, allowing individuals to live within their means. The ability to live within one's means to meet day-to-day financial commitments is positively related to financial well-being (CFPB, 2015).

Budgeting is a financial behaviour often associated with positive outcomes. However, when using cross-sectional data, the relationship between budgeting and financial outcomes is not clearly defined. For instance, an analysis using cross-sectional data and controlling for income by Kempson et al (2017) which aimed to explore the links between financial literacy, capability,

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[2] The two remaining aspects of financial capability are making informed choices and the ability to rely on oneself or get help.

and well-being found the use of a budget reduced the likelihood of achieving financial well-being outcomes. This finding echoed the results of Gutter and Copur (2011) who found that college students who budget had a lower level of financial well-being.

While this result is not intuitive, it is likely the case that those who are struggling financially are more likely to use a household budget. Indeed, Kempson et al (2017) report a higher proportion of budgeters among those who are struggling financially than among the general population. FCAC provided evidence in support of this hypothesis in its 2016 report *Payday Loans: Market Trends,* which reported that of the individuals who utilized a payday loan within the past three years, 64 percent had a household budget. This proportion is markedly higher than the 46 percent of households who budget in the general Canadian population (FCAC, 2015). Furthermore, the CFPB (2017) found that having constrained resources may be a larger determinant of achieving financial well-being than being below the poverty level. When considering those living near the poverty line, Thaler (1999) finds their budgets tend to be more explicit than wealthier families, reinforcing the use of budgets among those who are struggling financially.

There are inconsistencies in the findings with studies concluding there exists a positive relationship between budgeting and financial well-being outcomes, and others indicating this relationship is negative. One of the limitations is related to cross-sectional data as when using cross-sectional data, casual relationships are unable to be identified. This paper hypothesizes that those who have a household budget will be more likely to be facing financial difficulties, however, always staying within a budget will increase an individual's likelihood of achieving positive financial well-being outcomes.

2. Methods

2.1 Canadian Financial Capability Survey

Data from the 2014 Canadian Financial Capability Survey (CFCS) were used to measure the relation between budgeting and indicators of financial well-being. The CFCS employed a cross-sectional design to measure the financial literacy of persons residing in Canada. Specifically, the survey measures household assets, debts and wealth; household spending, saving and day-to-day money management; as well as knowledge, skills, confidence, and attitudes towards money. When survey was conducted in the summer of 2014, was restricted to residents in Canada above the age of 18 and did not include those living in the Yukon, Northwest Terrioties, Nunavutor those who are full-time residents of institutions. There were 12,023 in-scope households included in the 2014 CFCS however 6,685 individuals were interviewed resulting in a response rate of 55.6 percent (Statistics Canada, 2014).[3,4] A description of the CFCS methodology can be found in Appendix A.

[3] According to the 2016 census, there were 14 million households in Canada in 2015 (Statistics Canada, 2017).
[4] Baruch and Holtom (2008) found the average response rate among 157 surveys conducted in 2005 was 52.7 percent with a standard deviation of 21.2.

2.2 Sample Population

This analysis consits of five econometric models. Each model has a sample population restricted to individuals below the age of 65 who provided a response to each CFCS question used as an independent predictor and dependent outcomemeasure. Individuals aged 65 and older were excluded from this analysis as they are more likley to be facing day-to-day and long-term money management behaviours and attitudes unique to retirement and near-retirement. Together, these restrictions reduced the sample of interest from 6,685 individuals to 3,423 individuals for the dependent outcomes of always, and usually stay within a household budget, and 3,448 and 3,102 individuals for the dependent outcome of household debt levelsin the simplified and financial behaviour models, respectively. For the dependent outcomes of outstanding credit card balances and using savings to help absorb a $5,000 unexpected expenditure, the sample of interest was reduced to 3,833, and 3,403, and 3,672 and 3,251, individuals in the simplified and financial behaviour models, respectively.

2.3 Econometric Model

This analysis explores two sets of dependent outcomes: budgeting dependent outcomes and financial well-being dependent outcomes.[5]

Budgeting dependent outcomes included in this analysis are:

- Always stay within a household budget
- Usually Stay within a household budget

Financial well-being dependent outcomes included in this analysis are:

- Household debt level
- Outstanding credit card balances
- Absorb a $5,000 unexpected expenditure with savings

Each dependent outcome explored a logit regression on a set of binary and categorical predictors across the sample of interest. The financial well-being outcome of household debt level was analyzed using a multinomial logit regression model. Multinomial logit regression models are used when the outcome variable is categorical and each categorical outcome occurs simultaneously.

The three financial well-being outcomes were modeled by first using a base "simplified" model. The simplified model regressed the financial well-being outcome on the budgeting behaviour, always stay within a household budget, and socio-economic and demographic factors. The financial well-being outcomes were then regressed using a "financial behaviour" model which included further financial behaviours in addition to always stay within a household budget along with the previous socio-economic and demographic factors included in the simplified model. This was done to isolate the effect that always staying within a household budget has on

[5] See Appendix B for a summary of methodology used in preliminary analyses.

financial well-being outcomes which may otherwise be partially explained through other financial behaviours. For example, a financial behaviour included in the model is the monitoring of bank accounts. While monitoring bank accounts is not considered budgeting, individuals may monitor their bank accounts to assess if they are staying within their budgets. While such behaviours may be related to budgeting, they hold explanatory value of the dependent outcome and should thus be included in the model.

2.3.1 Dependent Variables

This analysis includes five outcomes and thus five dependent variables. Two of these variables are related to the use of a household budget. The CFCS does not specify the definition of a budget nor the budgeting format which the respondent uses. However, a 2017 study conducted by the Canadian Payroll Association (CPA) found that almost half of individuals budget electronically (44 percent), with the main tool being a spreadsheet (36 percent). Electronic budgets are followed by mental accounting (31 percent) and written budgets (25 percent). The CPA study, which considers budgeting on the individual level, found that 52 percent of individuals report budgeting usually to very frequently with an additional 23 percent budgeting somewhat frequently. However, of individuals who budget, 18 percent do not follow their budget. This proportion is more than double the seven percent of individuals who do not stay within their household budget as reported in the 2014 CFCS (FCAC, 2015). While budgets have been shown to be an effective tool to control spending, the effectiveness of a budget is limited to the frequency in which an individual stays within his or her household budget. As a result, this paper focuses on the effect that always staying within a household budget has on indicators of financial well-being.

The budgeting behaviour of always staying within a household budget was compared with the budgeting behaviour of usually staying within a household budget in order to explore the predictors which differentiate those who consistently stay within their household budget from those who do not. In the sample of interest, 15 percent of individuals always stay within a household budget, 29 percent usually stay within a household budget, and 56 percent do not follow a household budget.

Kempson et al (2017) identify the tendency to live beyond one's means, and the use of credit for daily purchases as two important indicators of lower financial well-being. To incorporate these components in the model, financial well-being was measured with the categorical dependent outcome household debt levels, and the binary outcome of having outstanding credit card balances. Kempson et al (2017) also identify the tendency to save for the future as an important indicator which increases financial well-being. To model this component we used the binary financial well-being outcome of absorbing all or a portion of a $5,000 unexpected expenditure with savings. A description of dependent variables can be found in Appendix C.

Five categories of household debt levels were used to measure individual responses. The distribution of these five debt levels among the sample of interest is found in Table 1. In the sample of interest, approximately half of individuals have a household debt level of zero or less than $50,000. Among the remaining debt levels, the proportion of individuals who have debts of $50,000 to above $200,000 is relatively even.

Table 1: Proportion of Household Debt Levels among the Sample of Interest[1]

Total Observations	Zero Debt	Less than $50,000	$[50,000, 99,999]	$[100,000, 199,999]	Greater than or equal to $200,000
3,448.00	23.00%	37.00%	10.00%	13.00%	17.00%

[1]Proportions reported are for the financial behaviour model. Differences in the proportion of household debt levels among the simplified and financial behaviour models are not statistically significant.

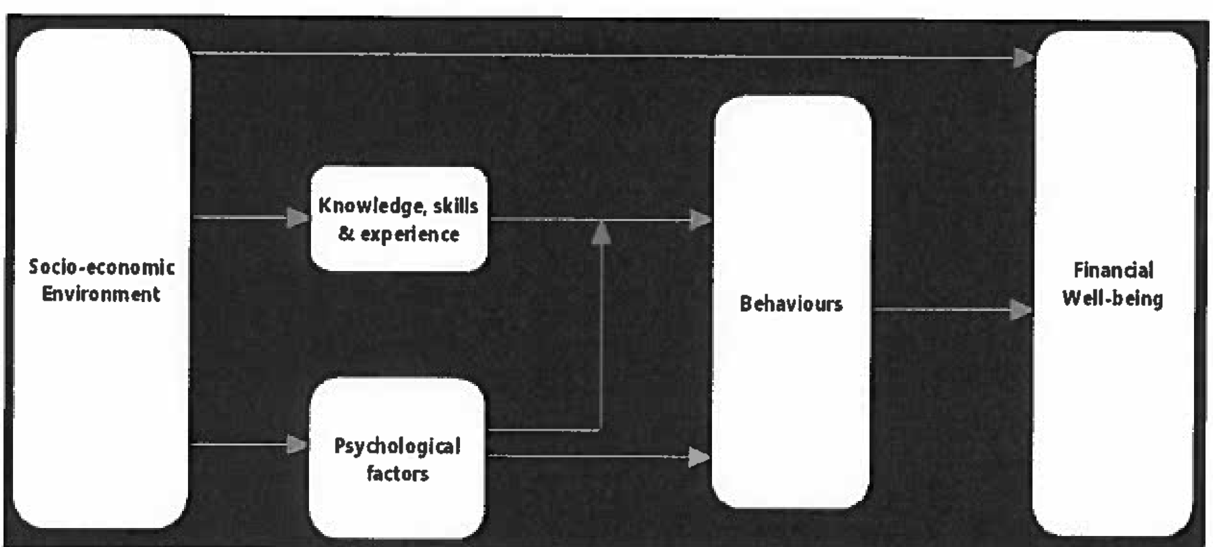
The financial well-being indicator of having outstanding balances on credit cards was measured using CFCS question: do you or anyone in your family have outstanding debts? The option of credit cards was included as an independent outcome. In the sample of interest of both the simplified and financial behaviour models, approximately 36 percent of individuals have outstanding credit card balances.

The financial well-being indicator of absorbing a $5,000 unexpected expenditure was measured using the CFCS question: how would you pay for an unexpected $5,000 expenditure today? Individuals were allowed to mark up to three responses. In order to be considered to use savings, savings was required to be one of the three responses chosen. In the sample of interest of both the simplified and financial behaviour models, approximately 27 percent of individuals would use savings to absorb this expenditure.

2.3.2 Independent Variables

Kempson et al (2017) summarize contributing factors to financial well-being and budgeting behaviours in Figure 1.

Figure 1: Financial Well-Being: Conceptual Model



In the model, financial behaviours such as budgeting are represented in the box labeled behaviours. Financial well-being outcomes are represented in the box labeled financial well-being. The size of each box corresponds to its effect on each component it impacts. For example, socio-economic environment plays a considerably larger role in determining behaviours than does knowledge, skills, and experience (i.e., financial literacy). As can be seen in the diagram, behaviours are a key determinant of financial well-being. Both financial well-being and budgeting behaviours are influenced by a person's behaviour, personality, socio-economic, and demographic characteristics.

Financial well-being outcome models were first analyzed using a simplified base model which controlled for independent socio-economic and demographic factors such as gender, marital status, education level, employment status, household income, the number of individuals in the household, and the ownership of the respondent's principal residence. Ownership of a respondent's principal residence is a categorical measure which comprises three predictors: ownership of a principal residence with a mortgage; ownership of a principal residence without a mortgage; and renting principal residence.[6]

Financial stressors, financial stress levels, financial behaviours, financial risk tolerance, and financial knowledge have also been empirically shown to have a relationship with financial well-being (Joo and Grable, 2004; Gutter and Copur, 2011; CFBP, 2017). In order to compare if the inclusion of financial behaviours affect the impact that always staying within a household budget has on indicators of financial well-being as well as to explore the predictive power of these financial behaviour components with respect to financial well-being indicators, a second financial behaviour model which incorporates financial behaviours was analyzed. Financial behaviours included are financial knowledge, financial confidence, seeking of financial advice, monitoring financial topics, tracking bank accounts daily, keeping up with bill payments, and impulsivity.[7]

Kempson et al (2017) also found that psychological factors such as self-control, impulsivity, and time-orientation are important influencers of financial well-being. While time-orientation was unable to be measured in the model, self-control and impulsivity were included through a proxy measure. Impulsivity was measured by a CFCS question which asked if the respondent had made a financial decision he or she had later regretted. If the respondent answered yes, he or she was coded as having displayed impulsive behaviours.

3. Results

[6] Ownership of a principal residence with a mortgage and ownership of a principal residence without a mortgage comprises individuals who live in a principal residence owned with a mortgage or without a mortgage by themselves or a member of their immediate family, respectively. Renting principal residence includes individuals who live in a principal residence which is neither owned by themselves or a member of their immediate family.

[7] See Appendix C for a description of independent variables.

3.1 Differentiating Factors Between Those Who Always and Those Who Usually Stay within a Household Budget

Having a household budget has been linked to positive financial outcomes. While having a household budget is important, the frequency with which an individual stays within their household budget is arguably more important. When an individual is always able to stay within their household budget, they may be more likely to be maximizing their use of important components of budgeting such as those which enable individuals to control their spending and thereby reduce their likelihood of using debt to finance day-to-day purchases. By controlling spending, budgeting may also provide individuals with greater opportunity to save. An analysis which explores the differences among budgeters who always stay within their household budget and those who usually stay within their household budget was explored to identify the behaviours which influence the frequency with which an individual stays within his or her household budget. Both always, and usually stay within a household budget were regressed using an adjusted logit model which incorporates financial behaviours. Table 2 provides a comparison of the financial behaviours present in each of the budgeting populations.

Among individuals who always stay within a household budget, there is a lower proportion of impulsive individuals (36 percent), as compared to the proportion of impulsive individuals among those who usually stay within a household budget (48 percent). Impulsive individuals may have a difficult time controlling their spending so as to consistently stay within their household budget. Individuals who always stay within a household budget also appear to be less financially confident than those who do not consistently stay within their household budget. These individuals may be using a household budget in order to compensate for their lower confidence when managing their day-to-day finances. Financial knowledge does not appear to vary significantly among budgeters who always as compared to usually stay within their household budgets. However, financial constraint, as evidenced through difficulty keeping up with bill payments appears to be a further differentiator between those who always stay within a household budget (23 percent) as compared to those who usually stay within a household budget (40 percent). However, the ownership of a principal residence does not appear to differ between the two groups. This could indicate that individuals who are budgeting do so because they are under constraint. However, individuals with financial constraint such that they have difficulty keeping up with bill payments may find it difficult to always stay within a household budget.

Table 2: Financial Behaviours, Socio-Economic and Demographic Factors of Individuals Who Always and Usually Stay within a Household Budget

Financial Behaviours	Always Stay within a Household Budget (%)	Usually Stay within a Household Budget (%)
Number of Observations (N)	516.00	953.00
Weighted Observations	268,812.00	976,324.00
Proportion of Sample of Interest	15.00	29.00
Impulsive	36.35	48.31
Financial Confidence		
Low	49.91	31.72
Medium	30.85	39.36
High	19.24	28.92
Financial Knowledge		
Low	8.37	6.55
Medium	56.48	56.85
High	35.15	36.60
Monitor Bank Accounts Daily	15.07	18.35
Difficulty Keeping Up With Bill Payments	22.81	40.03
Ownership of Principal Residence		
Own with Mortgage	44.79	49.13
Own without Mortgage	27.14	16.31
Rent	28.06	34.56
Female	52.53	58.72

3.1.1 Always Stay within a Household Budget

This section shares the results of the logit regression of the budgeting behavioural outcome, always stay within a household budget, on financial behaviours and socio-economic and demographic predictors.[8]All else held constant, an individual is less likely to always stay within their household budget if he or she is impulsive (-4.4 percent), financially confident (-6.5 percent), or if he or she has sought an additional source of financial advice on investments (-3.7 percent). An individual is also less likely to stay within a household budget if he or she is having difficulty keeping up with bill payments (-5.7 percent), or has a university or professional degree (-5.7 percent). Financial behaviours and socio-economic and demographic factors which impact the probability an individual will always stay within a household budget are summarized in Table 3.[9]

[8]In a logit regression, the outcome of interest is binary and takes the value of one if the outcome occurs and zero if it does not. Independent variables predict the probability that an outcome will or will not occur.

[9] Refer to Appendix D, Model (1) found in Table D-1: Financial Behaviour Logit Regression Models of Always Stay within a Household Budget and Usually Stay within a Household Budget, for a complete summary of logit regression results.

An individual is less likely to always stay within a household budget if they are financially confident. Financial confidence has the largest effect size when considering the probability an individual will stay within a household budget. Financial confidence incorporates an individual's confidence in his or her ability to keep track of money, and his or her ability to make ends meet. Both keeping track of money and making ends meet are related to the financial behaviour of budgeting. Individuals who are more confident in these areas may be less likely to feel the need to always stay within their household budgets in order to effectively manage their day-to-day expenses. However, if an individual is less confident in his or her ability to perform these tasks, he or she may be more likely to always stay within his or her household budget to gain confidence in day-to-day money management activities.

Financial constraint is a further predictor of an individual's ability to always stay within his or her household budget. Difficulty keeping up with bill payments is an indicator an individual is facing financial constraint. Those who have difficulty keeping up with bill payments are less likely to always stay within a household budget. If an individual has difficulty keeping up with bill payments, he or she may have insufficient income to always stay within a household budget while ensuring all basic needs are met. Individuals may also have difficulty paying their bills on time if they overspend. Overspending is also linked to impulsive behaviour. If an individual is more impulsive, he or she may be more likely to make financial decisions which reduce his or her ability to always stay within a household budget. However, it can also be the case that individuals who always stay within a household budget are more likely to be less impulsive.

3.1.2 Usually Stay Within a Household Budget

Of the 44 percent of individuals who stay within a household budget, 66 percent of individuals usually stay within their household budget, this is double the targeted budgeting behaviour of those who always stay within their household budget. A comparison of statistically significant predictors which affect the probability an individual will always or usually stay within a household budget is summarized in Table 3.[10]

An individual's financial confidence and impulsive behaviour are two behavioural components which differentiate consistent budgeters from those who do not always stay within a household budget. In both cases, the higher an individual's financial confidence, or if the individual is impulsive, the less likely they consistently stay within their household budget. However, these indicators do not have statistical significance when predicting the probability an individual will usually stay within a household budget. This indicates that while impulsive and financially confident individuals may value the need to stay within a household budget, the tendency to overspend or having higher financial confidence may hinder their likelihood of always staying within this household budget.

[10] Refer to Appendix D, Model (2) found in Table D-1: Financial Behaviour Logit Regression Models of Always Stay within a Household Budget and Usually Stay within a Household Budget, for a complete summary of logit regression results.

Table 3: Comparison of Always Stay Within a Household Budget and Usually Stay Within a Household Budget Adjusted Logit Regression

Model Predictors[3]	Always Stay within a Household Budget[1]	Usually Stay within a Household Budget[2]
	Probability[4]	Probability[4]
Impulsive	-0.044	-
Financial Confidence	-0.065	-
Sources of Investment Information	-0.037	-
Monitoring of Financial Topics	-	0.053
Difficulty Keeping Up with Bill Payments	-0.057	-
Principal Residence Owned without a Mortgage	-	-0.079
University Degree	-0.057	-
Unemployed	-	-0.084
Retired	-	-0.111
Female	-	0.103

[1]The model is significant $\chi^2(28) = 133.67$, $p = 0.000$. The model explains 8.2 percent (McFadden's Pseudo R^2) and correctly classified 84.93 percent of cases.
[2]The model is significant $\chi^2(28) = 111.71$, $p = 0.000$. The model explains 7.2 percent (McFadden's Pseudo R^2) and correctly classified 72.63 percent of cases.
[3]This model has been adjusted for the ownership of a principal residence, education, employment status, household income, gender, marital status, age, immigrant, indigenous and number of household members.
[4]"Probabilty" represents the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant. A p-value of less than 0.05 is determined to be statistically significant in the model.

The probability that an individual always as compared to usually stays within a household budget also differs by financial constraint. The probability an individual always stays within a household budget is effected by his or her ability to keep up with bill payments. The probability an individual usually stays within a household budget can be better predicted by mortgage debt and monitoring financial topics. This indicates that individuals who are facing financial constraint because of limited disposable income may be more likely to use a household budget. However, if they are unable to keep up with their bill payments, they may find it difficult to always stay within their household budget. Not always staying within a household budget may reduce an individual's probability of achieving financial well-being outcomes.

3.2 Does Always Staying within a Household Budget Have an Impact on an Individual's Reported Household Debt?

The amount of household debt an individual has can serve an indicator of financial well-being. For instance, in 2018 the Financial Accountability Office of Ontario (FAO) found that in Ontario low-income households spend almost a third of their income on paying down debt. This reduces the amount of income which can be used towards saving for life events such as education, retirement or unexpected expenditures. In addition, FAO found that high debt loads increase a household's vulnerability to financial risk. Household debt levels of Canadians can be found in Table 4.

The zero household debt level has the highest proportion of individuals who always stay within their household budgets (20.54 percent) as well as the highest proportion of individuals who do not follow a household budget (60.58 percent). This debt level also has the lowest proportion of individuals who have difficulty keeping up with their bill payments (23.79 percent) and the lowest proportion of individuals who own their principal residence with a mortgage (0.66 percent). This provides evidence that those who face less financial constraint do not have as great a need to budget. However, these individuals may be more likely to have the easiest time staying within their household budgets. This also indicates that a leading cause of financial constraint is mortgage debt.

The household debt level of less than $50,000 has the lowest proportion of individuals who always stay within their household budget (11.74 percent), the highest proportion of moderate to high financially confident individuals (76.87 percent) and the highest proportion of individuals who are having difficulty keeping up with their bill payments (40.81 percent). These proportions coincide with the results of the previous analysis which found that individuals who have higher financial confidence or who report difficulty keeping up with bill payments are less likely to always stay within their household budgets.

The household debt levels of $50,000 and above have similar proportions of individuals who always stay within their household budget, individuals who do not follow a household budget, financially confident individuals, and individuals who have difficulty keeping up with their bill payments. As expected, these debt levels report the highest proportions of individuals who live in a principal residence owned with a mortgage and the lowest proportions of individuals who live in a principal residence owned without a mortgage or rented. This indicates that mortgage debt may be the primary debt of individuals with a household debt greater than $50,000. This is in line with the Bank of Canada's findings that mortgage debt and home equity lines of credit (HELOC) comprise more than 80 percent of outstanding household debt (Bank of Canada, 2017).[11]

[11] HELOCs are defined as a "revolving and typically non-amortized, credit products secured by alien on the borrower's residential property" (FCAC, 2017).

Table 4: Financial Behaviours, Socio-Economic and Demographic Factors of Individuals with Household Debt

Financial Behaviours[1]	Zero Debt	Less than $50,000	$ [50,000, 99,999]	$ [100,000, 199,999]	Greater than or equal to $200,000
Number of Observations (N)	670.00	1104.00	347.00	489.00	492.00
Weighted Observations	681,228.00	1,515,246.00	123,983.00	232,102.00	287,464.00
Proportion of Sample of Interest	22.24	36.66	10.30	13.87	16.94
Budgeting Behaviours					
Always Stay within a Household Budget	20.54	11.74	12.24	14.12	15.32
Usually Stay within a Household Budget	18.88	31.82	32.03	38.09	33.91
Do Not Follow a Household Budget	60.58	56.44	55.73	47.79	50.77
Impulsive	36.82	45.83	51.17	45.22	48.36
Financial Confidence					
Low	33.12	23.13	32.67	38.81	34.93
Medium	37.92	36.86	42.32	34.51	39.68
High	28.96	40.01	25.01	26.68	25.38
Financial Knowledge					
Low	10.10	6.71	4.45	4.71	1.93
Medium	58.76	64.44	49.78	58.83	48.44
High	31.14	28.85	45.77	36.46	49.63
Monitor Bank Accounts Daily	12.75	13.98	18.17	19.09	20.61
Difficulty Keeping Up With Bill Payments	23.79	40.81	38.22	34.67	34.44
Ownership of Principal Residence					
Own with Mortgage	0.66	28.06	63.72	84.97	86.57
Own without Mortgage	50.62	21.42	18.79	7.15	8.17
Rent	48.46	49.69	17.31	7.88	5.26
Female	52.91	50.99	48.51	48.25	43.46

[1]Proprotion Reported are for the financial behaviour model. Differences among the simplified and financial behaviour models are not statistically significant.

3.2.1 Simplified Model

Level of household debt was first analyzed using a "simplified" multinomial logit regression model.[12] This model regresses the five household debt levels on always stay within a household budget and socio-economic and demographic factors. In doing so, this model finds that an individual's household income, education level, employment status, marital status, age, and the number of household members residing in his or her principal residence has an overall predictive effect on the level of household debt this individual will have.[13] The overall effect of always staying within a household budget is not statistically significant when considering its effect on the overall model. However, always staying within a household budget increases the probability an individual will have zero debt (8.0 percent) and reduces the probability an individual will have household debt of less than $50,000 (negative 7.9 percent).[14]Table 5 presents budgeting behaviours and socio-economic and demographic factors which have statistically significant predictive effects on an individual's level of household debt.[15]

If an individual always stays within a household budget, he or she is more likely to have zero debt. Individuals who always stay within a household budget may increase their probability of having zero debt by controlling their spending to reduce their debt usage. If an individual has zero debt, he or she may also be more likely to always stay within a household budget. Individuals who do not have debt may have a higher disposable income. This is because these individuals do not have the burden of principal payments, and interest charges. These individuals may thus find it easier to always stay within their household budgets.

Always staying within a household budget is also statistically significant when predicting the probability an individual will have a household debt level of less than $50,000. However, always stay within a household budget is not statistically significant when predicting the probability an individual will have a household debt level of $50,000 or above. Household debt levels of $50,000 or above are more likely to reflect debts such as mortgages which are often viewed as an investment. Debts of less than $50,000 may more likely be comprised of the final payments of an individual's mortgage, student loans, vehicle purchases, lines of credit, and high interest debt such as credit cards and payday loans.

Individuals who always stay within a household budget are less likely to have household debts of less than $50,000. This may indicate that individuals who always stay within their

[12] A multinomial model was chosen after a Wald Test indicated that the parallel lines assumption was violated.
[13] The overall model predictors were found by using a Wald Test which tested for the statistical significance of each independent variable on its overall effect within the model.
[14] When using multinomial models, marginal effects for each independent predictor must sum to zero. For example, if an independent variable increases the probability of attaining one outcome, then it must decrease the probability of attaining another.
[15] Refer to Appendix D, Model (3) found in Table D-2.1 and Table D-2.2: Simplified and Financial Behaviour Logit Regression Models of Household Debt Levels.

household budgets may use their budgets to control their spending and reduce their reliance on debt vehicles. However, given that the household debt level of $50,000 has the lowest proportion of individuals who always stay within their household budgets, individuals who have a household debt level of less than $50,000 may be less likely to always stay within a household budget. These individuals may choose to use debt vehicles as an income smoothing effect due to a preference to consume in the present rather than the future.

Table 5: Adjusted Multinomial Logit Regression between Household Debt Levels, Always Stay within a Household Budget, and Socio-Economic and Demographic Factors

Simplified Model[1]					
	Probability[3]				
Model Predictors[2]	Zero Debt	Less than $50,000	$ [50,000, 99,999]	$ [100,000, 199,999]	Greater than or equal to $200,000
Always Stay within a Household Budget	0.080	-0.079	-	-	-
College Diploma	-	-	-	-	0.056
University Degree	-	-	-	-	0.058
Unemployed	0.079	-	-	-0.075	-
Retired	0.148	-	-0.063	-	-0.112
Student	-	-	-	-0.129	-
Household Income $[32,001, 54,999]	-0.133	0.118	-	-	-
Household Income $[55,000, 79,999]	-0.172	-	-	0.067	-
Household Income $[80,000, 119,999]	-0.125	-	-	-	0.100
Household Income $[Over 119,999]	-0.191	-	-	0.078	0.152
Separated or Divorced	-	-	-	-	-0.066
Single	0.097	0.122	-0.073	-	-0.120
Age [25, 34]	-	-	-	0.096	0.118
Age [35, 54]	-	-	-	0.09	-
Immigrant	-	-	-0.072	-	-
Number of Household Members	-	-0.025	-	0.020	-

[1]The model is significant $\chi^2(76) = 133.67$, $p = 0.000$. The model explains 11.3 percent (McFadden's Pseudo R^2).

[2]Our simplified model has been adjusted for education, employment status, household income, gender, marital status, age, immigrant, indigenous and number of household members.

[3]"Probabilty" represents the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant. Each probability reported represents a statistically significant relationship. A p-value of less than 0.05 is determined to be statistically significant in the model.

3.2.2 Financial Behaviour Model

After analyzing a simplified model, a financial behaviour model was explored. This model includes further financial behaviours which might predict the probability an individual will have a given household debt level. The financial behaviour model finds that in addition to the previous significant predictors in the simplified model, financial confidence, monitoring financial topics, difficulty keeping up with bill payments, and being a landed immigrant have an overall predictive effect on the amount of debt a household will have. Table 6 presents financial behaviours and socio-economic and demographic factors which have statistically significant predictive effects on an individual's level of household debt.[16]

After including further predictive financial behaviours and personality traits, always staying within a household budget is no longer a statistically significant predictor of an individual's probability of having zero household debt or having a household debt level of less than $50,000. This indicates that budgeting is linked to other financial behaviours. Predictors of household debt levels are instead related to financial confidence and financial constraint, as evidenced through difficulty keeping up with bill payments and monitoring of financial topics.

Financial constraint is evidenced by difficulty keeping up with bill payments and monitoring of financial topics. Individuals who have difficulty keeping up with bill payments are less likely to have zero debt. If an individual has difficulty keeping up with bill payments, he or she may be more likely to not pay off their debt or to be paying only the minimum payment required may thus have difficulty reducing their debt. These individuals may also take out new debt in order to pay off their existing debt. Individuals who have difficulty keeping up with bill payments may also have used debt as an income smoothing mechanism. These individuals may have taken on more debt than they can afford to pay off.

Individuals who monitor a higher number of financial products are also less likely to have zero debt and are more likely to have a household debt between $50,000 and $99,999. Monitoring financial products is a sign of financial constraint as individuals may be doing so because they are more susceptible to financial shocks such as interest rate changes. This could explain why individuals who monitor financial topics are more likely to have a higher household debt of $50,000 to $99,999.

Individuals who are financially confident are more likely to have a household debt of less than $50,000. Individuals with high financial confidence are more likely to have greater self-efficacy. These individuals may have a higher tendency to take on debt to fund purchases such as vehicles, home improvements, weddings, or vacations if they have high confidence in their ability to control their financial environment and believe they will be able to pay this debt in the short-term. Therefore, they may use debt as an income smoothing mechanism. Individuals with higher financial confidence may also choose to direct their income and savings to investment

[16] Refer to Appendix D, Model (3) found in Table D-2.1 and Table D-2.2: Simplified and Financial Behaviour Logit Regression Models of Household Debt Levels.

packages if they believe that interest earned will be greater than the interest lost to debt payments.

Table 6: Adjusted Multinomial Logit Regression between Outstanding Credit Card Balances, Always Stay within a Household Budget, Financial Behaviours, and Socio-Economic and Demographic Factors

Financial Behaviour Model[1]					
	Probability[3]				
Model Predictors[2]	Zero Debt	Less than $50,000	$ [50,000, 99,999]	$ [100,000, 199,999]	Greater than or equal to $200,000
Financial Confidence	-	0.056	-	-	-
Sources of Investment Information	-	-	-	-0.031	-
Monitoring Financial Topics	-0.060	-	0.022	-	-
Difficulty Keeping Up with Bill Payments	-0.105	-	-	-	-
College Diploma	-	-	-	-	0.070
University Degree	-	-0.081	-	-	0.052
Unemployed	0.091	-	-	-0.079	-
Retired	0.136	-	-0.063	-	-0.109
Student	-	-	-	-0.135	-
Household Income $[32,001, 54,999]	-0.127	0.144	-	-	-
Household Income $[55,000, 79,999]	-0.156	-	-	-	-
Household Income $[80,000, 119,999]	-0.141	-	-	-	0.100
Household Income $[Over 119,999]	-0.193	-	-	-	0.147
Single	-	0.100	-	-	-0.110
Age [25, 34]	-	-	-	0.102	0.147
Age [35, 54]	-	-	-	0.100	0.087
Immigrant	-	-	-0.062	-	-0.170
Number of Household Members	-	-	-0.036	-	0.020

[1]The model is significant $\chi^2(108) = 2197.42$, $p = 0.000$. The model explains 13.4 percent (McFadden's Pseudo R^2).
[2]The financial behaviour model has been adjusted for education, employment status, household income, gender, marital status, age, immigrant, indigenous and number of household members.
[3]"Probabilty" represents the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant.

[4]"Significance" represents the p-value or the probability of obtaining the observed result. A p-value of less than 0.05 is determined to be statistically significant in the model.

3.3 Does Always Staying within a Household Budget Have an Impact on the Probability an Individual will Report Outstanding Credit Card Balances?

Having outstanding credit card balances in an indicator of lower financial well-being. In the sample of interest approximately 36 percent of individuals have outstanding credit card balances in their household. Among individuals who have outstanding credit card balances in their household, a lower proportion always stay within their household budget (10.28 percent), as compared to individuals who do not have outstanding credit card balances. Correspondingly, there is a higher proportion of individuals who usually stay within their household budget among those who have outstanding credit card balances as compared to those who do not. This indicates that individuals who always stay within their household budget may be less likely to make credit purchases for which they cannot pay their credit card bills in full by the required due date. A comparison of financial behaviours between those individuals who have outstanding credit card balances and those who do not are summarized in Table 7.

Financial constraint is further evidenced through the ownership of a principal residence. A similar proportion of individuals who rent their principal residence can be found in both populations. However, of those who have outstanding credit card balances as compared to those who do not, there is a much smaller proportion of individuals who own their principal residence without a mortgage (13 percent versus 29 percent, respectively) and a higher proportion of individuals who own their principal residence with a mortgage (55 percent vs 41 percent, respectively). This may indicate that mortgage debt, as well as the other expenses associated with owning a home, is likely reducing the amount of disposable income a household has which can be applied towards paying credit bills on time. It may also be the case that these households owe greater amounts of credit card debt due to lower disposable income.

There is a larger proportion of impulsive individuals among those with outstanding credit card balances (54 percent) than among those who do not have outstanding credit card balances (39 percent). This may indicate that credit card consumption is used as an income-smoothing mechanism when individuals wish to make a purchase for which they have insufficient funds. It is also of interest to note that among individuals who have outstanding credit card balances, there is a smaller proportion of individuals with low levels of financial confidence (23 percent) and a larger proportion of financially confident individuals (42 percent) as compared to individuals who do not have outstanding credit card balances (34 percent, and 28 percent, respectively). It could be the case that individuals with higher confidence in their ability to control their financial environment incurred higher credit card balances as they believed they would obtain the finances to pay this debt back. However, they may not have obtained the finances by the time the payment was due. Financial knowledge does not appear to differ significantly between both groups.

Financial constraint appears to be the largest differentiating factor between individuals who have outstanding credit card balances and those who do not. Specifically, among individuals who have outstanding credit card balances, the proportion of individuals who report difficulty keeping up with bill payments (54 percent) is more than double the proportion of individuals who have difficulty keeping up with bill payments who do not have outstanding credit card balances (23 percent).

Table 7: Financial Behaviours, Socio-Economic and Demographic Factors of Individuals with and without Outstanding Credit Card Balances

Financial Behaviours[1]	**Have Outstanding Credit Card Balances (%)**	**Do Not Have Outstanding Credit Card Balances (%)**
Number of Observations (N)	1,304.00	2,099.00
Weighted Observations	1,646,491.00	4,639,985.00
Proportion of Sample of Interest	36.40	63.60
Budgeting Behaviours		
Always Stay within a Household Budget	10.28	17.45
Usually Stay within a Household Budget	33.97	26.84
Impulsive	53.62	38.70
Financial Confidence		
Low	23.21	34.12
Medium	35.00	37.60
High	41.80	28.28
Financial Knowledge		
Low	6.86	7.27
Medium	60.86	56.79
High	32.39	35.94
Monitor Bank Accounts Daily	19.81	13.17
Difficulty Keeping Up With Bill Payments	54.23	23.37
Ownership of Principal Residence		
Own with Mortgage	55.42	40.52
Own without Mortgage	13.23	29.25
Rent	31.34	30.23
Female	54.59	49.04

[1]Proportions reported are for the financial behaviour model. Differences among the simplified and financial behaviour models are not statistically significant.

3.3.1 Simplified Model

In order to explore the impact that always staying within a household budget has on the probability an individual reports outstanding credit card balances in the household, a simplified model which regressed have outstanding credit card balances on always stay within a household budget and socio-economic and demographic factors was used. In this simplified model, all else held constant, an individual is less likely to have outstanding credit card balances if they always stay within a household budget (-13.4 percent) and have a university or professional degree (-9.6 percent). Individuals are more likely to have an outstanding credit card balance if they own their principal residence with a mortgage as compared to owning their principal residence without a mortgage (-20.8 percent), and renting (-7.8 percent), if they are female (7.1 percent), are in their early careers (11.2 percent) or are of prime working age (16.7 percent), or have a moderate household income between $55,000 to $79,999 as compared to a household income below $32,001. Statistically signification financial budgeting behaviours and socio-economic and demographic factors which impact the probability an individual will report outstanding credit card balances in the household are summarized in Table 8.[17]

Table 8: Adjusted Logit Regression between Outstanding Credit Card Balances, Always Stay within a Household Budget, and Socio-Economic and Demographic Factors

Model Predictors[2]	Simplified Model[1]	
	Probability[3]	Significance[4]
Always Stay within a Household Budget	-0.134	0.000
Principal Residence Owned without a Mortgage	-0.208	0.000
Principal Residence Rented	-0.079	0.020
University Degree	-0.096	0.005
Household Income $[55,000, 79,999]	0.138	0.015
Female	0.071	0.004
Age [25, 34]	0.112	0.048
Age [35, 54]	0.167	0.002

[1]The model is significant $\chi^2(21) = 125.22$, $p = 0.000$. The model explains 7.4 percent (McFadden's Pseudo R^2) of the variance and correctly classified 65.85 percent of cases.
[2]This model has been adjusted for the ownership of a principal residence, education, employment status, household income, gender, marital status, age, immigrant, indigenous and number of household members.
[3]"Probabilty" represents the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant.
[4]"Significance" represents the p-value or the probability of obtaining the observed result. A p-value of less than 0.05 is determined to be statistically significant in the model.

Importantly, if an individual always stays within a budget, he or she is less likely to have outstanding credit card balances in the household. However, when considering the population distribution, it may also be such that an individual who has outstanding credit card balances may also be less likely to always stay within a household budget. Individuals who always stay within a household budget may use their budget as a tool to limit their spending. Always staying within a household budget also reduces the probability an individual will attain this negative financial well-being outcome.

[17] Refer to Appendix D, Model (4) found in Table D-3: Simplified and Financial Behaviour Logit Regression Models of Outstanding Credit Card Balances and Absorbing a $5,000 Unexpected Expenditure with Savings, for a complete summary of logit regression results.

Financial constraint has the biggest effect on the probability an individual has outstanding credit card balances. Evidence of financial constraint is present when considering mortgage debt, age and income. Individuals who do not have mortgage debt because they own their principal residence outright or because they rent their principal residence are less likely to have outstanding credit card balances. Individuals may resort to credit card usage if they are unable to absorb their day-to-day expenses with income or savings after they have paid their monthly mortgage installment and other expenses.

Individuals beginning their career and those who are of prime working age are also more likely to have outstanding credit card balances. These individuals may have a smaller savings buffer which could be used to pay off credit card balances due to shorter careers, and constraints imposed by family household demands. Individuals who have a household income between $55,000 and $79,999 are also more likely to have outstanding credit card balances as compared to lower household income earners of less than $32,001. These individuals may be more likely to have access to credit cards than lower income earners and may be thus more likely to incur credit card debt than these earners when their monthly income is less than their expenses. Individuals who have a higher household income with access to credit cards may have an easier time paying their credit card balances due to a higher disposable income.

It is also of interest that women are more likely to have outstanding credit card balances. Generally, women have less financial knowledge than men and less confidence in their financial knowledge and abilities. For instance, Drolet (2016) found that in Canada, women are generally less likely than men to state they know enough about investments to choose the ones most appropriate for their circumstances. Women may thus be more likely to incur outstanding credit card balances because they are less knowledgeable of alternative debt options, or are less confident in their abilities to find and use these alternatives. Evidence of the importance of knowledge may be present when considering education as individuals who obtain more education through a university or professional degree are less likely to have outstanding credit card balances.

3.3.2 Financial Behaviour Model

After analyzing a simplified model, a financial behaviour model was explored using logit regression analysis. This model includes further financial behaviours which might predict an individual's probability of having outstanding credit card balances. This financial behaviour model also examines whether the predictive power of always staying within a household budget is partially explained by these financial behaviours. In the financial behaviour model, all else held constant, an individual who always stays within a household budget continues to be less likely to have outstanding credit card balances, however, this effect reduces from -13.4 percent, to -7.1 percent. This indicates that budgeting behaviours may be correlated with financial behaviours included in the model. In addition to the indicators outlined in the base model, an individual is more likely to have outstanding credit card balances in the household if they are impulsive (7.0 percent), financially confident (5.2 percent), seek financial advice on investments from an additional source (4.4 percent), monitor an additional financial topic (3.8 percent), monitor their bank accounts daily (8.4 percent), and have difficulty keeping up with their bills (22.6 percent). A comparison of statistically significant predictors which affect the probability an individual reports outstanding credit card balances between the simplified and financial behaviour model is summarized in Table 9.[18]

Table 9: Adjusted Logit Regression between Outstanding Credit Card Balances, Always Stay within a Household Budget, Financial Behaviours, and Socio-Economic and Demographic Factors

Model Predictors[2]	Simplified Model	Financial Behaviour Model[1]	
	Probability[3]	Probability[3]	Significance[4]
Always Stay within a Household Budget	-0.134	-0.071	0.000
Impulsive	N/A	0.070	0.008
Financial Confidence	N/A	0.052	0.002
Sources of Investment Information	N/A	0.044	0.026
Monitoring Financial Topics	N/A	0.038	0.011
Monitoring Bank Accounts Daily	N/A	0.084	0.012
Difficulty Keeping Up with Bill Payments	N/A	0.226	0.000
Principal Residence Owned without a Mortgage	-0.208	-0.175	0.000
Principal Residence Rented	-0.078	-0.088	0.005
University Degree	-0.096	-0.087	0.014
Household Income $[55,000, 79,999]	0.138	0.163	0.001
Household income $[80,000, 119,999]	-	0.096	0.046
Female	0.071	0.049	0.047
Age [25,34]	0.112	-	-
Age [35,54]	0.167	0.103	0.049

[1]The model is significant $\chi^2(29) = 266.03$, $p = 0.000$. The model explains 14.5 percent (McFadden's Pseudo R^2) of the variance and correctly classified 69.00 percent of cases.

[2]This model has been adjusted for the ownership of a principal residence, education, employment status, household income, gender, marital status, age, immigrant, indigenous and number of household members.

[3]"Probabilty" represents the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant.

[4]"Significance" represents the p-value or the probability of obtaining the observed result. A p-value of less than 0.05 is determined to be statistically significant in the model.

After including further predictive financial behaviours and personality traits, financial constraint continued to be the largest predictor of the probability an individual has outstanding credit card balances. In particular, difficulty keeping up with bill payments has the largest effect size on the probability of this financial well-being outcome. Individuals who have difficulty keeping up with bill payments may be more likely to incur outstanding credit card balances as

[18] Refer to Appendix D, Model (5) found in Table D-3: Simplified and Financial Behaviour Logit Regression Models of Outstanding Credit Card Balances and Absorbing a $5,000 Unexpected Expenditure with Savings, for a complete summary of logit regression results.

they do not have the funds available to fully pay off these balances. As well, they may also be using their credit cards in order to make ends meet. In addition to the indicators of financial constraint as evidenced in the base model, the inclusion of financial behaviours such as receiving financial advice on investments, monitoring financial topics, and monitoring bank accounts daily also serve as indicators of financial constraint. Individuals who monitor their bank accounts daily may be doing so as they must carefully spend a limited amount of funds so as not to deplete their bank accounts before the arrival of their next pay period. Individuals who monitor financial topics or who seek an additional source of advice for investments may be doing so because they are susceptible to fluctuations in markets such as interest rates, inflation, housing, or may be seeking advice on how to acquire debt in order to pay for a planned expense or to make ends meet.

Interestingly, impulsive individuals and financially confident individuals are more likely to have outstanding credit card balances in the household. It could also be the case that individuals who have outstanding credit card balances in the household are more likely to be impulsive or financially confident. Both types of individuals may be more likely to use credit cards as an income-smoothing mechanism to make ends meet. Impulsive individuals may resort to credit as an income-smoothing mechanism when they make a purchase for which they do not currently have the funds available to do so. It may then be the case that their credit card purchases build up over time or they do not acquire the funds to pay off the balance of their purchases before the credit card bill is due. Financially confident individuals may have a higher self-efficacy. As a result, they may make credit card purchases when they feel they have the ability to pay them off in the future. However, their financial expectations may not have developed as planned. As under the case of impulsive individuals, credit card purchases could build up over time, or the bill may come before the individual has obtained the funds to pay off the balance.

3.4 Does Always Staying within a Household Budget Impact the Probability an Individual Will Absorb a $5,000 Unexpected Expenditure with Savings?

Using savings to absorb a $5,000 unexpected expenditure is a positive indicator of financial well-being. In the sample of interest, approximately 27 percent of individuals would use savings to partially or fully absorb a $5,000 unexpected expenditure. Of these individuals who would use savings, approximately 19 percent always stay within a household budget. However, of the 73 percent of individuals who would not use savings to absorb this expenditure, only 14 percent always stay within a household budget. Also of interest, there is a higher proportion of individuals who usually stay within a household budget among those who would not use savings (31 percent), as compared to those who would (23 percent). Together, this indicates that consistently staying within a household budget may have a greater influence on an individual's propensity to save or on their knowledge of their personal finances. A comparison of financial behaviours between those individuals who would use savings and those individuals who would not use savings to absorb a $5,000 unexpected expenditure are summarized in Table 10.

Table 10: Financial Behaviours, Socio-Economic and Demographic Factors of Individuals Using Savings to Absorb a $5,000 Unexpected Expenditure

Financial Behaviours[1]	Absorb a $5,000 Unexpected Expenditure with Savings (%)	Do Not Use Savings to Absorb a $5,000 Unexpected Expenditure (%)
Number of Observations (N)	918.00	2,333.00
Weighted Observations	845,490.00	5,623,099.00
Proportion of Sample of Interest	27.65	72.35
Budgeting Behaviours		
Always Stay within a Household Budget	19.35	13.65
Usually Stay within a Household Budget	23.47	32.32
Impulsive	44.77	43.65
Financial Confidence		
Low	40.25	27.01
Medium	41.33	35.48
High	18.41	37.51
Financial Knowledge		
Low	3.85	7.31
Medium	51.54	60.69
High	44.61	32.00
Monitor Bank Accounts Daily	15.62	15.87
Difficulty Keeping Up With Bill Payments	13.11	41.09
Ownership of Principal Residence		
Own with Mortgage	40.82	47.69
Own without Mortgage	38.57	18.56
Rent	20.60	33.75
Female	45.43	53.01

[1]Proportions reported are for the financial behaviour model. Differences in the proportions among the simplified and financial behaviour models are not statistically significant.

Financial constraint appears to be the largest differentiating factor between individuals who would use savings to absorb a $5,000 unexpected expenditure and individuals who would not. Specifically, among individuals who would not use savings, the proportion of individuals who report difficulty keeping up with bill payments (41 percent) is markedly higher than among those who would use savings (13 percent). Financial constraint is further evidenced through the ownership of a principal residence. Individuals who would absorb this unexpected expenditure with savings have double the proportion of individuals who own their principal residence without a mortgage (39 percent vs. 19 percent), and have a significantly lower proportion of individuals who rent their principal residence (21 percent vs. 34 percent) as compared to individuals who would not use savings. However, it is of interest to note there does not appear to be a proportional difference among those who monitor their bank accounts daily, a third indicator of financial constraint, between the two populations.

Population differences can also be found among the proportion of financially confident, knowledgeable, and among gender in each population. However, there is not a significant difference in the proportion of impulsive respondents. Interestingly, individuals who have lower financial confidence, and higher financial knowledge appear to be more likely to use savings to absorb a $5,000 unexpected expenditure than those who do not. Women are on average less financially confident than their male counterparts. Correspondingly there is a lower proportion of women among those who would use savings to absorb a $5,000 unexpected expenditure than those who would not.

3.4.1 Simplified Model

A simplified base model was first used to explore the effect that always staying within a household budget has on the probability an individual will use savings to absorb a $5,000 unexpected expenditure. In this simplified model, all else held constant, an individual is more likely to use savings to absorb a $5,000 unexpected expenditure if he or she always stay within a household budget (9.4 percent), owns his or her principal residence without a mortgage (16.6 percent), has a university or professional degree (6.2 percent), is retired (10.3 percent), and has a higher household income (9.9 percent if between $80,000 and $119,999, and 14.4 percent if $120,000 or above). Women are less likely to use savings to absorb a $5,000 unexpected expenditure (-5.6 percent) as are those in their early careers (-16.4 percent), and those in their prime working ages (-16.7 percent). Table 11 provides a comparison of the statistically significant financial behaviours present in each of the budgeting populations.[19]

Importantly, if an individual always stays within a household budget, he or she is more likely to use savings to absorb a $5,000 unexpected expenditure. Individuals who always stay within a household budget may have incorporated emergency savings into their budgets, creating a savings buffer which can be used to absorb unforeseen expenses. Individuals who always stay within their household budget may also have a higher awareness, and thus a greater knowledge of their personal finances.

Financial constraint is a second important indicator of an individual's ability to absorb a $5,000 unexpected expenditure with savings. Financial constraint is exhibited through the owning of a principal residence without a mortgage as compared to with a mortgage. Individuals who own their principal residence without a mortgage as compared to with a mortgage do not have the burden of a monthly mortgage payment and may thus be able to allocate a greater amount of their monthly income to savings. This could create a larger savings buffer to be used towards unforeseen expenditures.

[19] Refer to Appendix D, Model (6) found in Table D-3: Simplified and Financial Behaviour Logit Regression Models of Outstanding Credit Card Balances and Absorbing a $5,000 Unexpected Expenditure with Savings, for a complete summary of logit regression results.

Table 11: Adjusted Logit Regression between Absorbing a $5,000 Unexpected Expenditure with Savings, Always Stay within a Household Budget, and Socio-Economic and Demographic Factors

Model Predictors[2]	Simplified Model[1]	
	Probability[3]	Significance[4]
Always Stay within a Household Budget	0.094	0.007
Principal Residence Owned without a Mortgage	0.156	0.000
University Degree	0.062	0.038
Retired	0.103	0.038
Household Income $[80,000, 119,999]	0.099	0.036
Household Income $[Over 119,999]	0.144	0.005
Female	-0.056	0.019
Age [25, 34]	-0.164	0.011
Age [35, 54]	-0.167	0.009

[1]The model is significant $\chi^2(21) = 116.69$, $p = 0.000$. The model explains 7.7 percent (McFadden's Pseudo R^2) of the variance and correctly classified 72.96 percent of cases.

[2]This model has been adjusted for the ownership of a principal residence, education, employment status, household income, gender, marital status, age, immigrant, indigenous and number of household members.

[3]"Probabilty" represents the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant.

[4]"Significance" represents the p-value or the probability of obtaining the observed result. A p-value of less than 0.05 is determined to be statistically significant in the model.

A second indicator of financial constraint is retirement. Individuals who are retired are less likely to face financial constraint because they have likely spent their working lives building a savings buffer from which to rely upon during their post-working years. It is thus likely that retired individuals are able to use this buffer to absorb unforeseen expenses. This is further evidenced when considering those who are between the ages of 25 to 64, in other words, the majority of the working population. Individuals who are between these ages are less likely to use savings to absorb an unexpected expenditure. It is likely that these individuals are in the process of building their savings buffer and may thus have insufficient savings to absorb this expenditure. It could also be the case that their savings are not able to be easily accessed or liquidated in the time needed to absorb the unexpected expenditure.

A final indicator of financial constraint occurs when considering income. Individuals who earn a household income greater than $80,000 are more likely to use savings to absorb an unexpected expenditure. Individuals with a higher income may have more disposable income and are also likely to have access to lower credit rates and so are able to build a larger savings buffer due to using less of their income to make interest payments.

Financial knowledge may be a third component in predicting an individual's probability of using savings to absorb a $5,000 unexpected expenditure. Research has shown that on average, women have less financial knowledge, and confidence of their financial knowledge as men (Drolet, 2016). In this analysis, women are less likely than men to use savings to absorb this unexpected expenditure. This may provide evidence that knowledge and confidence are important indicators of a person's ability to absorb a financial shock with savings. The importance of knowledge is evidenced through education. Individuals with a university or professional degree are more likely to use savings to absorb this expenditure than are those with a high school diploma as their highest educational attainment. Individuals with a higher financial knowledge may have a greater awareness of the benefits of using savings to absorb this expenditure as compared to debt, and may also have a higher awareness as to the amount of savings which can be used.

3.4.2 Financial Behaviour Model

As with the previous financial well-being outcomes, absorbing an unexpected expenditure of $5,000 with savings was also analyzed using a financial behaviour model to explore if the inclusion of financial behaviours influence the explanatory power of always staying within a household budget. When accounting for further financial behaviours, the financial behaviour of always staying within a household budget is no longer statistically significant in the model. This may further indicate that budgeting behaviours, are correlated with the included financial behaviours and may thus act as a useful tool in compliment with these behaviours. In this model, all else held constant, an individual is more likely to use savings to absorb an unexpected expenditure of $5,000 if they have a higher level of financial knowledge (5.1 percent) and own their principal residence without a mortgage (14.0 percent). An individual is less likely to use savings to absorb this expenditure if he or she is financially confident (-3.6 percent), has difficulty keeping up with bill payments (-20.3 percent), and is between the ages of 25 and 34 (-12.1 percent). A comparison of statistically significant predictors which affect the probability an individual will use savings to absorb a $5,000 unexpected expenditure can be found in Table 12.[20]

After including financial behaviours in the model, always staying within a household budget, university or professional degree, retirement, higher household income, gender, and prime working age are no longer the key predictors of an individual's ability to use savings to absorb a $5,000 unexpected expenditure. Always staying within a household budget was an indicator of day-to-day money management. Together, with university or professional degree, always stay within a household budget was hypothesized as an indicator of the importance of knowledge. Indeed, when financial knowledge is included in the model, is indicates that individuals who use savings have a higher level of financial knowledge.

[20] Refer to Appendix D, Model (7) found in Table D-3: Simplified and Financial Behaviour Logit Regression Models of Outstanding Credit Card Balances and Absorbing a $5,000 Unexpected Expenditure with Savings, for a complete summary of logit regression results.

Table 12: Adjusted Logit Regression between Absorbing a $5,000 Unexpected Expenditure with Savings, Always Stay within a Household Budget, and Socio-Economic and Demographic Factors

Model Predictors[2]	Simplified Model	Financial Behaviour Model[1]	
	Probability[3]	Probability[3]	Significance[4]
Always Stay within a Household Budget	0.094	-	-
Financial Confidence	N/A	-0.036	0.038
Financial Knowledge	N/A	0.051	0.031
Difficulty Keeping Up with Bill Payments	N/A	-0.200	0.000
Principal Residence Owned without a Mortgage	0.156	0.140	0.000
University Degree	0.062	-	-
Retired	0.103	-	-
Household Income $[80,000, 119,999]	0.099	-	-
Household Income $[Over 119,999]	0.144	-	-
Female	-0.056	-	-
Age [25,34]	-0.164	-0.121	0.050
Age [35, 54]	-0.167	-	-

[1]The model is significant $\chi^2(29) = 179.72$, $p = 0.000$. The model explains 13.2 percent (McFadden's Pseudo R^2) of the variance and correctly classified 73.58 percent of cases.

[2]This model has been adjusted for the ownership of a principal residence, education, employment status, household income, gender, marital status, age, immigrant, indigenous and number of household members.

[3]"Probabilty" represents the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant.

[4]"Significance" represents the p-value or the probability of obtaining the observed result. A p-value of less than 0.05 is determined to be statistically significant in the model.

In the base model, gender was an indicator of financial knowledge and financial confidence. When financial confidence is included in the model, it predicts that individuals who would use savings are less financially confident. This corresponds to current gender research in the field of financial literacy.

Financial constraint was the final predictor of an individual's ability to use savings to absorb a $5,000 unexpected expenditure. Difficulty keeping up with bill payments provides the explanatory power previously predicted from household income, retirement, and working age. The ability for an individual to pay their bills on time may serve as a more direct measure when assessing their financial constraint. Interestingly, the impact of mortgage debt continues to serve as significant indicator of an individual's ability to use savings. Owning a principal residence in the absence of a mortgage is an indicator of wealth and the lack of mortgage and rent payments imply a greater disposable income which can be used towards savings.

3.5 Summary of Results

The findings of this analysis are summarized in Table 13 and Table 14 below. It is important to note that due to the cross-sectional nature of the data, all relationships represent correlation and not causation. Findings of this analysis suggest that individuals budget because they are facing constraint either caused by finances or by a lack of confidence. However, if individuals face constraint such that they have difficulty keeping up with bill payments or are impulsive, they are less likely to always stay within a household budget. Individuals may also be less likely to always stay within a household budget if they have a higher level of financial confidence.

Table 13: Summary of Budgeting Outcomes

Budgeting Outcomes	Always Stay within a Household Budget	Usually Stay within a Household Budget
Adjusted Logit Regression Model Used	**Financial Behaviour Model**	**Financial Behaviour Model**
Impulsive	Negative	-
Financial Confidence	Negative	-
Sources of Investment Information	Negative	-
Difficulty Keeping Up with Bill Payments	Negative	-
Principal Residence Owned without a Mortgage	-	Negative
University Degree	Negative	-
Unemployed	-	Negative
Retired	-	Negative
Female	-	Negative

Financial well-being outcomes are correlated to always staying within a household budget. Always staying within a household budget increases the probability an individual will have zero household debt and decreases the probability an individual will have household debt of less than $50,000 in the simplified model. Always staying within a household budget is negatively related to having outstanding credit card balances in both the simplified and financial behaviour model. However, with the incorporation of financial behaviours, the explanatory power that always staying within a household budget has on the probability an individual will have outstanding credit card balances is reduced. Always staying within a household budget is positively related to absorbing a $5,000 unexpected expenditure only in the simplified model when further financial behaviours are not included. The reduction of the explanatory power that always staying within a household budget has on financial well-being outcomes when financial behaviours are included in the model suggest that budgeting shares a link with other financial behaviours. This indicates that while always staying within a household budget is a useful tool to control spending and to increase savings, it should be used in alignment with other financial behaviours in order to achieve financial well-being outcomes.

Table 15: Summary of Financial Well-Being Outcomes

Financial Well-Being Outcomes	Household Debt Levels, Overall Effects		Outstanding Credit Card Balances		Absorb $5,000 UE with Savings	
Adjusted Logit Regression Model Used	Simplified Model[1,2]	Financial Behaviour Model[1,2]	Simplified Model	Financial Behaviour Model	Simplified Model	Financial Behaviour Model
Always Stay within a Household Budget	-	-	Negative	Negative	Positive	-
Impulsive	N/A	-	N/A	Positive	N/A	-
Financial Confidence	N/A	Significant	N/A	Positive	N/A	Negative
Financial Knowledge	N/A	-	N/A	-	N/A	Positive
Sources of Investment Information	N/A	-	N/A	Positive	N/A	-
Monitoring Financial Topics	N/A	Significant	N/A	Positive	N/A	-
Monitoring Bank Accounts Daily	N/A	-	N/A	Positive	N/A	-
Difficulty Keeping Up with Bill Payments	N/A	Significant	N/A	Positive	N/A	Negative
Principal Residence Owned without a Mortgage	N/A	-	Negative	Negative	Positive	Positive
Principal Residence Rented	N/A	-	Negative	Negative	-	-
University Degree	-	-	Negative	Negative	Positive	-
Retired	-	-	-	-	Positive	-
Household Income $[55,000, 79,999]	-	-	Positive	Positive	-	-
Household Income $[80,000, 119,999]	-	-	-	Positive	Positive	-
Household Income $[Over 119,999]	-	-	-	-	Positive	-
Female	-	-	Positive	Positive	Negative	-
Age [25, 34]	-	-	Positive	-	Negative	Negative
Age [35, 54]	-	-	Positive	Positive	Negative	-
Immigrant	-	Significant	-	-	-	-

[1]Significant represents a p-value < 0.05 when conducting a Wald test for the variable significance of the overall model. Directional relationships of the overall model are unable to be determined as in a multinomial logit regression, the average marginal effects estimated for each predictor must sum to one across the outcome of interest.

[2]In addition, under both the simplified and financial behaviour models, the categorical and binary predictors of education level, employment status, household income, marital status, age, and number of household members have a statistically significant overall effect on an individual's level of household debt.

Financial behaviours which have predictive power on indicators of financial well-being include impulsivity, financial confidence and financial knowledge. Individuals who are impulsive or who have a higher level of financial confidence are more likely to have outstanding credit card balances. Individuals who have lower levels of financial confidence and higher levels of financial knowledge are more likely to absorb a $5,000 unexpected expenditure with savings. Financial confidence and knowledge have a relation to gender, with women on average displaying less financial confidence and knowledge than men.

Common to both the budgeting outcome models and all financial well-being outcomes is financial constraint. Financial constraint is evidenced through difficulty keeping up with bill payments, monitoring financial topics, monitoring bank accounts, mortgage debt, household income, retirement, and age. Financial constraint reduces the probability of achieving positive financial well-being outcomes and increases the probability of attaining negative financial well-being outcomes.

4. Discussion

The role of budgeting to achieve financial well-being is a complex and multi-dimensional topic. With the use of cross-sectional data, causal relationships are unable to be determined, however, correlations are present. Throughout this analysis correlations identified are related to financial constraints on resources, financial confidence and knowledge effects, and consumption smoothing. In this analysis, financial constraints can be linked to time-orientation which is associated with stronger savings practices and paying down debts. Confidence and knowledge effects are important when considering individual perceptions about financial constraints and their ability to control financial outcomes. Vulnerable populations such as women are at a higher risk due to this effect. Consumption smoothing is prevalent when considering impulsivity and self-control.

4.1 Financial Constraints and Time Orientation

This analysis finds that individuals who are facing financial constraint are more likely to have a household budget. However, if their financial constraint is such that they have difficulty keeping up with bill payments, they are less likely to always stay within their household budget. Individuals who face financial constraint are also less likely to achieve positive financial well-being outcomes and are more likely to attain negative financial well-being outcomes. The largest predictors of financial constraint are difficulty keeping up with bill payments and having mortgage debt.

Individuals who live in a principal residence owned by themselves or a family member without a mortgage are more likely to achieve positive financial well-being outcomes. Individuals may find it difficult to pay off their mortgage due to low-levels of disposable income and a tendency to prefer present consumption rather than delayed consumption. Furthermore, individuals may have incentive to borrow against their home. Today individuals are given more opportunities to continue borrowing on their home using a home equity line of credit (HELOC). The Bank of Canada (2017) found that HELOCS make up a portion of two out of every five outstanding residential real-estate loans and can allow individuals to borrow up to 65 percent of their home's value. In its 2017 *Home Equity Lines of Credit: Market Trends and Consumer Issues* Report, FCAC found that due to HELOCs relatively low interest rates, individuals may use this credit option instead of savings to consolidate debt, finance home improvements, travel, and purchase vehicles, rental properties, or cottages.

An important component of the ability to resist utilizing a HELOC or other readvanceable mortgage and to reduce mortgage debt is time orientation. The impact of time orientation on budgeting behaviours and financial well-being was unable to be included in this analysis due to limitation within the CFCS. However, Kempson et al (2017) found that having longer time orientations and budgeting was positively correlated. In addition, the ability to save is correlated with planning ahead. Using their focus groups of financial practitioners and consumers, the CFPB (2015) found future orientation was key to achieving financial well-being and was associated with budgeting and financial planning.

Time orientation is an important factor when considering the savings component associated with budgeting. According to Rabinovich and Webley (2007), individuals with shorter time horizons focus more on current consumption and thus save less for future financial goals. Further, Fisher and Montalto (2010) found that households with medium-term savings horizons were 45 percent more likely to save regularly while households who had long-term savings horizons were 85 percent more likely to save regularly. The CFPB (2015) finds that individuals associate budgeting with the short-term and financial planning with the long-tem. FCAC should consider promoting budgeting as a useful tool Canadians can use to control day-to-day finances in order to achieve their long-term goals.

In order to promote budgeting as a tool to achieve long-term goals, it is important for FCAC to prompt Canadians to set financial goals. The CFPB (2015) reports financial goals which are realistic and attainable give meaning to budgeting and saving financial behaviours. An example of this impact can be found within Thaler (1999) who found that households with a goal to save for retirement contribute savings to these accounts without sacrificing their expenditures in other savings accounts. This implies that households who set financial goals aim to achieve these goals by sacrificing their consumption expenditures. Individuals who target paying off their mortgages or paying their bills in full may be more successful in using a budget to ensure they control their spending to ease the burden of debt repayment, make all mortgage payments, pay mortgages off quicker, or avoid using a home equity line of credit. Using a budget for these purposes may induce those with higher financial confidence levels to adopt the use of a budget.

4.2 Financial Confidence, Knowledge and Gender

Individuals who have a higher level of financial confidence are more likely to have outstanding credit card balances and were less likely to absorb an unexpected expenditure of $5,000 with savings. In addition, individuals with a higher level of financial knowledge were more likely to use savings to pay for part or all of this expense.

These findings are in line with the 2016 findings of the Social Research and Demonstration Corporation (SRDC) who found that financial confidence is a better predictor of day-to-day money management than financial knowledge and both financial knowledge and financial confidence are important predictors of long-term planning. SRDC finds that financial confidence is associated with better day-to-day money management, however, if an individual is overly confident, he or she may be more likely to experience negative outcomes. In this analysis, day-to-day money management is represented by outstanding credit card balances and long-term money management is represented by using savings to absorb a $5,000 unexpected expenditure. This analysis finds that individuals with higher financial confidence are more likely to have outstanding credit card balances and thus experience a negative financial well-being outcome, while individuals with higher financial knowledge are more likely to have set aside savings which can be used to absorb a $5,000 unexpected expenditure.

The importance of financial confidence and knowledge is evident when considering gender. For instance, on average, women have lower financial literacy and confidence scores than men (Drolet, 2016; Mottola and Kieffer, 2017). In addition, women are also less risk tolerant than men (Joo and Grable, 2004). This analysis corresponds with previous finding that women are more susceptible to negative financial well-being outcomes than their male counterparts. This is due in part to their financial behaviours, their demographic characteristics, and societal constraints. Women benefit from the use of a budget to enhance their financial management skills and to reduce the risks of attaining negative financial well-being outcomes.

It is especially important for women to practice budgeting habits so that they save for the future. In Canada, women live longer than their male counterparts while also having higher disability rates. In the event of a separation or divorce, older women have an increased vulnerability to low income. This could be in part due to the lower average earnings women receive as well as their shorter working lives. As a result, women have less cumulative savings to rely upon in the event of unexpected expenditures (Drolet, 2016). Increasing financial confidence and knowledge among women with the use of a budget may lead to positive savings effects which can be used to combat shorter working lives and lower incomes. For instance, Farrell et al (2016) found that women with higher financial confidence are more likely to hold savings products and are less likely to hold debt related products.

4.3 Self-Control and Consumption Smoothing

Self-control is positively related to financial behaviours such as savings (Lind et al, 2017). Thaler and Shefrin (1981) describe self-control as an internal conflict which can be mitigated by using a budget, modifying preferences, or altering incentives. Budgets provide a rationing mechanism to increase self-control by reducing consumption based on impulse (Wertenbroch, 1998). Thaler (1985) cautions when borrowing is an option, consumers may no longer view a resource as limited and can thus find themselves in debt. Such prevalence to resort to credit as a consumption smoothing mechanism is evidenced in this analysis. In this analysis, being impulsive reduces the probability an individual will always stay within their household budget and increases the probability an individual will have outstanding credit card balances.

This is a problematic finding as individuals who rely on credit are more likely to have an exaggerated sense of their available disposable income and are thus more likely to spend on unnecessary goods (Soman, 2001). A possible solution to combat this effect is to set budgets too low (Thaler, 1999). It may also be of interest to employ behavioural economic approaches in order to entice individuals to self-identify their constraints. In doing so, individuals may be less likely to view their resources as unlimited and may budget to reduce their reliance on debt and increase their savings, accordingly.

4.4 Limitations of the Research

This research has several limitations. The first limitation is the CFCS design. The CFCS uses a cross-sectional survey design. When using cross-sectional data, researchers are unable to conclude causal effects and must rely on correlations. Because this research used cross-sectional data to explore the relationship that budgeting behaviours have on financial well-being outcomes, this cause and effect relationship was unable to be fully identified.

The second limitation is related to the CFCS question design. Questions in the CFCS are asked at the individual, household, and family levels. For example, income is measured at both the household and personal level, however, the ownership of outstanding credit card balances is assessed at the family level. For the purposes of this research, families and households are considered to be the same. However, in practice, this is may not be the case.

Responses to household questions are dependent on the individual respondent. It might be the case that responses to household level questions vary depending on the individual in the household surveyed and are thus dependent on the individual's knowledge and confidence of household finances.

Furthermore, the CFCS does not measure psychological factors such as time orientation and locus of control which previous research has shown to be correlated with financial behaviours (Kempson et al, 2017). The CFCS was able to account for respondent impulsivity however, this measure is based off a response to one subjective question which may not be a robust prediction of impulsive behaviour. Because this analysis was not able to account for psychological factors which may predict an individual's probability of always staying within a household budget, or achieving financial well-being outcomes, the models used had low Pseudo R^2 and in some cases, low percent correctly predicted values. This indicates that a large proportion of the variance was unable to be explained by the model or the model suffers from inaccuracy when predicting outcomes of interest.

4.5 Impacts

This analysis highlights next steps for budgeting research as well as provides important policy implications. In this analysis, a correlation between always staying within a household budget and indicators of financial well-being is identified. However, due to the cross-sectional nature of the data, a causal relationship is unable to be concluded. Moving forward, future budgeting research should be conducted using longitudinal data in order to better predict the role that budgeting has on indicators of financial well-being. Through its work with Carrot Rewards, FCAC has been able to use longitudinal data to link the use of a budget with higher confidence and knowledge in budgeting (McLean-McKay & Leigh-Mossley, 2017). This indicates that the use of a budget can be an important tool to increase individuals' confidence in their day-to-day money management and financial planning and may contribute to achieving financial well-being outcomes.

A prevailing factor among attaining financial well-being outcomes is perception. Individual perception about their constraints on financial knowledge, confidence, resources and time all impact their undertaking of a budget as well as their financial outcome. Fernbach et al (2015) note that all resources are constrained. Targeted messaging to individuals who do not budget may enable them to self-identify a constraint in their lives for which a budget would improve the follow through towards this outcome. This may be achieved by integrating behavioural economics techniques into financial education resources and interventions. Though every individual faces constraint, all individuals have the ability to control their expenditure techniques in order to implement their savings intentions (Rabinovich and Webley, 2007). Ensuring that Canadians budget to reduce unnecessary spending as well as financial constraints, is expected to have positive impacts on their financial well-being.

5. Conclusion

This analysis indicates that individuals who are budgeting do so because they are under constraint. Such constraint may be due to finances, time, financial confidence, financial knowledge, and impulsive behaviour. However, if an individual faces financial constraint such that they have difficulty keeping up with bill payments, have a higher level of financial confidence, and are more impulsive, he or she may be less likely to always stay within a household budget.

Always staying within a household budget is a budgeting behaviour of interest as the relationship between budgeting and indicators of financial well-being is dependent on the frequency with which an individual stays within his or her household budget. This analysis indicates that always staying within a household budget does not have a significant overall effect on an individual's level of household debt. Household debt levels may be better explained by financial confidence and financial constraint. Always staying within a household budget has a negative relationship with having outstanding credit card balances, under both a simplified and financial behaviour model, and has a positive relationship with using savings to absorb a $5,000 unexpected expenditure, under a simplified model. Together this indicates that always staying within a household budget can increase an individual's probability of achieving positive financial well-being outcomes.

When financial behaviours are included in the model, the explanatory power of always staying within a household budget is reduced. This indicates that budgeting behaviours are linked to financial behaviours such as financial confidence, knowledge, and impulsive behaviour. Budgeting should be used to improve financial confidence and knowledge and control spending to reduce impulsive behaviours in order for an individual to achieve financial well-being outcomes. Furthermore, budgeting can be used to reduce financial constraint, which is the largest predictor of an individual's ability achieve financial well-being outcomes.

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7. Appendix

Appendix A: Canadian Financial Capability Survey

The following information about the 2014 Canadian Financial Capability Survey has been excerpted from Statistics Canada.[21]

Description

The Canadian Financial Capability Survey (CFCS) sheds light on Canadians' knowledge, abilities and behaviour concerning financial decision-making. In other words, how Canadians understand their financial situation, the financial services available to them and their plans for the future. The survey is designed to collect information surrounding respondents' approaches to day-to-day money management and budgeting, longer term money management and general financial planning.

Target population

The target population for the CFCS is all persons 18 years of age and over living in Canada. Full-time residents of institutions and residents of the Yukon, Northwest Territories and Nunavut are not included in this survey. Telephone numbers that might correspond to these areas have been excluded from the sample.

Instrument design

In the case of the Canadian Financial Capability Survey, it was proposed from its conception in 2009 that it be collected by telephone interview; an approach that reflected previous successes in other countries with similar subject matter. A first round of cognitive testing, including one-on-one interviews and focus group discussions, across Canada in spring 2007 confirmed that this was indeed the best way to proceed. With the addition of Finance Canada and the Bank of Canada as active partners, the content was modified to reflect each of the partners data needs. This led to a second round of cognitive testing in only a few selected cities in the spring of 2008. The computer-assisted telephone interviewing (CATI) application was developed and tested during the summer and fall months in 2008.In an attempt to maintain comparability, the 2014 Canadian Financial Capability Survey has kept the 2009 CFCS's content intact, making only very slight updates where necessary. The 2014 application was then re-developed and tested in the early months of 2014.

Sampling

This is a sample survey with a cross-sectional design. This sample survey is based on the current Labour Force Survey (LFS, record number 3701) cross-sectional design, a very complex design of a probability sample that is based on a stratified multi-stage design. Each province is divided into large geographic stratum. The first stage of sampling consists of selecting smaller

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[21]This information was accessed on March 6, 2018, on the Statistics Canada website: http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5159

geographic areas, called clusters, from within each stratum. The second stage of sampling consists of selecting dwellings from within each selected cluster. The LFS covers the civilian, non-institutionalised population 15 years of age and over.

The LFS uses a rotating panel sample design so that selected dwellings remain in the LFS sample for six consecutive months. Each month about 1/6th of the LFS sampled dwellings are in their first month of the survey, 1/6th are in their second month of the survey, and so on. One feature of the LFS sample design is that each of the six rotation groups can be used as a representative sample by itself. To ensure people from all parts of the 10 provinces were represented in the CFCS sample, we took two rotation groups and selected a systematic sample from this based on a power allocation (a balance between a proportional and equal allocation of the provinces) to ensure estimates at the national level are releasable.

Data Sources

Data collection for this reference period: 2014-05-12 to 2014-06-21

Responding to this survey is voluntary.

Data are collected directly from survey respondents.

Proxy interviews are not permitted. Data are collected using computer-assisted telephone interviewing (CATI). A front-end module contains a set of standard response codes for dealing with all possible call outcomes, as well as the associated scripts to be read by the interviewers. A standard approach set up for introducing the agency, the name and purpose of the survey, the survey sponsors, how the survey results will be used, and the duration of the interview is used. The CATI application ensure that only valid question responses are entered and that all the correct flows are followed. Edits are built into the application to check the consistency of responses, identify and correct outliers, and to control who gets asked specific questions. This means that the data are already quite "clean" at the end of the collection process.

View the Questionnaire(s) and reporting guide(s).

Appendix B: Preliminary Analysis

Various methodologies were used in this analysis. Upon initial analysis, a logistic regression of financial well-being outcomes using only the financial behavior model was used on the sample population. The variable of interest was stay within a household budget which included individuals who always or usually stay within a household budget. However, staying within a household budget was not statistically significant in any of the financial well-being outcomes. In addition, staying within a household budget did not have a statistically significant relationship with financial well-being outcomes when mediation analysis using structural equation modeling was performed to test for indirect relationships. Household income confounders were then used to explore this relationship.[22] However, stay within a household budget was also not statistically significant in this case.

In order to identify the impact budgeting has on financial well-being, a logistic regression of the financial well-being outcomes using the budgeting groups stay within a household budget and do not follow a household budget was performed. In each confounder group, there were common statistically significant financial behaviours, socio-economic, and demographic factors which had the same directional effect on achieving financial well-being outcomes (for example, having difficulty keeping up with bill payments increased the probability that both individuals who stay within a household budget and individuals who do not follow a household budget will have outstanding credit card balances). Using a Wald-chi square test statistic for testing differences in group coefficients, it was determined there is not a statistically significant difference in the magnitude of group coefficients (i.e. unable to conclude that staying within a household budget mitigates the risk of attaining negative financial well-being outcomes or improves the chances of attaining positive financial well-being outcomes). Thus it was concluded that using budgeting confounder groups did not provide further insight into the relationship between budgeting and indicators of financial well-being.

After consideration, it was determined that not only is staying within a household budget of interest when considering its effect on financial well-being outcomes, but it is also important to consider the frequency with which an individual stays within a household budget. As a result, focus was shifted from stay within a household budget to always stay within a household budget.

[22] Research has shown that household incomes shares a relation to financial well-being.

Appendix C: Participants and Analyses

Participants

Analyses were conducted using the CFCS 2014 Master File at the Statistics Canada Federal Research Data Centre (FRDC). The FRDC disclosure rules prohibit the reporting of unweighted sample sizes. Therefore, weighted descriptive data are presented to report on the population that is represented by the sample.

Weighting

In order to conduct the analyses, cases were re-weighted by applying "normalized" weighting. This process was performed by dividing each of the "Master File Survey Weight, person" (variable: WTPM, available in the CFCS dataset) as assigned by Statistics Canada by the mean value of the "Master File Survey Weight, person." This was done in order to maintain appropriate relative weighting, which ensures a representative population-level sample while reducing the inflationary effect of population-level weighting on significance tests.

Table C-1: Dependent Variables

Dependent Variable	CFCS Question	Variable Coding
Always Stay Within a Household Budget	OE_12 "How often do you stay within your budget?"	Respondents indicating Always were coded as one and all others (including those who had validly skipped because they indicated that they did not have a budget in question OE_11) were coded as zero.
Usually Stay within a Household Budget	OE_12 "How often do you stay within your budget?"	Respondents indicating Usually were coded as one and all others (including those who had validly skipped because they indicated that they did not have a budget in question OE_11) were coded as zero.
Amount of Household Debt	AD_G12 "What is the estimated total value of debts and liabilities owed by you or other members of your family?[23]	Respondents were grouped into five binary categories of household debt levels: zero debt, less than $50,000, $50,000 to $99,000, $100,000 to $199,000 and greater than or equal to $200,000.
Outstanding Credit Card Balances	AD_11E "Do you or anyone in your family currently have any one of the following types of debts or liabilities?"	Respondents indicating Yes were coded as one and all others were coded as zero.
Absorb a $5,000 with Savings	FM_03A If you had to make an unexpected expenditure today of $5,000, how would you pay for this expense?	The question was recoded into a binary variable: (1) use savings; (0) other. Respondents were given the option of choosing a maximum of three options among: use savings; borrow from a friend or relative; use a personal line of credit; borrow from a financial institution; use a credit card; sell a financial asset or personal possession; go to a pawn broker or

[23] Family is defined as all related members of the respondent's family who usually reside in his or her household even if they are temporarily away.

		payday loan service; other; and would not be able to pay for this expenditure.

Table C-2: Independent Variables

Independent Variable	CFCS Question	Variable Coding
Always Stay Within a Household Budget	OE_12 "How often do you stay within your budget?"	Respondents indicating Always were coded as one and all others (including those who had validly skipped because they indicated that they did not have a budget in question OE_11) were coded as zero.
Impulsive	SA_07 "Have you ever made a financial decision that you later regretted?"	Respondents indicating Yes were coded as one and all others were coded as zero.
Financial Confidence	SA_01-SA_05 Financial confidence was measured using five questions that asked respondents to rate themselves on the following: (1) level of financial knowledge; (2) keeping track of money; (3) making ends meet; (4) shopping around to get the best financial product; (5) staying informed on financial issues.	Each of question used to measure financial confidence was presented on a four-point Likert scale: Very Good, Good, Fairly Good, Not Very Good. Responses were coded such that higher scores were more positive than lower scores. A Principle Components Analysis was conducted in order to reduce these variables into a single score between the range of negative two and two. A low, negative score between negative two and -0.5 suggested low financial confidence, while a higher, positive number between 0.5 and two suggested greater financial confidence. Respondents "moderately" confident in their financial knowledge and skills would have a score between -0.49 and 0.49. The resulting financial confidence variable has a good level of internal consistency (α = .736).
Financial Knowledge	OA_01 – OA_14 The Knowledge Score was calculated by summing correct scores to the 14 objective assessment questions.	The maximum knowledge score is 14 and the minimum was zero. This method of calculating the quiz score captured respondents who had not provided responses to any of the 14 objective assessment questions as having a score of zero, which affected the accuracy of the variable's distribution. An assessment indicated respondents with a total score of zero represented only those who had skipped the questions entirely, so all of these cases were excluded from the analysis. The remaining were then grouped into low scores (≤ five); medium scores (six–ten); and high scores (≥ 11). The resulting scale had a good level of internal consistency (α = .814).
Sought Advice on Financial Products	FC_01A – FC_01G "In the past 12 months, did you make use of any advice, free or paid, on any of the following financial products? No, did not use any advice"	Respondents were asked to select all of the options that apply to their situation. The "yes" responses were summed per question for each participant. This method captured respondents who had not provided responses to any of the questions as having a score of zero and an assessment indicated that some respondents with a total score of 0 had actively chosen that answer. Therefore, respondents who had

		not provided answers to the questions were excluded from the analysis, whereas those who had actively answered zero were included. The distribution of these sum variables were highly skewed, with the majority of respondents indicating zero, one or two topics. Accordingly, the variables were recoded into three categories: zero = zero topics; one = one topic; and two = two or more topics.
Sources of Investment Information	FC_04A – FC_04H "People get information about financial investments from many sources. What sources do you feel most influence your decisions about the financial investments you make?"	*Sources of Investment Information* was measured in the same manner as *Sought Advice on Financial Products.*
Monitoring Financial Products	FC_05A – FC_05J "Are there any things that you personally keep an eye on, such as changes in ...? The housing market"	*Monitoring Financial Products* was measured in the same manner as *Sought Advice on Financial Products.*
Monitoring Bank Accounts Daily	OE_05 "How often do you usually check your account balance(s)?"	Respondents indicating Daily were coded as one and all others (weekly, biweekly, monthly, yearly, and never) were coded as zero.
Difficulty Keeping Up with Bill Payments	OE_17 "Thinking of the last 12 months, which one of the following statements best describes how well you and your family have been keeping up with your bills and other financial commitments?"	Respondents who indicated they keep up with all bills and commitments but it is sometimes a struggle, or are having real financial problems and falling behind with bills or credit commitments were coded as one, and all others were coded as zero.
Own Principal Residence with a Mortgage; Own Principal Residence without a Mortgage; Rent Principal Residence	TENURE "Is your principal residence owned by a member of your immediate family?"	*Own Principal Residence with a Mortgage* was coded one if respondents indicated they or a family member owned their principal residence with a mortgage, and zero otherwise. This was used as the referent outcome. *Own Principal Residence without a Mortgage* was coded one if respondents indicated they or a family member owned their principal residence without a mortgage, and zero otherwise. *Rent Principal Residence* was coded one if respondents indicated neither they nor a family member owned their principal residence, and zero otherwise.

Appendix D: Logit Regression Results

The following tables detail the results of the logits regression analyses that are summarized and discussed in the research report.

Table D-1: Financial Behaviour Logit Regression Models of Always Stay within a Household Budget and Usually Stay within a Household Budget

Logit Regressions[1]	Model (1) [1,2] Always Stay Within a Household Budget (S.E.)	Model (2) [1,2] Usually Stay Within a Household Budget (S.E.)
Personality Trait		
Impulsive	-0.044 (0.020)**	0.016 (0.026)
Financial Behaviours		
Financial Confidence	-0.065 (0.013)***	-0.030 (0.017)*
Financial Knowledge	0.003 (0.017)	-0.013 (0.023)
Sought Advice on Financial Products	0.005 (0.013)	0.029 (0.016)*
Sources of Investment Information	-0.037 (0.015)***	0.033 (0.020)
Monitoring Financial Topics	0.023 (0.013)*	0.053 (0.016)***
Monitoring Bank Accounts Daily	-0.004 (0.026)	0.023 (0.036)
Monitoring Bank Accounts Other	Referent	Referent
Keeping Up with Bill Payments	Referent	Referent
Difficulty Keeping up With Bill Payments	-0.057 (0.022)***	0.046 (0.030)
Socio-Economic Factors		
Ownership of Principal Residence		
Owned with Mortgage	Referent	Referent
Owned without Mortgage	-0.000 (0.027)	-0.079 (0.032)**
Rent	-0.004 (0.024)	0.053 (0.033)
Highest Educational Attainment		
High School Diploma	Referent	Referent
College Diploma	-0.008 (0.024)	0.054 (0.030)*
University Degree	-0.057 (0.024)**	0.033 (0.034)
Employment Status		
Employed	Referent	Referent
Unemployed	0.039 (0.033)	-0.084 (0.038)**
Retired	0.016 (0.035)	-0.111 (0.041)***
Student	-0.064 (0.039)	-0.030 (0.085)
Household Income Level		
Less than $32,001	Referent	Referent
[32,001, 54,999]	-0.063 (0.044)	0.032 (0.059)
[55,000, 79,999]	-0.038 (0.044)	0.036 (0.051)
[80,000, 119,999]	-0.060 (0.043)	-0.081 (0.050)
Greater than $119,999	-0.068 (0.047)	-0.021 (0.053)
Marital Status		
Married	Referent	Referent

Separated or Divorced	0.029 (0.032)	0.026 (0.039)
Single	-0.010 (0.029)	-0.024 (0.035)
Demographic Factors		
Gender		
Male	Referent	Referent
Female	0.012 (0.020)	0.103 (0.026)***
Age		
[18, 24]	Referent	Referent
[25, 34]	-0.014 (0.045)	0.084 (0.060)
[35, 54]	0.024 (0.048)	0.049 (0.053)
[55, 64]	0.009 (0.051)	0.016 (0.059)
Immigrant	-0.034 (0.082)	0.180 (0.145)
Indigenous	-0.041 (0.035)	-0.39 (0.048)
Number of Members in the Household	-0.013 (0.009)	0.016 (0.012)
Number of Observations	**3,423.000**	**3,423.000**
Wald chi2(28)	**133.670**	**111.710**
Prob>chi2	**0.000**	**0.000**
Pseudo R2	**0.082**	**0.072**
Percent Correctly Predicted Values	**84.930**	**72.630**

[1]An adjusted binary logit model was used for this analysis. Coefficients are reported as the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant. Standard errors are in brackets.

[2]A p-value of less than 0.05 is determined to be statistically significant in the model, *** indicates a p-value < 0.01, ** indicates a p-value < 0.05, and *indicates a p-value of < 0.1.

Table D-2.1: Simplified and Financial Behaviour Logit Regression Models of Household Debt Levels Less than $50,000

Logit Regressions[1] Model (3)	Zero Debt [1,2] (S.E)		Less than $50,000 [1,2] (S.E.)	
	Simplified Model	Financial Behaviour	Simplified Model	Financial Behaviour
Budgeting Behaviour				
Always Stay within a Household Budget	0.080 (0.036)**	0.066 (0.037)*	-0.079 (0.034)**	-0.059 (0.038)
Personality Trait				
Impulsive	N/A	-0.008 (0.026)	N/A	0.019 (0.029)
Financial Behaviours				
Financial Confidence	N/A	-0.021 (0.016)	N/A	0.056 (0.019)***
Financial Knowledge	N/A	0.001 (0.022)	N/A	-0.032 (0.025)
Sought Advice on Financial Products	N/A	-0.014 (0.015)	N/A	-0.008 (0.018)
Sources of Investment Information	N/A	0.001 (0.019)	N/A	0.009 (0.022)
Monitoring Financial Topics	N/A	-0.060 (0.015)***	N/A	0.032 (0.017)
Monitoring Bank Accounts Daily	N/A	-0.010 (0.032)	N/A	-0.029 (0.036)
Monitoring Bank Accounts Other	Referent	Referent	Referent	Referent
Keeping Up with Bill Payments	Referent	Referent	Referent	Referent
Difficulty Keeping up With Bill Payments	N/A	-0.105 (0.027)***	N/A	0.027 (0.031)
Socio-Economic Factors				
Highest Educational Attainment				
High School Diploma	Referent	Referent	Referent	Referent
College Diploma	-0.025 (0.028)	-0.010 (0.027)	-0.018 (0.032)	-0.037 (0.033)
University Degree	0.000 (0.034)	0.039 (0.035)	-0.057 (0.038)	-0.081 (0.039)**
Employment Status				
Employed	Referent	Referent	Referent	Referent
Unemployed	0.079(0.040)**	0.091 (0.044)**	-0.009 (0.042)	-0.028 (0.044)
Retired	0.148 (0.049)***	0.136 (0.050) ***	-0.043 (0.351)	-0.026 (0.051)
Student	0.104 (0.106)	0.069 (0.090)	0.106 (0.313)	0.079 (0.106)
Household Income Level				
Less than $32,001	Referent	Referent	Referent	Referent
[32,001, 54,999]	-0.133 (0.058)**	-0.127 (0.061)**	0.117 (0.057)**	0.144 (0.059)**
[55,000, 79,999]	-0.172 (0.054)***	-0.156 (0.058)***	0.062 (0.053)	0.081 (0.055)
[80,000, 119,999]	-0.125 (0.059)**	-0.141 (0.062) **	-0.036 (0.494)	0.002 (0.055)
Greater than $119,999	-0.191 (0.057)***	-0.193 (0.061)***	-0.191 (0.057)	-0.044 (0.056)
Marital Status				
Married	Referent	Referent	Referent	Referent
Separated or Divorced	-0.016 (0.029)	0.006 (0.032)	0.068 (0.044)	0.051 (0.043)
Single	0.097 (0.041)**	0.070 (0.038)*	0.122(0.040)***	0.100 (0.040)**
Demographic Factors				
Gender				

Male	Referent	Referent	Referent	Referent
Female	0.007 (0.024)	0.013 (0.025)	0.023 (0.027)	0.019 (0.028)
Age				
[18, 24]	Referent	Referent	Referent	Referent
[25, 34]	-0.075 (0.053)	-0.108 (0.058)*	-0.050 (0.062)	-0.094 (0.061)
[35, 54]	-0.025 (0.054)	-0.071 (0.058)	-0.037 (0.059)	-0.067 (0.059)
[55, 64]	0.088 (0.061)	0.015 (0.064)	-0.079 (0.065)	-0.091 (0.066)
Immigrant	0.026 (0.106)	-0.023 (0.107)	0.067 (0.113)	0.149 (0.130)
Indigenous	0.021 (0.052)	-0.018 (0.052)	0.027 (0.059)	0.054 (0.062)
Number of Members in the Household	-0.019 (0.010)*	-0.010 (0.010)	-0.025 (0.012)**	-0.034 (0.013)***
Number of Observations	**3448.000**	**3,102.000**		
Wald chi2(76/108)	**447.040**	**2,197.420**		
Prob>chi2	**0.000**	**0.000**		
Pseudo R2	**0.113**	**0.134**		

[1]An adjusted binary logit model was used for this analysis. Coefficients are reported as the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant. Standard errors are in brackets.
[2]A p-value of less than 0.05 is determined to be statistically significant in the model, * indicates a p-value < 0.01, ** indicates a p-value < 0.05 and *indicates a p-value of < 0.1.**

Table D -2.2: Simplified and Financial Behaviour Logit Regression Models of Household Debt Levels Greater than $50,000

Logit Regressions[1] Model (3)	$[50,000, 99,999] [1,2] (S.E)		$[100,000, 199,999] [1,2] (S.E)		Greater than or Equal to $200,000 [1,2] (S.E)	
	Simplified Model	Financial Behaviour	Simplified Model	Financial Behaviour	Simplified Model	Financial Behaviour
Budgeting Behaviour						
Always Stay within a Household Budget	-0.024 (0.021)	-0.021 (0.022)	-0.002 (0.022)	-0.015 (0.023)	0.025 (0.030)	0.029 (0.032)
Personality Trait						
Impulsive	N/A	0.016 (0.017)	N/A	-0.015 (0.018)	N/A	-0.013 (0.020)
Financial Behaviours						
Financial Confidence	N/A	-0.009 (0.012)	N/A	-0.022* (0.012)	N/A	-0.004 (0.014)
Financial Knowledge	N/A	0.017 (0.016)	N/A	-0.020 (0.017)	N/A	0.034* (0.018)
Sought Advice on Financial Products	N/A	-0.020* (0.012)	N/A	0.012 (0.012)	N/A	0.015 (0.013)
Sources of Investment Information	N/A	-0.003 (0.013)	N/A	-0.031** (0.016)	N/A	0.024 (0.015)
Monitoring Financial Topics	N/A	0.022** (0.011)	N/A	0.012 (0.012)	N/A	-0.005 (0.012)
Monitoring Bank Accounts Daily	N/A	0.004 (0.022)	N/A	0.015 (0.026)	N/A	0.020 (0.026)
Monitoring Bank Accounts Other	Referent	Referent	Referent	Referent	Referent	Referent
Keeping Up with Bill Payments	Referent	Referent	Referent	Referent	Referent	Referent
Difficulty Keeping up With Bill Payments	N/A	0.023 (0.021)	N/A	0.013 (0.021)	N/A	0.042* (0.024)
Socio-Economic Factors						
Highest Educational Attainment						
High School Diploma	Referent	Referent	Referent	Referent	Referent	Referent
College Diploma	-0.026 (0.019)	-0.031 (0.020)	0.013 (0.021)	0.009 (0.022)	0.056** (0.024)	0.069*** (0.025)
University Degree	0.020 (0.023)	0.017 (0.025)	-0.021 (0.022)	-0.027 (0.024)	0.059** (0.023)	0.052** (0.024)
Employment Status						
Employed	Referent	Referent	Referent	Referent	Referent	Referent
Unemployed	0.023 (0.036)	0.023 (0.037)	-0.074*** (0.021)	-0.079*** (0.023)	-0.018 (0.033)	-0.007 (0.036)
Retired	-0.063*** (0.017)	-0.063*** (0.018)	0.070 (0.049)	0.062 (0.052)	-0.112*** (0.028)	-0.109*** (0.032)
Student	-0.071* (0.038)	-0.058 (0.047)	-0.129*** (0.0135)	-0.135*** (0.014)	-0.011 (0.105)	0.046 (0.120)

Household Income Level						
Less than $32,001	Referent	Referent	Referent	Referent	Referent	Referent
[32,001, 54,999]	0.053	0.037	-0.010	-0.018	-0.028	-0.036
	(0.034)	(0.040)	(0.031)	(0.037)	(0.039)	(0.043)
[55,000, 79,999]	0.044	0.019	0.067**	0.058	0.000	-0.003
	(0.032)	(0.034)	(0.033)	(0.038)	(0.037)	(0.041)
[80,000, 119,999]	0.044	0.030	0.019	0.008	0.100**	0.100**
	(0.029)	(0.035)	(0.030)	(0.036)	(0.041)	(0.045)
Greater than $119,999	0.034	0.019	0.078**	0.071*	0.152***	0.147***
	(0.031)	(0.038)	(0.033)	(0.041)	(0.042)	(0.045)
Marital Status						
Married	Referent	Referent	Referent	Referent	Referent	Referent
Separated or Divorced	-0.043*	-0.043*	0.057	0.043	-0.066**	-0.057*
	(0.024)	(0.023)	(0.035)	(0.034)	(0.032)	(0.035)
Single	-0.073***	-0.050*	-0.027	-0.010	-0.120***	-0.110***
	(0.027)	(0.028)	(0.025)	(0.029)	(0.021)	(0.024)
Demographic Factors						
Gender						
Male	Referent	Referent	Referent	Referent	Referent	Referent
Female	-0.010	-0.001	-0.001	-0.005	-0.019	-0.025
	(0.016)	(0.017)	(0.018)	(0.019)	(0.020)	(0.021)
Age						
[18, 24]	Referent	Referent	Referent	Referent	Referent	Referent
[25, 34]	-0.088	-0.047	0.096***	0.102***	0.118***	0.147***
	(0.066)	(0.054)	(0.037)	(0.038)	(0.043)	(0.041)
[35, 54]	-0.083	-0.046	0.090***	0.097***	0.056	0.087**
	(0.068)	(0.057)	(0.030)	(0.032)	(0.038)	(0.035)
[55, 64]	-0.039	0.019	0.039	0.040	-0.010	0.017
	(0.073)	(0.065)	(0.031)	(0.033)	(0.039)	(0.037)
Immigrant	-0.072***	-0.062**	0.026	0.106	-0.048	-0.170***
	(0.019)	(0.030)	(0.106)	(0.124)	(0.077)	(0.010)
Indigenous	-0.030	-0.019	-0.008	-0.006	-0.010	-0.011
	(0.029)	(0.032)	(0.042)	(0.045)	(0.041)	(0.046)
Number of Members in the Household	0.007	0.008	0.020**	0.020**	0.017	0.016*
	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)
Number of Observations	**3448.000**	**3,102.000**				
Wald chi2(76/108)	**447.040**	**2,197.420**				
Prob>chi2	**0.000**	**0.000**				
Pseudo R2	**0.113**	**0.134**				

[1]An adjusted binary logit model was used for this analysis. Coefficients are reported as the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant. Standard errors are in brackets.

[2]A p-value of less than 0.05 is determined to be statistically significant in the model, *** indicates a p-value < 0.01, ** indicates a p-value < 0.05 and *indicates a p-value of < 0.1.

Table D-3: Simplified and Financial Behaviour Logit Regression Models Outstanding Credit Card Balances and Absorbing an Unexpected Expenditure

Logit Regressions[1]	Model (4) [1,2] Outstanding Credit Card Balances (S.E.)	Model (5) [1,2] Outstanding Credit Card Balances (S.E.)	Model (6) [1,2] Absorb $5,000 UE with Savings (S.E.)	Model (7) [1,2] Absorb $5,000 UE with Savings (S.E.)
	Simplified Model	Financial Behaviour	Simplified Model	Financial Behaviour
Budgeting Behaviour				
Always Stay within a Household Budget	-0.134 (0.032)***	-0.071 (0.035)**	0.094(0.035)***	0.037 (0.034)
Personality Trait				
Impulsive	N/A	0.070 (0.026)***	N/A	0.021 (0.025)
Financial Behaviours				
Financial Confidence	N/A	0.052 (0.016)***	N/A	-0.036 (0.017)**
Financial Knowledge	N/A	-0.033 (0.024)	N/A	0.051 (0.023)**
Sought Advice on Financial Products	N/A	-0.026 (0.016)	N/A	0.022 (0.016)
Sources of Investment Information	N/A	0.044 (0.020)**	N/A	0.017 (0.019)
Monitoring Financial Topics	N/A	0.038 (0.015)**	N/A	0.025 (0.016)
Monitoring Bank Accounts Daily	N/A	0.084 (0.034) **	N/A	0.000 (0.037)
Monitoring Bank Accounts Other	Referent	Referent	Referent	Referent
Keeping Up with Bill Payments	Referent	Referent	Referent	Referent
Difficulty Keeping up With Bill Payments	N/A	0.226 (0.033)***	N/A	-0.200(0.029) ***
Socio-Economic Factors				
Ownership of Principal Residence				
Owned with Mortgage	Referent	Referent	Referent	Referent
Owned without Mortgage	-0.208 (0.033)***	-0.175 (0.035)***	0.156(0.033)***	0.140 (0.034)***
Rent	-0.079 (0.034)**	-0.088 (0.031)***	-0.020 (0.030)	0.002 (0.032)
Highest Educational Attainment				
High School Diploma	Referent	Referent	Referent	Referent
College Diploma	-0.001 (0.030)	-0.021 (0.030)	0.015 (0.028)	0.004 (0.031)
University Degree	-0.096 (0.034)***	-0.087 (0.035)**	0.062 (0.030)**	0.022 (0.031)
Employment Status				
Employed	Referent	Referent	Referent	Referent
Unemployed	0.008 (0.041)	-0.009 (0.041)	-0.035 (0.040)	-0.036 (0.044)
Retired	-0.070 (0.045)	-0.045 (0.046)	0.103 (0.050)**	0.078 (0.048)
Student	0.059 (0.092)	-0.038 (0.078)	-0.098 (0.072)	-0.105 (0.075)
Household Income Level				
Less than $32,001	Referent	Referent	Referent	Referent
[32,001, 54,999]	0.104 (0.059)*	0.095 (0.053)*	0.046 (0.052)	0.019 (0.062)
[55,000, 79,999]	0.138 (0.057)**	0.0163 (0.050)***	0.045 (0.047)	0.011 (0.056)
[80,000, 119,999]	0.029 (0.055)	0.096 (0.048)**	0.100 (0.047)**	0.019 (0.057)
Greater than $119,999	0.020 (0.058)	0.077 (0.051)	0.144(0.051)***	0.034 (0.060)

Marital Status				
Married	Referent	Referent	Referent	Referent
Separated or Divorced	0.024 (0.038)	-0.020 (0.037)	-0.052 (0.037)	-0.016 (0.037)
Single	0.011 (0.037)	-0.025 (0.036)	-0.050 (0.035)	-0.001 (0.037)
Demographic Factors				
Gender				
Male	Referent	Referent	Referent	Referent
Female	0.071 (0.025)***	0.049 (0.025)**	-0.056 (0.024)**	-0.035 (0.025)
Age				
[18, 24]	Referent	Referent	Referent	Referent
[25, 34]	0.112 (0.057)**	0.036 (0.054)	-0.164 (0.065)**	-0.121 (0.062)**
[35, 54]	0.167 (0.053)***	0.103 (0.052)**	-0.167 (0.063)**	-0.117 (0.062)*
[55, 64]	0.044 (0.058)	0.027 (0.058)	-0.123 (0.068)	-0.092 (0.066)
Immigrant	0.113 (0.101)	-0.110 (0.120)	0.106 (0.138)	0.196 (0.189)
Indigenous	0.061 (0.067)	0.059 (0.059)	-0.087 (0.046)	-0.054 (0.050)
Number of Members in the Household	0.006 (0.011)	-0.011 (0.011)	-0.006 (0.012)	0.004 (0.012)
Number of Observations	**3,833.000**	**3,403.000**	**3,672.000**	**3,251.000**
Wald chi2(21/29)	**125.220**	**266.030**	**116.690**	**179.720**
Prob>chi2	**0.000**	**0.000**	**0.000**	**0.000**
Pseudo R2	**0.074**	**0.145**	**0.077**	**0.132**
Percent Correctly Predicted Values	**65.850**	**69.000**	**72.960**	**73.580**

[1]An adjusted binary logit model was used for this analysis. Coefficients are reported as the average marginal effect which is an instantaneous rate of change. In other words, it is the average change in probability of the dependent variable for a one-unit increase in the independent variable, all other variables held constant. Standard errors are in brackets.
[2]A p-value of less than 0.05 is determined to be statistically significant in the model, *** indicates a p-value < 0.01, ** indicates a p-value < 0.05 and *indicates a p-value of < 0.1.