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Running head: UNDERSTANDING DISPARITY IN FINANCIAL CAPABILITY

Understanding the disparity in financial capability across individuals' social locations: A new dimension of inequality

Mohammad Nuruzzaman Khan

School of Social Work

December 2018

McGill University, Montreal

A thesis submitted to McGill University in partial fulfillment of the requirements of the degree of Doctor of Philosophy in Social Work

Dedicated to my loving parents

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Preface

This dissertation is submitted in partial fulfillment of the requirements of the degree of Doctor of Philosophy in Social Work. Findings presented in Chapter IV were published in the *Journal of Gerontological Social Work* in 2017. I, as the lead author, processed and analyzed data, wrote the manuscript and did necessary revisions. As co-authors, Dr. David Rothwell, Katrina Cherney, and Dr. Tamara Sussman contributed to improving the quality of the manuscript through providing constructive feedback. Findings included in Chapter V were presented at the 2018 Annual Conference of Society for Social Work and Research in Washington D.C. However, two articles form Chapters V & VI of this dissertation will soon be submitted for publication; my colleagues and the members of my doctoral committee may contribute to the articles and therefore be included as co-authors.

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English Abstract

In recent years, social work scholars have focused on financial capability to help individuals and families experiencing increasing disparities in wealth and income. Although a number of studies have examined the association between individuals' levels of financial knowledge and their financial behaviour and practices, we know little about how financial knowledge varies across individuals living in different social locations, including age, gender, and income statuses. In this dissertation, I used quantitative data from the 2009 and 2014 Canadian Financial Capability Survey and qualitative data collected from key informants to examine the disparity in financial knowledge and confidence and to identify groups that are disadvantaged.

Findings suggest that older adults significantly overestimate their levels of financial knowledge, which implies vulnerability to financial fraud, exploitation, and abuse. Findings also suggest that individuals living in low-income have significantly lower levels of financial knowledge than their non-low-income counterparts. But no gender gap in financial knowledge was found within both low-income and non-low-income groups. The findings of the qualitative inquiry complemented the findings of the quantitative studies. In addition, the findings of the qualitative inquiry suggest that financial knowledge is contextual and driven by financial practices. Findings also suggest that financial knowledge alone is not sufficient to make informed financial decisions; individuals need financial confidence, access to financial products and services, and sufficient income to achieve financial wellbeing.

Building financial knowledge among vulnerable groups such as older adults and those in poverty needs to be a policy and practice priority. Because social workers work closely with vulnerable and disadvantaged groups, they can help older adults, and individuals and families in

poverty enhance financial wellbeing through building awareness, financial knowledge, and confidence and advocate for policies.

French Abstract

Au cours des dernières années, les spécialistes du travail social se sont concentrés sur la capacité financière afin d’aider les individus et les familles confrontés à des disparités croissantes en termes de richesse et de revenus. Bien qu’un certain nombre d’études aient examiné l’association entre le niveau de connaissances financières des individus et leurs comportements et pratiques au niveau financier, nous en savons peu sur la manière dont les connaissances financières varient selon la situation et les caractéristiques sociales des personnes, tel que le revenu, l’âge ou le genre. Dans cette thèse, j'ai utilisé des données quantitatives provenant de l'Enquête canadienne sur les capacités financières de 2009 et de 2014 ainsi que des données qualitatives recueillies auprès d'informateurs clés afin d’examiner la disparité des connaissances et de la confiance financière et pour identifier les groupes défavorisés.

Les conclusions de cette thèse suggèrent que les personnes âgées surestiment significativement leur niveau de connaissances financières, ce qui implique une vulnérabilité à la fraude financière, à l’exploitation et aux abus. Les résultats suggèrent également que les personnes à faibles revenus ont des niveaux de connaissances financières nettement inférieurs à ceux des individus ayant de meilleurs revenus. Cependant, aucun écart entre les genres en matière de connaissances financières n'a été constaté à l’intérieur des groupes de revenu. Les résultats de l'enquête qualitative sont complémentaires aux conclusions des études quantitatives. Ces résultats ont mis de l’avant que les connaissances financières sont contextuelles et dictées par les pratiques financières. Les connaissances financières seules ne suffisent pas pour prendre des décisions financières éclairées; les individus ont besoin de confiance financière, d’avoir accès à des produits et services financiers, et de revenus suffisants pour atteindre le bien-être financier.

Le développement de connaissances financières parmi les groupes vulnérables tels que les personnes âgées et les personnes vivant dans la pauvreté doit être une priorité au plan des politiques sociales et de la pratique du travail social. Puisque les travailleurs sociaux œuvrent auprès des personnes vulnérables et de groupes désavantagés, ils peuvent contribuer à améliorer le bien-être financier des personnes âgées et des personnes et familles pauvres en les sensibilisant, en les aidant à améliorer leurs confiance et connaissances financières et en soutenant des politiques sociales.

Chapter I

Introduction

One of the central questions I have been reflecting upon for years is how social workers make meaning of poverty and inequality, and help individuals and families facing economic stress or financial crises. The promotion of financial capability, which includes financial knowledge and access to financial products and services, is considered an anti-poverty strategy in social work (Sherraden, 2013a) and has been identified as one of 12 grand challenges for social work in the twenty - first century (Uehara et al., 2014). The purpose of this dissertation is to examine the disparity in financial capability and to identify groups that lack financial capability. More specifically, in this dissertation, I examined the financial knowledge gap – the distance between objective and subjective financial knowledge – across age groups, and income and gender gaps in financial knowledge in three separate but interrelated studies. Applying a mixed method approach, I used survey data from the 2009 and 2014 Canadian Financial Capability Survey (Statistics Canada, 2009, 2014) for quantitative analyses and analysed qualitative data collected from key informants working in public, private, and community organizations that promote financial capability in Canada. Before describing the analyses and discussing the findings of the studies, it is relevant to give a brief overview of the development of the concept of financial capability and how it was adopted as an anti-poverty strategy in social work.

The social work efforts in the early age of the profession's development, during the years of charity organizations and the settlement house movement, included helping vulnerable people to enhance their lives in dealing with everyday finances such as bill paying, savings, and participating in macroeconomic life (Stuart, 2013). Later, the focus of social work shifted to the more psychosocial aspects of individuals and families rather than on their economic lives and their relation to the macro environment (Specht & Courtney, 1995).

In recent years, social work scholars have focused on financial capability and asset-building approaches to help individuals and families experiencing increasing disparities in wealth and income, which might be considered a return to their roots. Given the reality that contemporary families, especially low-income families, are facing increasingly complex financial calculations and decisions to keep up with declining incomes and wealth (Sherraden, 2013b), social work and poverty scholars have sought effective approaches to building financial capability and assets in households. The concept of financial capability, which refers to people's knowledge of financial matters, ability to manage their money and take control of their finances (Taylor, 2011; Xiao, Chen, & Chen, 2014), was first coined by consumer finance scholars (Kempson, Collard, & Moore, 2005). The concept of financial capability was later adopted by social workers and poverty scholars to fight poverty and inequality, and to promote human development. However, consumer finance scholars are now moving away from financial capability to financial wellbeing, which includes individuals' ability to meet current financial commitments and have financial resilience (Kempson & Poppe, 2018).

The relationship between the financial lives of people and financial systems around the world is becoming more complex every day due to the structural changes in financial institutions, and the application of ever-changing technologies in the product and service delivery channels such as mobile and online banking. It has become difficult for middle and low-income households to cope with the rapid changes in their financial lives. These changes are obvious and evident, and middle and low-income people have little control over this shifting reality. One way to cope with this situation is to prepare people living in low income with the necessary knowledge, skills, and confidence, and help them to develop awareness of the greater political and economic environment in which they live. The literature suggests that financially well-informed people can make good decisions for their families, and are more likely to attain economic security and wellbeing (Hilgert, Hogarth, & Beverly, 2003; Lusardi & Mitchell, 2014; Xiao et al., 2014; Xiao & O'Neill, 2016). Social work scholars have taken this approach one step further. According to this approach, mere financial knowledge is not enough, but people need access to financial products and services to enhance their financial lives and move towards economic security (Sherraden, 2013a). This notion suggests bringing about structural changes in existing financial systems that can create opportunities for low-income people to improve their financial lives. The rationale for understanding people's financial capability and finding ways to promote this resides in this context.

To describe the context of the growing interest of studying financial capability, Sherraden and Grinstein-Weiss (2015) identified three trends: the rising complexity of everyday financial decision making, the high-stakes financial decisions confronted by the new generation of young people, and the financial struggle of many families with children, especially low-income families. These changes have put individuals and families in greater risk of poverty and financial insecurity. More specifically, the following changes in the economic lives of individuals and families in Canada and around the globe are a call for promoting financial capability among individuals and families: changes in the financial market and services, changes in the pension landscape, and growing household debt, reduced savings, and falling real incomes. Although all these changes are taking place across the countries, I provided a brief discussion of the Canadian and the US contexts as examples.

Changes in financial market and services

There have been regulatory and technological changes in financial institutions in recent decades. Accentuating the importance of financial capability in the Canadian context, the Policy Research Institute and the Financial Consumer Agency (FCA) of Canada (2006) indicated that the regulatory and technological changes in the financial services sector, such as self-directed banking over the telephone, ATMs and internet, that have taken place in recent decades have expanded the marketplace for financial services and products. These changes created greater access for most Canadians. Explicitly, on the one hand, it requires people to acquire more technological proficiency. On the other, it requires people to be financially informed to control their finances. The Policy Research Institute and FCA Canada also mentioned that, “a base level of financial understanding, the ability to determine and understand the benefits of various competing products, and the ability to differentiate between competing products is required in this new and more complicated financial environment”(Policy Research Institute, 2006, p. 8).

Lusardi and Mitchell (2014) had a similar observation while explaining the importance of financial capability in the American context. According to them, the rapid expansion of financially complex products such as student loans, mortgage, credit cards, pension accounts, and annuities, have proven to be difficult for many unprepared individuals to use. Though these developments have their advantages, households have become more responsible for making rational choices and informed financial decisions with regard to their individual savings, borrowing, and investment. As such individuals who lack basic financial literacy fall behind taking advantages of existing services and benefits. For example, a Social and Enterprise Development Innovations (SEDI) study undertaken in 2004 indicated that though there were more than three million Canadian seniors eligible for Guaranteed Income Supplement (GIS) at that time, many of them were not receiving it due to the obligation of filing annual income tax returns, which some find complicated to prepare. Their access, therefore, largely depends on factors related to financial capability. This trend is also evident across the globe as we see a growing usage of plastic money, and internet and mobile banking in developing and underdeveloped countries.

Changes in the pension landscape and government vs. individual responsibilities

The sharing of responsibilities between government and individuals is still an unanswered question in the field of political economy, and we see variations across economic systems. Recent trends in government policies, especially in developed countries, show that the balance between government and individual responsibilities has been shifting towards greater personal responsibilities (Hacker, 2006; McKay, 2011; Policy Research Institute, 2006), with individuals increasingly becoming more responsible for their own financial wellbeing (Lusardi, 2011). Individuals must now equip themselves with appropriate knowledge, skills and competence to take advantage of the changing context.

Extensive changes are taking place in the pension landscape. The provision of defined benefit pensions, which guarantee a specific annuity after retirement, is shifting to defined contribution pensions, where investment risks and investment rewards depend on individuals' contributions. These changes in the pension landscape are putting more responsibilities on individuals for saving, investment, and asset accumulations to ensure a secure financial life after retirement (Bucher-Koenen & Lusardi, 2011; Lusardi & Mitchell, 2014; Policy Research Institute, 2006). For example, recent reform of the public pension system in Germany introduced a pay-as-you-go system that increased individual responsibility to provide privately for retirement (Bucher-Koenen & Lusardi, 2011).

Another trend is that the young people of this generation are confronting high-stakes financial decisions (e.g., managing student loans and other debts) than previous generations did (Sherraden & Grinstein-Weiss, 2015). The cost of higher education is increasing over time. In a review, Elliott and Sherraden (20013) mentioned that in 1976 the proportion of federal loans to federal grants for students in the US was 50%, which shifted to 70% loans in 1985 and 82% loans in 1998. This is a clear indication that there is a trend of a growing debt burden on students. A similar trend was found in Canada. The decline in federal funding for post-secondary education, the rising cost to students and families, and the ongoing shift toward aid in the form of loans in most provinces of Canada is likely to have the most detrimental effects on young people from low-socioeconomic status households (Berger & Baldwin, 2009). Hence, young students and their families have to prepare themselves to keep up with this changing reality (Lusardi, 2011) that requires people to have the ability to obtain financial information and make informed financial decisions.

Growing household debt, reduced savings, and falling real incomes: Vulnerability of low-income families

The trend of making consumer credit accessible, the so-called democratization of credit, and encouraging spending and consumption, has resulted in remarkable growing household debt and reduction in savings in recent decades. With reference to survey data from Statistics Canada, the Policy Research Institute and FCA Canada (2006) indicated that per capita debt in Canada doubled between 1982 and 2001; household debt grew to 121% of disposable income compared to 86% in 1980. Sherraden, Laux, and Kaufman (2007) discussed a similar trend observed in the US. Referring to Federal Reserve of the US, the authors reported that consumer debt increased by 27% between 2001 and 2006. According to this study, new lending products in the housing and consumer credit markets made credit more accessible to low-income families, which increased the use of credit by the poor, and made them more vulnerable to delinquencies and bankruptcy during an economic downturn.

At the same time, there is a declining trend of household saving, and many families lack emergency savings to cope with common financial exigencies (Babiarz & Robb, 2014; Sherraden & Grinstein-Weiss, 2015). With reference to the FINRA Investor Education Foundation Survey 2013, Sherraden and Grinstein-Weiss (2015) mentioned that half of Americans and 60% of low-income households are unable to come up with $2000 in an emergency. Rothwell and Robson (2018) observed a similar trend in Canada and claimed that nearly half of all working-age Canadians were financial asset poor in 2012. In addition, there is a growing trend of income insecurity among families, particularly those with children (Western, Bloome, Sosnaud, & Tach, 2016). Western et al (2016) studied the trend of income insecurity among U.S. children from 1984 to 2010 and reported large income losses for families with children in low income. Indicating the consequences of poverty on children and youth, Sherraden and Grinstein-Weiss (2015) cautioned that children in these families, especially who are growing up in low-income families, are vulnerable to forming negative ideas and attitudes about the financial world and the social environment in which they live. The lives of low-income families are challenging as they consistently struggle with keeping balance between the declining and uncertain pattern of incomes and making ends meet, paying bills and utilities, or figuring out which expenses to cut back to maintain the balance (Sherraden, 2013c). This precarious financial situation leads them to the state of being anxious and worried about economic life and live in an atmosphere of disappointment.

Financial capability as a policy priority

The structural and technological changes in financial markets, reforms in the pension landscape, and the trend of growing debt and reduction in savings that affect people's financial lives, especially those living in low and moderate-income families, call for greater understanding of financial capability, and investment for its enhancement and promotion (Sherraden & Grinstein-Weiss, 2015). It is evident that people with financial capability are better prepared to make complex decisions of their financial lives to achieve financial security and economic wellbeing (Hilgert et al., 2003; Lusardi & Mitchell, 2014; Xiao et al. 2014). Investment in financial capability to promote it as a policy priority can benefit the greater society in various ways.

Investment in financial capability by governments and development organizations can help asset-building, which is considered an innovative approach to reducing poverty, as studies suggest a positive relationship between financial capability and asset-building (Jappelli & Padula, 2013; SEDI, 2004; Sherraden, 2013c). Jappelli and Padula (2013) found that financial literacy was associated with wealth accumulation and portfolio decisions. Examining data from the Panel Study of Income Dynamics of the year 1980 to 1999, Lusardi et al. (2013) examined the forces of financial knowledge accumulation, and its effect on wealth accumulation over the lifetime. They found that financial knowledge is positively associated with wealth accumulation, and can explain 34% of wealth inequality over the lifetime.

Investment in financial capability may enhance people's economic efficiency, which can then augment people's participation in wider financial markets. A lack of financial understanding may affect the willingness of consumers to purchase new financial products, especially for insurance and investment services, or to search out and compare competing products and services (Chu, Wang, Xiao, & Zhang, 2017; Policy Research Institute, 2006; van Rooij, Lusardi, & Alessie, 2011). The governments of different countries, especially of developed countries, are moving towards delivering benefits and transfers to people through electronic system or direct deposit systems, which requires people to be equipped with basic financial knowledge, and technological proficiency (Bucher-Koenen & Lusardi, 2011; Lusardi & Mitchelli, 2007; SEDI, 2004). Promoting financial capability will not only benefit people individually, it will also reduce costs in public service delivery. Focusing on the Canadian context, the Policy Research Institute and FCA Canada (2006) mentioned in a report that enhancing financial capability will better equip welfare recipients to participate in less costly administrative systems that will increase bank account coverage, improve the net benefit to individuals, and reduce dependence on fringe financial services.

Although many advocated for building financial capability for individuals' financial wellbeing, some are skeptical of the potential benefit. Some argued that financial capability interventions involve a huge cost but bring about very small or no positive changes in individuals' financial behaviour and practices (Fernandes, Lynch, & Netemeyer, 2014; Willis, 2011). Willis (2011) also argued that financial regulation through education forces individuals to make financial decisions by themselves, which they might not like to choose. Others argued that disparity in income and wealth influence individuals' financial wellbeing, which is rooted in socioeconomic and political structural barriers rather than in individuals' levels of financial knowledge (Hamilton & Darity, 2017).

However, many governmental and non-governmental organizations across the globe acknowledge the potential benefits of building financial capability among individuals and families. Taylor (2011) mentioned that promoting and enhancing financial capability will benefit both individuals and the wider economy. The potential benefits to individuals, as mentioned, are reducing debt problems, increasing savings, reducing welfare dependency, and an improvement in general skills, whereas potential benefits to the wider economy in connection to the improvement in financial capability can help reduce poverty, and prevent financial and social exclusion. Buckland (2014) identified financial exclusion as a particular type of socioeconomic exclusion that reinforces poverty. Hence, promoting financial capability can help remove the structural barriers causing low-income people to have access to mainstream financial institutions, and prevent this particular socioeconomic exclusion.

The gap in knowledge

The importance of understanding financial capability has been acknowledged. A number of surveys and studies have been conducted to measure individuals' financial capability and its relation to individuals' financial wellbeing. However, there are still a number of areas of financial capability that warrant further critical examination.

First, individuals' financial knowledge, as well as their perception about their own financial knowledge, can vary according to demographic and socioeconomic characteristics. The literature suggests that most people have low financial knowledge but are unaware of this, and, thus, overestimate their levels of financial knowledge (Lusardi, 2011). As such, there is a disconnect between individual's subjective and objective financial knowledge, which can be considered a financial knowledge gap. There has been much research on financial knowledge, in general, and in relation to financial behaviors and practices. However, to date, there has been little empirical work on the financial knowledge gap. Some studies have examined individuals' subjective financial knowledge to see its influence on financial behaviors (Robb & Woodyard, 2011; Xiao et al., 2014). Others have examined both objective and subjective financial knowledge and observed differences in gender, ethnicity, and age groups (Lusardi, 2011; Lusardi & Tufano, 2009). However, to my knowledge, no studies have examined the construct of the financial knowledge gap, defined as the actual distance between subjective and objective financial knowledge. Understanding the financial knowledge gap and its variation across age groups, for example, can provide important insight into a dimension of financial insecurity, a social problem of increasing significance as societies age.

Second, individuals' levels of financial knowledge and income are assumed to be associated. However, to my knowledge, no studies have examined the relationship between individuals' levels of financial knowledge and their income. Taylor (2011) created an index of financial capability adjusting for income and argued that people in low income have a lower level of financial capability. However, the author did not examine the relationship between individuals' levels of financial knowledge and income, an issue about which there are important debates. It is not evident whether individuals' levels of financial knowledge influence their ability to earn income or whether individuals' levels of income and wealth influence their financial knowledge (Hamilton & Darity, 2017); alternatively, there may be an ongoing reciprocal effect between income and wealth and financial knowledge. Hence, there is a clear knowledge gap in understanding the relationship between income and financial capability. However, without longitudinal data, it is difficult to tease out any causal effects of income on financial knowledge and financial capability. In addition, a critical measurement issue in studying the relationship between financial knowledge and income remains unexamined. To compare individuals' levels of financial knowledge across income levels, a measure of financial knowledge with measurement equivalence across income groups is crucial, as individuals living in different income levels may perceive financial knowledge differently. To my knowledge, no studies have previously considered this measurement issue while measuring individuals' levels of financial knowledge. For example, Xiao et al (2014) and Lusardi (2011) used summary scores of the financial literacy questions from the National Financial Capability Study in the U.S. to measure individuals' levels of financial knowledge. However, the authors did not examine whether any of these literacy questions had any bias for non-low-income or low-income group. In this study, I examined the income gap in financial knowledge with a scale I derived. Importantly, and unlike previous studies, this scale is equivalent across income groups.

Third, little is known about the gender gap in financial knowledge. Previous authors have argued that women have lower levels of financial knowledge than men (Bucher-Koenen, Lusardi, Alessie, & van Rooij, 2017; Fonseca, Mullen, Zamarro, & Zissimopoulos, 2012). However, the gender gap in financial knowledge may vary across countries as the manifestation of gender inequality (in terms of labour market participation, income earnings, and political participation) differs even across developed countries (Pettit & Hook, 2009; Rosenfeld & Kalleberg, 1990). To my knowledge, the gender gap in financial knowledge is not yet studied within the Canadian population. In addition, we still do not know how financial knowledge varies between genders both within and across income groups.

Fourth, practitioners such as financial educators, counsellors, and advisers have important perspectives on financial capability, which has not yet been studied. Practitioners work closely with individuals and gain valuable experiences. As such, practitioners can provide important insights on how individuals learn financial knowledge and make financial decisions. To my knowledge, no studies, particularly in Canada, have examined practitioners' perspectives on financial capability.

In my dissertation, I addressed these gaps in knowledge and examined the disparities in financial knowledge and confidence across age, income, and gender using both quantitative and qualitative data. I used the Canadian Financial Capability Survey data to examine the financial knowledge gap across age groups, and income and gender gap in financial knowledge in the first two studies that described nature of financial knowledge gap across age and the variation of financial knowledge across income groups and gender. The analyses of this survey data helped describe the nature of variation of financial knowledge and confidence. However, quantitative analyses were not sufficient to extend our understanding of why we observe certain patterns of financial knowledge and confidence across age, income, and gender. Hence, I used practitioners' perceptions to crosscheck the quantitative findings and deepen the understanding of the nature of variation of financial knowledge and confidence. However, I first provided a review of the literature towards the development of a conceptual framework of financial capability in Chapter II. In Chapter III, I provided a brief review of literature and described the overall design of this dissertation and the methods used in the studies included, making the link among the three studies. The first study, understanding the financial knowledge gap across age groups, is presented in Chapter IV. In Chapter V, the findings on the income and gender gap in financial knowledge are presented. The qualitative inquiry to crosscheck the quantitative findings is presented in Chapter VI. Chapter VII, the final chapter, includes an overall conclusion and recommendations.

Chapter II

Financial Capability: A Conceptual Framework

The concept of financial capability is still developing. There are predominantly two perspectives on financial capability: consumer finance and social work perspectives. These two perspectives are not entirely different from each other; rather, the social work perspective is an extension of the consumer finance perspective. In consumer finance, financial capability is defined as individual characteristics whereas, in social work, it is considered a phenomenon with both individual and structural influences. In this chapter, I critically discuss the consumer finance and social work perspectives of financial capability and point out the shortcomings of these two perspectives. I also discuss Sen's capability approach in connection with financial capability. Finally, I propose a conceptual framework of financial capability that guides the studies included in this dissertation.

A consumer finance perspective of financial capability

Though the concept of financial capability is a recent development, the importance of financial literacy was acknowledged decades ago. Initiatives to promote financial literacy were undertaken particularly by governments in different developed countries. The National Endowment for Financial Education and the Financial Literacy Center in the US, as well as the Start Right Coalition for Financial Literacy in Canada, are a few examples of agencies that emerged to enhance people's understanding of financial matters (Mason & Wilson, 2000). Through initiatives such as these, the concept of financial capability evolved to capture the broader notion of people's understanding of financial matters.

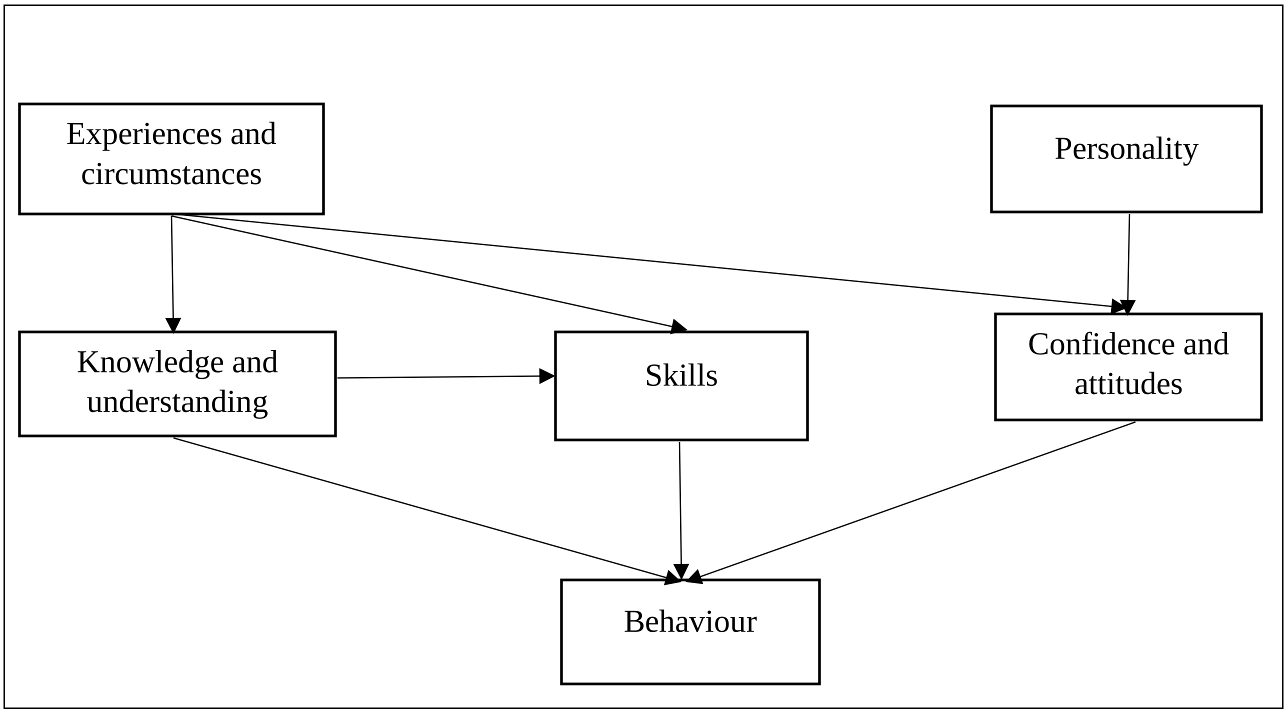
Initial efforts to define and study financial capability took place in the field of consumer finance to understand consumer behaviour concerning household financial management. In 2004, the Financial Security Authority (FSA) commissioned a comprehensive baseline survey to understand individuals' financial capability in the UK. Subsequently, the FSA collaborated with the Personal Finance Research Centre to conduct an exploratory study in order to develop a conceptual framework of financial capability (Kempson et al., 2005). It is worth discussing this study as it pioneered the conceptual development of financial capability. A majority of literature on financial capability developed in later years is closely aligned with this ground-breaking work (Johnson & Sherraden, 2007; Lusardi, 2011; Lusardi & Mitchell, 2014; Sherraden, 2013a; Xiao et al., 2014).

In the initial stage of inquiry, consumer finance scholars used the concept of financial capability and financial literacy synonymously. As Kempson et al (2005) mentioned, "attention focused on the need to define financial capability, or financial literacy as it was initially conceived" (2005, p. 13). By financial literacy, Kempson et al. (2005) referred to individuals' ability to obtain, understand and evaluate financial information to make financial decisions. In addition, a financially capable person is numerate, can make informed financial decisions, budget, manage money, assess risk and returns, and understand wider ethical, social, political and environmental dimensions of finances. Kempson et al. (2005) proposed a conceptual model of six interrelated factors: knowledge and understanding, skills, experiences and circumstances, confidence and attitudes, personality, and behaviour built around three identified components.

The concepts of financial capability as defined in consumer finance focus on people's personal characteristics related to financial knowledge, skills, and behaviours, which are sometimes considered *internal capabilities* (Nussbaum, 2011). Many scholars refer to financial knowledge and skills as financial literacy, which influences financial behaviours, and financial capability is a manifestation of these components (Lusardi, 2011; Lusardi & Mitchell, 2014; Xiao et al., 2014). Xiao et al. (2014) referred to financial capability as the demonstration of

Figure 1

Financial capability: The information and advice environment



Source: Kempson et al. (2005, p. 2)

financial literacy and performance of desirable financial behaviours. It becomes more complicated when the concept of financial literacy, as defined by many scholars, becomes very close to the concept of financial capability. Lusardi (2011) mentioned that financial literacy is strongly related to financial behaviours, which is indicative of financial capability. Lusardi and Mitchell (2014) defined financial literacy as people's ability to process economic information to make informed decisions about financial planning, wealth accumulation, debt, and pension. By adding 'attitude' as a psychological component, Buckland (2010) proposed a similar approach.

By financial literacy, the author referred to having the appropriate knowledge, skills, and attitude about one's finances to maintain one's financial wellbeing.

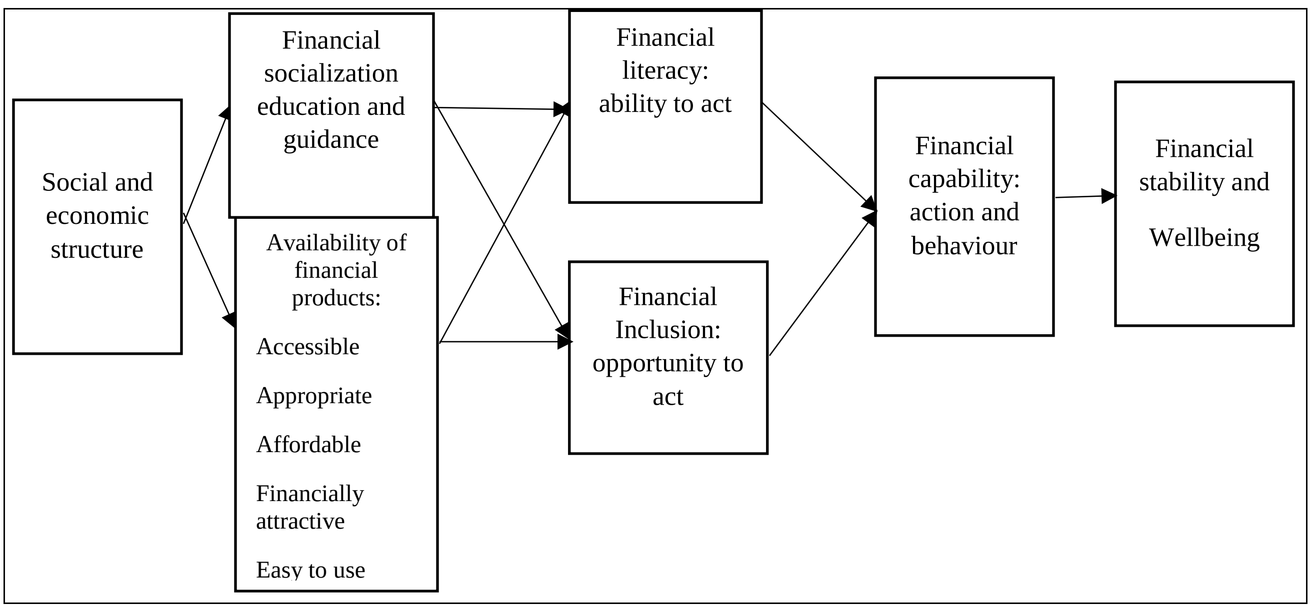
Debate exists on how financial capability differs from financial literacy. Leskinen and Raijas (2006), in a conceptual study, contributed to this debate. Instead of making a strong point of difference, the authors mentioned that financial capability and financial literacy can be used as synonyms. Referring to a discussion paper by Social and Enterprise Development Innovations (2004), authors indicated that the concept of financial literacy is used in North America whereas the concept of financial capability is a British terminology for the same notion. According to the authors, the American literature supports the model of a rational consumer, where financial understanding refers to individual's ability to gather, evaluate, and use the information to make decisions about one's economy. However, questions arise whether this debate is merely about the American and British styles or these two concepts are actually different from each other.

A social work perspective of financial capability

Social work scholars led by Sherraden and colleagues have made a notable contribution to the development of the concept of financial capability. Johnson & Sherraden (2007) argued that financial literacy, which focuses on the relationship between financial knowledge and financial behaviours, is a helpful but not sufficient idea. Authors captured the particular meaning of financial capability from Sen and Nussbaum’s works that acknowledge people’s *internal capabilities* such as knowledge and skills, and *external conditions* such as access to products, services, and institutions. Sherraden (2013a) clarified that financial capability is both an individual and a structural idea that combines a person’s *ability to act* with their *opportunity to act*. According to the author, the key distinction between financial literacy and financial capability is that financially capable people are more than financially literate; people must have access to financial products and services so that they can act in their best financial interest. In an exploratory study, Kempson et al. (2005) who represent the consumer finance perspective, also acknowledged that to fully understand financial capability, it is essential to consider the context within which the individual is operating. But, the authors did not include the structural component of financial capability in the conceptual model, and it was not reflected in the survey of financial capability commissioned by the FSA. The conceptual framework proposed by Sherraden is presented in Figure 2.

Figure 2

Financial capability



Source: Sherraden (2013a, p. 21)

It is important to consider how to capture the notion of *external conditions* as a component of financial capability. Sherraden (2013a) proposed the concept of financial inclusion to capture this notion. The author mentioned that both financial knowledge and financial inclusion are essential to building people's financial capability. According to the author, *ability,* financial knowledge and skills, and *opportunity*, financial inclusion i.e. access to financial products and services, influence people's financial functioning and financial wellbeing. Buckland (2014) mentioned that an inability to rely on mainstream banks for financial services, which he termed financial exclusion, has a practical consequence for many low-income people in many countries.

The social work perspective of financial capability is an extension of the consumer finance perspective as it adds a structural component - financial inclusion - to capture the greater domain of financial capability. However, the notion of financial inclusion as defined by Sherraden is not sufficient to capture the true structural domain of financial capability. According to Sherraden, financial inclusion refers to individuals’ access to financial products and services (Sherraden, 2013a). But Sherraden’s perspective cannot explain how individuals will be able to use financial products and services if they do not have access to sufficient income. Sherraden derived the particular meaning of capability from Sen’s capability approach (Sherraden, 2013b) where by capability Sen referred to individuals’ *substantive freedoms* (Nussbaum, 2011). Without access to sufficient income, individuals may not be able to use financial products and services despite high levels of financial knowledge and access to financial products and services. As such, the social work perspective of financial capability is not yet sufficient to the capture the full structural domain of financial capability without individuals’ access to sufficient income. A critical discussion on the capability approach will help better understand this debate.

Capability approach and financial capability

Financial capability is closely connected to Sen’s capability approach. Although the capability approach encompasses human capability in general, Sen (1999) identified five distinct types of rights and opportunities that help individuals enhance their general capability, where *economic facilities* are identified as an important one. In the capability approach, Sen's primary concern was to identify capability as a pertinent instrument of quality-of-life assessment and to change the direction of the development debate from a utilitarian to a humanitarian perspective (Nussbaum, 2011). In 1979, Sen, for the first time, outlined the concept of capability in a lecture on human values called ‘Equality of What’ at Stanford University, which was later elaborately developed (Alkire & Deneulin, 2009). The capability approach has provided a new paradigm in the field of poverty and development studies. It is a broad normative framework for assessment and evaluation of individual wellbeing and social arrangements (Robeyns, 2006). Sen developed his capability approach in a framework of interrelated concepts. In the following sections, I discussed the key concepts in order to capture the full notion of this approach. These concepts include *agency, functionings, capability,* and *wellbeing*.

Agency is one of the core concepts of capability approach. Sen (1995) referred to agency as an individual’s ability to realize goals and values s/he has reasons to pursue. More specifically, an agent is “someone who acts and bring about change, and whose achievements can be judged in terms of her own values and objectives” (Sen, 1999, p. 19). Sen’s notion of agency is similar to Bandura’s concept of agency. According to Bandura, “to be an agent is to influence intentionally one’s functioning and life circumstances” (Bandura, 2006, p. 164). Thus, the agency aspect expands the autonomy of individuals on his/her concerns, and at the same time, it allows individuals to be active and creative with the ability to act according to his/her aspirations (Alkire & Deneulin, 2009).

‘*Functionings*’ is another core concept of capability approach. Sen identifies different aspects of human life as functionings. According to him, “A functioning is an achievement of a person: what he or she manages to do or be” (Sen, 1985, p. 10). In other words, Sen referred to functionings as "what the person succeeds in *doing* with the commodities and characteristics at his or her command" (Sen, 1985, p. 10). To illustrate functionings, Sen used his classic example of a bicycle that represents a means of transportation. Now, functionings depends on whether the person possessing the bicycle is able-bodied or has a physical disability. A person with a mobility impairment cannot achieve functionings through the use of a bicycle. Thus, functionings refers to the use of commodities and characteristics individuals make at their commands (Clark, 2006). According to Alkhire and Deneulin (2009), functionings is an umbrella term that includes the resources, activities, and attitudes such as knowledge, friendship, an educated mind, a good job etc. which people consider important in their life circumstances and which they are able to put to use towards their goals.

The central concept of the capability approach is *capability* itself, which is connected to the other concepts in a logical framework. According to Sen (1995), "Capability is primarily a reflection of the freedom to achieve valuable functionings" (p. 49). In other words, Sen described capability "as a set of vectors of functionings, reflecting the person's freedom to lead one type of life or another" (Sen, 1995, p. 40). Thus, capability refers to the ability and opportunities of individuals to choose certain functioning from a variety of alternatives. In other words, it is a bundle of potential functionings for individuals from which they choose to achieve the ones they value (Sen, 1985). This definition of capability posits that the concept of capability is closely related to the concept functionings. As Sen mentioned, "Closely related to the notion of functioning is that of the *capability* to function" (Sen, 1995, pp. 39–40). And, capability represents the various combinations of functionings. To make a distinction between capability and functionings, it is to depict that functionings are actual achievements whereas capability reflects various combinations of functionings from which individuals can freely choose certain functioning in their interests (Sen, 1985). To illustrate the difference between capability and functionings, Sen (1995) brought another classic example of a person who starves as a result of fasting for religious or some other reasons while another person starves due to the lack of access to food. In terms of functionings, both persons achieve the same kind of functioning, but in terms of capability, the former has the ability to choose from the alternatives of starving or not starving, while the latter does not.

Wellbeing is another core concept of capability approach, which might be considered the goal or end result in this causal framework. Sen (1995) referred to wellbeing as the quality or the wellness of the person's being. In other words, "the wellbeing of a person is best seen as an index of the person's functionings" (Sen, 1985, p. 25). The capability of a person is related to his or her wellbeing in a logical link, that if the achieved functionings constitute a person's wellbeing, the capability is the abilities and the opportunities of the person to achieve certain functioning from a combination of alternative functionings (Sen, 1995).

Nussbaum (2011) accepted Sen's notion that capabilities are abilities linked to opportunities, also called *substantive freedoms*, to achieve alternative functioning combinations. According to the author, capabilities are not just abilities that reside inside a person, rather they also include "the freedom or opportunities created by a combination of personal abilities and the political, social and economic environment" (Nussbaum, 2011, p. 20). The author incorporated the concept of *combined capabilities* that includes both *internal capabilities* and *external conditions* or opportunities to function. By *internal capabilities* she referred to individual's personal traits, intellectual and emotional capacities, state of body fitness and health, knowledge, and skills, etc. (Nussbaum, 2011). The development of *internal capabilities* alone is not sufficient to achieve functionings and thereby wellbeing if a person lacks *external conditions* or opportunities to achieve alternative functionings. According to Nussbaum (2011), if a society produces sufficient *internal capabilities*, but restricts or limits the opportunities to function, people will lack capability, and it will ultimately affect their wellbeing. For example, a country might promote education that helps people develop their *internal capabilities* such as political ideas and free speech, and then restricts or limits free expression through regulation. Thus, Nussbaum (2011) defined *combined capabilities* as the combination of internal capabilities and sociopolitical and economic conditions in which functioning can be chosen from a set of alternative functionings.

Towards a conceptual framework of financial capability

It is now important to critically examine both consumer finance and social work perspectives of financial capability from the perspective of the capability approach proposed by Sen. In the capability approach, a human being is considered an *agent* who must have *capabilities,* i.e., the abilities and opportunities, to achieve desired *functionings* from a set of alternative functionings, in order to achieve his or her *wellbeing*. It is pertinent to mention that the concept of financial capability as defined in both consumer finance and social work is different from Sen's concept of capability in two aspects. First, both consumer finance and social work scholars tend to see financial capability as a behavioural term. According to Sen (1985, 1995), capability and functionings are related to each other, but they are also distinct from each other. Functionings are the *doings and beings* that individuals want to achieve, while capabilities are the abilities and opportunities of individuals to achieve functionings from a set of feasible alternative functionings. Thus, functionings itself is not capability. In the financial capability model, financial behaviour and practices resemble functionings, and financial capability is the abilities and opportunities of individuals to achieve desired financial behaviour and practices from a set of alternatives. Hence, we must acknowledge the distinction between financial capability and financial behaviour.

Second, although Sherraden's perspective of financial capability included financial inclusion as a structural component, the concept of financial inclusion as defined is not sufficient to capture *external capabilities* as defined by Nussbaum. As such, financial capability defined by consumer finance and social work scholars is insufficient as it fails to capture *substantive freedoms* - both *internal capabilities* and *external conditions*. For example, having knowledge about good nutrition and availability of food in the market at a reasonable price does not mean individuals can afford to buy healthy food if they do not have sufficient income. Therefore,

Figure 3

Financial capability framework of this dissertation

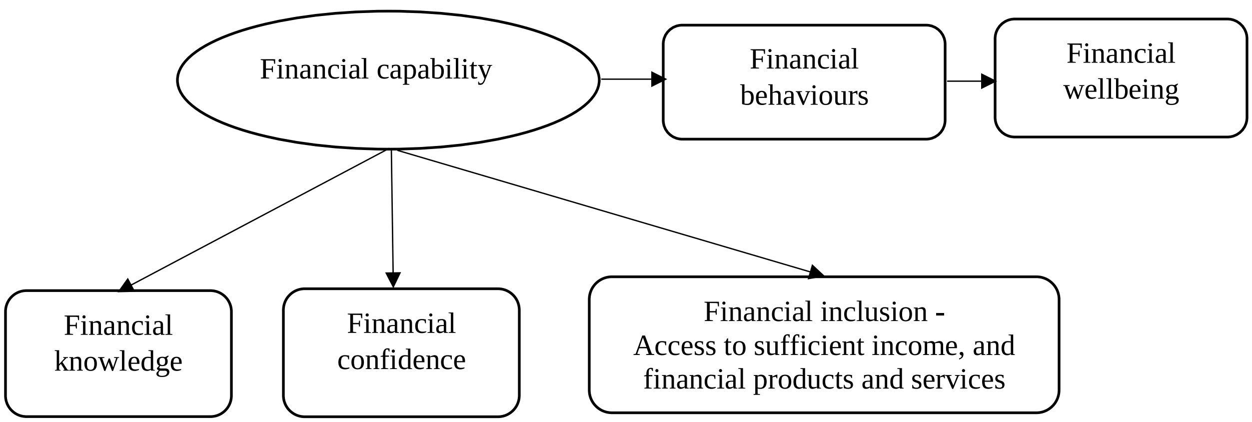


Figure 3. Financial capability is a latent construct comprised of three components – financial knowledge, financial confidence, and financial inclusion. Financial knowledge, financial confidence, and financial inclusion may have direct relationships with financial behaviours. Moreover, financial knowledge, financial confidence, and financial inclusion may influence each other. For simplicity, some of the potential relationships were not indicated in this figure.

financial capability can be defined as internal abilities such as financial knowledge and financial confidence combined with external conditions such as financial inclusion – access to financial products and services, and sufficient income. Financial capability influences individuals' financial behaviors and practices, which, in turn, influences financial wellbeing. The logical connections among these interrelated concepts are drawn in a conceptual framework of financial capability presented in Figure 3.

According to this framework, individuals require financial capability to perform financial behaviors and practices for financial wellbeing. And to have financial capability, individuals need ability – financial knowledge and financial confidence- and inclusion – access to financial products and services and sufficient income. In this dissertation, I primarily focused on financial knowledge. I examined how the financial knowledge gap – distance between one's objective and subjective knowledge – varies across age groups. I also examined the income and gender gap in financial knowledge. Findings of these studies will help us to better understand the contextual aspects of financial knowledge and confidence, particularly by identifying groups that lack financial knowledge and confidence so that policymakers and practitioners can develop and implement programs to address the needs to enhance financial wellbeing in society.

Chapter III

Overall Study Design

Financial capability has gained increased interest among academics, researchers, and policymakers in recent years. In social work, financial capability and asset-building approaches have been considered anti-poverty strategies. Financial knowledge and financial confidence are two important components in the financial capability framework (see Figure 3, Chapter II). Although we know much about the relationship between financial knowledge and financial behaviours, we know little about the disparity in financial knowledge and financial confidence across demographic and socioeconomic characteristics. Below I have presented an overview of the literature to document the current state of knowledge on (1) the financial knowledge gap across age, (2) the income and gender gaps in financial knowledge, as well as (3) the methodological approaches used in those studies. However, a substantial amount of literature has been reviewed and presented in chapters IV, V, and VI as part of the studies. In addition, theories that may explain the disparity if financial knowledge across age, income and gender have been critically discussed in each study.

Existing knowledge on financial knowledge gap across age

Lusardi (2011) examined nationally representative data from the 2009 National Financial Capability Study of the United States, a cross-sectional survey documenting the financial capability of American adults. Similar to the Canadian Financial Capability Survey, the National Financial Capability Study in the U.S. included a single item that asked individuals to self-rate their levels of financial knowledge (FINRA Investor Education Foundation, 2009; Statistics Canada, 2009). However, the Canadian survey included 14 items while the American survey included five items to measure objective financial knowledge. Lusardi (2011) reported that 38%

of respondents rated themselves very high in perceived levels of financial knowledge, although only 10 percent of respondents answered all the questions of the financial knowledge quiz correctly. As such, the author argued that there is a sharp disconnect between individuals' levels of perceived financial knowledge and their objectively measured financial knowledge. Porto and Xiao (2016) used data from the 2012 National Financial Capability Study to examine the relationship between financial literacy confidence and financial advice seeking. The authors created a measure of overconfidence, calculating when respondents had higher than average scores in subjective financial knowledge and lower than average scores in objective financial knowledge. According to this study, 63% of the respondents who demonstrated overconfidence were female and 27% were male. Among six age groups, individuals between 45 and 54 were the largest group (21 percent) that demonstrated overconfidence whereas young adults (18-24) were the smallest group (10 percent). However, the authors acknowledged that the measure used in this study might not be inclusive enough to capture the full notion of overconfidence.

Income gap in financial knowledge

To my knowledge, no study has examined the relationship between individuals' levels of financial knowledge and income. However, Lusardi and Tufano (2009) examined debt literacy, financial experiences, and over indebtedness using data from a number of surveys in the U.S. such as the Rand American Life Panel and the Survey of Consumers. To measure debt literacy, the authors used questions that focus specifically on borrowing and debt behavior. In their study, the authors reported that individuals with higher income are more likely to answer debt literacy questions correctly than individuals with low income. For example, the rates of answering a question on compound interest correctly was 48% for individuals with an income of $ 75,000 and above versus 26% for individuals with an income of $30,000 and below. However, the measure used in this study was limited to questions related to debt only and did not include other areas of financial knowledge. Moreover, the questions used in this measure were not tested for measurement biases for income groups.

Most studies that examined the relationship between financial knowledge and financial behaviours included income as a covariate in their regression models (Robb & Woodyard, 2011; Xiao et al., 2014). Some studies focused on understanding the levels of financial knowledge of individuals in low income. For example, Buckland (2010) investigated the financial literacy of low-income Canadians. Using qualitative data from field research conducted in 2006 and 2007, the author found adequate literacy among respondents in terms of limiting spending, diversifying income, avoiding excessive credit, and awareness of the general nature of relative market prices. The author claimed that the socioeconomic contexts in which individuals live matter in terms of learning about financial issues. Nam et al (2015) examined financial capability and asset ownership among low-income Asian immigrants, using a relatively small sample (N = 150). The authors found low levels of financial knowledge among low-income Asian immigrants. The authors reported that respondents in their sample provided an average of only one correct answer to four basic financial knowledge questions. However, this study was unable to compare the levels of financial knowledge between income groups. As such, there is a clear gap in the literature in terms of understanding the income gap in financial knowledge.

Gender gap in financial knowledge

The gender gap in financial knowledge is another area that needs further examination. In a study emphasising the importance of financial literacy, Lusardi and Mitchel (2014) indicated a gender gap in financial knowledge. Examining data from the 2009 National Financial Capability Study of the United States, the authors claimed a large and persistent gender gap in financial literacy. The authors reported that 38% male respondents answered all three financial literacy questions correctly while only 23% female respondents provided correct answers. However, the authors did not account for income and other socioeconomic and demographic factors while examining the gender gap in financial knowledge. As such, this study did not calculate a gap for each individual, but rather looked at patterns. While using the same measure, Bucher-Koenen et al (2017) found a similar pattern in Germany and the Netherlands. After controlling for demographic and socio-economic factors, the authors found a statistically significant gender gap in financial knowledge. However, the gender gap in financial knowledge both within and across income groups has not yet been examined. Since income is assumed to be associated with individuals’ levels of financial knowledge, it is important to understand the nature of the gender gap both within and across income groups (i.e. the nature of gender gap among individuals in low income compared to those who are in non-low income).

Overall purpose and design of the study

The purpose of this dissertation is to understand the relationships between individuals’ social locations – including age, income, and gender – and their levels of financial knowledge and financial confidence, using a mixed method approach. More specifically, a sequential transformative strategy (Creswell, 2009) was followed, which included a two-phase project. In the first two studies I analysed quantitative data considered the first phase. This phase of analysis guided the data collection and analysis of the qualitative inquiry considered the second phase. The quantitative data were from the 2009 and 2014 Canadian Financial Capability Survey (CFCS) (Statistics Canada, 2009, 2014) and the qualitative data were collected from key informants working in public, private, and community organizations that promote financial capability in Canada.

Both financial knowledge and financial confidence influence individuals' financial behaviours and practices and the literature suggests that there is a disconnect between individuals' actual financial knowledge and their perceived financial knowledge. However, we know little about the mismatch between individuals' objective and subjective financial knowledge. In Study I, I examined the financial knowledge gap - the distance between objective and subjective financial knowledge - across age groups. I first developed a measure of the financial knowledge gap by calculating the difference between objective and subjective financial knowledge. I then used Analysis of Variance (ANOVA) to examine the variation of the financial knowledge gap across age groups. Multivariate regressions were used to examine the results of ANOVA by controlling for a number of demographic variables i.e., gender, family type, number of children in the family, immigration status, and First Nations Status, and socioeconomic variables i.e., education, employment status, income, and home ownership. A variable of account ownership was also used to control for financial inclusion.

To understand the disparity in financial capability, it is also important to understand the disparity in financial knowledge across income and gender groups, which I examined in Study II. For an unbiased comparison of financial knowledge between low-income and non-low-income groups, I created a measure of financial knowledge using 14 financial literacy quiz items from the CFCS and tested for measurement equivalence of the scale across income groups. I then used independent *t*-tests to examine the difference of financial knowledge between income groups and between genders. I finally used multivariate regressions and controlled for a number of demographic and socioeconomic variables to calculate the extent of the income and gender gap in financial knowledge.

The analyses of the CFCS data described the nature of disparity in financial capability across age, income, and gender and contributed to an understanding of to what extent some groups overestimate or underestimate their levels of financial knowledge and which groups have lower levels of financial knowledge compared to others. However, these analyses were not sufficient to deepen our understanding of the nature of financial knowledge and confidence. To crosscheck the findings of the quantitative analyses and deepen our understanding of the nature of financial capability disparity in Canada, I used a qualitative approach in Study III. In this study, I collected data from six key informants with extensive experience practicing in the field of financial education, coaching, and counseling in public, private and community organizations. Together, these key informants have deep knowledge of the demographic and socioeconomic context of financial knowledge and confidence. I used a thematic analysis method (Guest, MacQueen, & Namey, 2011), which began with a process of open coding. Interview transcripts were read a second time to develop substantive themes on why financial knowledge varies across age and income.

The analyses of the complex survey data and qualitative interviews provided a broad as well as an in-depth understanding of financial knowledge disparity in Canada, which has important policy and practice implications to enhance financial capability and financial wellbeing of vulnerable groups in the communities.

Chapter IV

Study I: Understanding the Financial Knowledge Gap: A New Dimension of Inequality in Later Life

Abstract

To understand individuals' financial behaviors, it is important to understand the financial knowledge gap – the distance between one's objective and subjective financial knowledge. Overestimating one's financial knowledge can lead to risky financial behaviors. To date, limited empirical work has examined how financial knowledge gap varies across age groups. We analyze the size and nature of the financial knowledge gap and its variation across age groups. Using nationally representative data, we find robust evidence that older adults overestimate their financial knowledge. Social workers can assess the financial knowledge gap and educate their clients to protect from financial fraud, exploitation, and abuse.

Keywords: Financial knowledge; financial knowledge gap; financial capability; older adults

In recent years, social workers have focused on financial capability and asset building approaches to help individuals and families who experience increasing disparities of income and wealth (Birkenmaier, Kunz, Sander, & Horwitz, 2013). The financial capability framework includes both financial knowledge and financial inclusion – in other words, the ability to act, and the opportunity to act (Sherraden, 2013a). Contemporary families – and especially those with low-income – must simultaneously cope with declining incomes and wealth, and increasingly complex financial landscapes (Sherraden, 2013b). The rapid expansion of financial technologies, the proliferation of complicated products and services (Policy Research Institute, 2006), the shift away from defined benefit to defined contribution pension plans (Bucher-Koenen & Lusardi, 2011), and the mounting reliance on consumer credit means that households must make increasingly sophisticated calculations and decisions to manage their financial lives (Lusardi & Mitchell, 2014; Sherraden, 2013b). As a result, social workers have sought effective approaches to building financial capability and assets in households. Moreover, building financial capability for all, and reducing extreme economic inequality have been identified as two of the twelve grand challenges for social work in the 21st century (Uehara et al., 2014).

Financial knowledge is important because it influences financial behaviours and practices. For example, high levels of financial knowledge are associated with better financial behaviors and practices, whereas low levels of financial knowledge place individuals at risk of financial insecurity and poverty (Collins, 2013; Grinstein-Weiss, Guo, Reinertson, & Russell, 2015; Hui, Nguyen, Palameta, & Gyarmati, 2016; Xiao et al., 2014). Important for gerontological social workers, evidence suggests that older adults have lower levels of financial knowledge than other age groups (Finke, Howe, & Huston, 2016; Lusardi & Mitchell, 2011a, 2011b; Lusardi, Mitchell, & Curto, 2012) making them particularly vulnerable to financial fraud, exploitation, and abuse (Lusardi, 2012). However, Xiao, Chen and Sun (2015) reported that the levels of both subjective and objective financial knowledge among older adults (65 and older) are higher compared to young adults (24 and under). Financial education programs and workshops on retirement planning are some proposed interventions to increase financial knowledge among older adults (McCallion, Ferretti, & Park, 2013). While these efforts are important, only a self-selecting group of older adults are likely to take advantage of such interventions.

In this study, we investigated people's financial knowledge from a broader perspective of knowledge and perception. Because people's perception mediates the relationship between their knowledge and actions (Bandura, 1982), it is equally important to understand how much a person knows about financial matters, as well as how a person perceives the extent of their own knowledge. Given the tendency for cognition to change with age (Horn & Cattell, 1967), the gap between actual knowledge and perception might vary for different age groups. Understanding the nature of this gap, and its variation across age groups will help to identify how and when to intervene to improve the quality of older adults' financial lives.

Financial vulnerability among older adults

Financial vulnerability - exposure to financial risk, stress, and the threat of financial fraud, exploitation and abuse - is a rising concern in older age (Sherraden & Morrow-Howell, 2015). To increase older adults' financial wellbeing, it is vital to understand the nature and extent of this vulnerability, and to identify risk factors that may be unique to this population.

There are both individual and structural factors to consider. At the individual level, previous research has identified a number of risk factors for financial vulnerability among older adults. For example, in a conceptual study, Rabiner, O'Keeffe & Brown (2004) suggested that cognitive decline, limitations surrounding activities of daily living, and recent experience of the loss of a loved one might be associated with financial vulnerability.

At the structural level, financial markets and products have become increasingly complex, and older adults are required to be increasingly self-sufficient regarding the planning and management of their financial lives.

The general shift from defined benefit to defined contribution retirement plans has made financial planning more complicated (Lusardi, 2012; McCallion, Ferretti, & Park, 2013).

Furthermore, older adults are likely to be at the peak of asset accumulation, yet have low financial knowledge, making them particularly susceptible to financial fraud, exploitation and abuse (Lusardi, 2012; McCallion, Ferretti, & Park, 2013). Because of barriers to re-entry into the workforce, such as stereotyping by age, race, and disability; disparities in education, skills and training; and deficits in community resources, older adults have limited means to recover from financial losses that result from fraud, exploitation, and abuse (Anderson, Richardson, Fields, & Harootyan, 2013). Building financial knowledge and awareness of financial fraud, exploitation, and abuse among older adults, and facilitating risk assessment by professionals working with older adults can serve as protective factors against financial vulnerability in older age (McCallion et al., 2013).

Financial knowledge

Financial knowledge is one's understanding of financial matters. Individuals need to be aware of the micro and macroeconomic environment and understand basic issues of everyday finance such as saving, investment, credit, interest rates, inflation, and pricing of consumer products, among others. As such, financial knowledge is a form of literacy about financial issues. In this area of research, the term financial knowledge is sometimes used interchangeably with financial literacy. For example, Kempson et al. (2005) define financial literacy as individuals' ability to obtain, understand, and evaluate financial information. In other cases, financial knowledge is understood as one component of financial literacy. For example, various authors have conceptualized financial literacy as being comprised of financial knowledge, skills, and attitudes, all of which influence people's financial behaviors (Lusardi, 2011; Lusardi & Mitchell, 2014; Xiao et al., 2014).

Both subjective and objective assessments are used to measure financial knowledge. Objective financial knowledge is measured by assessing people's level of understanding of various components of financial markets and products, such as assets, debts, savings, and investments (Leskinen & Raijas, 2006). Xiao et al. (2014) measured objective financial knowledge using a knowledge quiz or a numeracy test on a specific domain. Lusardi and Mitchell (2014) identified three basic areas to measure objective financial knowledge: (i) numeracy and capacity to do calculations related to interest rates, (ii) understanding of inflation, and (iii) understanding of risk diversification. For simplicity, we use the term 'objective financial knowledge' in this study.

Subjective financial knowledge is understood as individuals' self-assessment of their levels of financial knowledge. Both the National Financial Capability Survey (NFCS) in the US and the Canadian Financial Capability Survey (CFCS) used a number of questions to assess the subjective financial knowledge of the respondents (FINRA Investor Education Foundation, 2009; Statistics Canada, 2009). To measure subjective financial knowledge, Xiao et al (2014) used a single item from the NFCS that asked on a one to seven scale: "how would you assess your overall financial knowledge?".

Both subjective and objective financial knowledge matter because of their relationship to financial decision-making and behavior. How much people know about finances (i.e., objective knowledge) has a positive relationship with financial behaviors (Hilgert et al., 2003; Xiao et al., 2014). However, objective financial knowledge does not fully explain why people choose to save or not, take on credit, or pay down bills. Recent evidence suggests that other factors such as subjective financial knowledge play a role. Subjective financial knowledge has been shown to mediate the effect of objective financial knowledge on financial behaviors such as emergency savings (Lown, Kim, Gutter, & Hunt, 2014; Rothwell, Khan, & Cherney, 2016). Overall, it seems objective financial knowledge is necessary but not sufficient to explain financial decisions and behaviors.

The relationship between one's objective and subjective financial knowledge has not been studied, but may be important to advance our understanding of financial capability. As described below, we focus on the distance between the two constructs: the financial knowledge gap (FKG).

Financial knowledge gap

Given the distinct nature of the objective and subjective knowledge, there is a plausible disconnect between individual's subjective and objective financial knowledge. A few possibilities of this disconnect include: first, some have perceptions that exceed their objective financial knowledge; second, the reverse, some may have perceptions that fall below their objective financial knowledge; and, third, some may have more-or-less alignment. The literature suggests that most people have low financial knowledge but are unaware of this, and, thus, overestimate their financial knowledge (Lusardi, 2011). Lusardi and Tufano (2009) measured objective and subjective financial knowledge, and found that older adults had lower levels of objective financial knowledge than subjective financial knowledge. Although Lusardi and Tufano (2009) did not examine the distance between subjective and objective financial knowledge, the descriptive statistics indicated a measurable gap between them. Consistency in findings across countries suggested that the low levels of objective financial knowledge amongst older adults were independent of country-specific economic trends, financial markets and products, and culture (Lusardi, 2012).

The distance between one’s subjective and objective financial knowledge is considered the financial knowledge gap (FKG). The gap can go in either direction: an individual's subjective financial knowledge is greater than their objective financial knowledge (overestimation), or their subjective financial knowledge is lower than their objective financial knowledge (underestimation). Understanding the FKG distribution, and its variation across age groups, provides important insight into one dimension of financial vulnerability. Both underestimation and overestimation may adversely affect one’s financial behaviors. However, a low levels of objective financial knowledge combined with a relatively high level of subjective financial knowledge can lead to greater risk of financial vulnerability amongst older adults, which is an important cause for concern (Sherraden & Morrow-Howell, 2015).

Overestimated valuation of financial knowledge has unique implications for older adults. Individuals who overestimate their financial knowledge may be more likely to engage in risky financial practices at a life stage that requires more conservative decisions (Sherraden & Morrow-Howell, 2015). In turn, although there is no evidence in the literature, a high likelihood of engaging in risky practices may invite financial predation in the form of fraud and exploitation (Lusardi, 2012). For example, a person with limited knowledge about markets and interest rates but relatively high confidence in their ability to manage money might be easily misled by a stockbroker. Sherraden and Marrow-Howell (2015) warned that despite high levels of financial confidence (i.e., subjective knowledge), many older adults lack plans for managing financial affairs. The authors emphasized the importance of financial knowledge in old age because of the threat of financial abuse.

Research questions

There has been much research on financial knowledge, in general, and in relation to financial behaviors and practices. Some studies have examined individuals' subjective financial knowledge to see its influence on financial behaviors (Robb & Woodyard, 2011; Xiao et al., 2014). Others have reported descriptive statistics such as mean and proportions of both objective and subjective financial knowledge, and observed differences in gender, ethnicity, and age groups (Lusardi, 2011; Lusardi & Tufano, 2009). Porto and Xiao (2016) examined the relationship between financial literacy overconfidence and financial advice seeking. In this study, the authors considered individuals to be overconfident if they had higher than average scores on subjective financial knowledge and lower than average scores on objective financial knowledge. However, to our knowledge, no studies have examined the construct of a FKG, defined as the observed distance between subjective and objective financial knowledge. Analyzing the gap, as we do below, provides insight into financial knowledge in ways that previous research cannot. For example, the gap analysis allows us to understand the magnitude of the gap, the nature of the gap (i.e. overestimation or underestimation of financial knowledge), variation of the gap across age groups, and how this variation is related to other demographic and socio-economic factors.

There are at least two major implications of understanding the FKG. First, knowledge of the gap will help identify the age groups who are overconfident in their financial knowledge, which is a risk factor for financial fraud, exploitation, and abuse. Second, knowledge of the gap will help inform prevention and treatment interventions such as financial education and counselling programs. For example, older adults who may be more likely to overestimate their financial knowledge might need financial education to minimize the FKG as protection form financial fraud, exploitation, and abuse. In this study, we investigated the following research questions:

1. What is the nature of the financial knowledge gap?
2. How is age related to the financial knowledge gap?

Method

Data

The study is cross-sectional and used data from the 2009 and 2014 Canadian Financial Capability Survey (CFCS). Combined, these two cross-sectional surveys sampled 22,204 adult Canadians through a two-phase stratified random sample administered with computer-assisted telephone interviewing (Statistics Canada, 2009, 2014). In the first phase, households were selected using Random digit dialing (RDD), and in the second phase, one individual from each household was selected. The sampling frame excluded individuals living in institutional settings and individuals residing in Yukon, Northwest Territories, and Nunavut. By definition, then, the survey and our findings are only representative for the 10 provinces of Canada. The survey provided weights for adjustment of non-response, bias for selecting one individual in the household, and inconsistency in province-age-sex ratio with population estimates projected in the Census. Hence, the findings we presented are nationally representative. We pooled/stacked data from both years.

Measures

Subjective financial knowledge: Subjective financial knowledge is each person's self-rated level of knowledge of financial matters. In both years, one item in the CFCS asked: "How would you rate your level of financial knowledge?”. Responses ranged from one to four with one corresponding to “very good” and four corresponding to “not very good”. The item was reverse-scored so that a higher score indicated higher financial knowledge. We standardized the scale for comparison.

Objective financial knowledge: Objective financial knowledge was measured as the summary score of the 14-item financial literacy quiz. Each item was scored correct or incorrect. These questions covered a wide range of concepts on financial knowledge that included inflation, interest rate calculation, stock market, and financial products of savings, credit, and insurance. A sample question reads, “If the inflation rate is 5% and the interest rate you get on your savings is 3%, will your savings have at least as much buying power in a year's time?” The summary score was also standardized.

FKG: We defined FKG as the distance between subjective financial knowledge and objective financial knowledge. The FKG score was generated by subtracting the standardized objective financial knowledge scores from the standardized subjective financial knowledge scores. As such, a negative score indicates underestimation of financial knowledge, and a positive score suggests an overestimation of financial knowledge.

Age: We measured chronological age position in six ordered groups. The categories ranged from 18 years to 65 years and above (1=18 - 24; 2= 25 - 34; 3= 35 - 44; 4= 45 - 54; 5= 55 – 64; 6= 65 and above). The older group (aged 65 and above) is the focus of this study. The age 65 cut-off is important as it signifies access to public and private pension systems (National Institute on Aging, 2011). Persons aged 65 and over tend to have additional access to gerontological human and social services.

Demographic variables: Demographic variables included gender, family structure, number of children, and immigration status. We created a variable of family structure by recoding marital status into three categories (1 = married, 2 = common law, 3 = single, divorced or separated, and widow or widower). We recoded the variable of the number of children in the household into two categories (0= no children, 1 = children). We used gender and First Nations status as dichotomous variables. We also coded immigration status with two categories (1 = born in Canada; 2 = immigrant).

Socioeconomic variables: Socioeconomic variables included education level, employment status, income level, and home ownership. We coded level of education with three categories (1= high school diploma or less; 2 = some college and college; 3= university degree or above)[1]. A variable for employment status was coded with four categories (1= employed; 2= unpaid work; 3= unemployed; 4= retired). We coded income with five categories (1= less than $32,001; 2=$32,001- $54,999; 3=$55,000-$79,999; 4=$80,000-$119,999; 5=$120,000 and over). We coded home ownership as a dichotomous variable (0 = renter or other housing status; 1 = home owner). We created a variable of account ownership (Friedline & West, 2016) with two categories (0 = unbanked; 1 = banked)[2].

Analysis plan

As a starting point, we compared means of FKG scores between age groups. Then, we ran multivariate regression models predicting the FKG. The focus of the analysis was on how age was related to FKG score. In the first model, we regressed FKG on age only. In the second model, we controlled for demographic variables along with age position. In the final model, in addition to demographics, we controlled for socioeconomic variables. All regressions in the pooled sample included a year dummy variable. Comparing both model coefficients and model fit statistics across models allowed us to test the research questions. Last, to illustrate the

[1] In contrast to the US, in Canada, there is a distinction between college and university. The college experience in Canada is roughly comparable to community or junior college in the US. Colleges typically offer career-oriented training and certification, while universities offer undergraduate degrees such as Bachelors of Arts/Sciences and graduate degrees.
[2] Here, banked status included owning a personal or joint savings or checking account.

regression findings, we simulated FKG scores. The simulations were calculated as the predicted FKG among older adults. In all analyses, survey weights were used.

Results

The sample is presented in Table 1. The age distribution showed that 18% of the respondents were older adults (65 and over). The largest age group was respondents aged 45 to 55 years, and the smallest age group was respondents aged 18 to 25 years (each group making up 19 and 12 percent of the sample, respectively). Females made up 51% of the sample. The proportion of the respondents who were married was 51%, 11% were living in common-law union, and the rest were living single, separated, divorced or widowed. Most respondents reported that they did not have any children (68 percent) living in their households. Respondents born in Canada made up 79%, and 21% respondents migrated to Canada. The respondents with First Nations status made up 3% of the sample. The proportion of respondents that had a university degree was 26%, while 42% had a high school degree or less. More than half of the respondents (52 percent) were employed, while 12% were unemployed, and another 21% were retired. Almost all respondents owned bank accounts (99 percent). The income distribution showed that 18% of the respondents were living with an annual income of $32,000 or less, while 21% had an annual income of $120,000 and over. Most of the respondents reported owning a home (74 percent).

The unstandardized mean scores of subjective and objective financial knowledge were 2.24 (*SD*=.84) and 8.01 (*SD*=3.55), respectively. After standardization, subjective and objective financial knowledge scores ranged from -1.52 to 2.06, and -2.32 to 1.70, respectively. The distribution of subjective financial knowledge, objective financial knowledge, and FKG were presented in Table 2. Among the age groups, older adults (65 and above) demonstrated the

Table 1

Description of Sample

Variables	Proportion / *M(SD)* *N* = 22,204
Gender	
Female	51
Family type	
Married	52
Living common law	11
Living single	37
Children	
Have children	32
Immigration status	
Born in Canadian	79
First Nations status	
First Nations	3
Education	
High school and less	42
Some college and college	32
University	26
Employment status	
Employed	52
Unpaid work	16
Unemployed	11
Retired	21
Income	
Less than 32,001	18
32,001-54,999	20
55,000-79,999	21
80,000-119,999	21
120,000 and over	20
Home ownership	
Own home	74
Account ownership	
Unbanked	<1
Age	
18-24	12
25-34	18
35-44	17
45-54	19
55-64	16
65 and over	18
Objective financial knowledge	8.01 (3.55)
Subjective financial knowledge	2.24 (.84)

highest level of subjective financial knowledge (*M*=.11, *SD*=1.02) where as young adults (18-24) had the lowest level of subjective financial knowledge (*M*= -.42, *SD*=.93). On objective financial knowledge, the middle age group (35-44) scored the highest (*M*= .12, *SD*=.99) where as the older adults scored the lowest (*M*= -.34, *SD*=1.10).

Table 2

Distribution of subjective financial knowledge, objective financial knowledge and FKG

Age	**Subjective Financial Knowledge** *(M/SD)*	**Objective Financial Knowledge** (*M/SD*)	**FKG** (*M/SD*)
18-24	-.42(.93)	-.12(.92)	-.41(1.19)
25-34	-.12(.98)	.01(.98)	-.27(1.18)
35-44	-.01(1.00)	.12(.99)	-.25(1.19)
45-54	.03(.97)	.09(1.01)	-.22(1.22)
55-64	.04(1.02)	.09(.99)	-.18(1.24)
65 and above	.11(1.02)	-.34(1.10)	.28(1.29)

The FKG scores varied significantly across age groups at p=.05 level [F (5, 20904) = 126.52, p<.001]. Young adults (18 to 24) underestimated their financial knowledge with a mean of -.41 points (*SD*= 1.18). On the other hand, older adults (65 and over) overestimated their financial knowledge by .28 points (*SD*= 1.29). Other age groups also underestimated their level of financial knowledge.

Next, we turned to the regression results (see Table 3). The bivariate regression (Model 1) showed two findings with implications for gerontological social work. First, older adults (65 and over) with reference to middle age adults (35 to 44) significantly overestimated their financial knowledge by .53 points (β = .53; p < .001). On the other hand, younger adults (18 to 24) significantly underestimated their financial knowledge by .16 points (β = -.16; p < .05). Variation of the financial knowledge gap was not statistically significant for other age groups. This model explained 3 percent of the variation of FKG across age groups.

After we entered demographic variables in the regression model (Model 2), the coefficient for older adults increased and remained statistically significant (overestimated the level of financial knowledge by .60 points; $\beta = .60$; $p < .001$). Younger adults significantly underestimated the level of financial knowledge by .18 points ($\beta = -.18$; $p < .05$). In relation to middle age, other age groups except for the age group 55 to 64 were not statistically significantly different. The age group 55 to 64 significantly overestimated the level of financial knowledge ($\beta = .15$; $p < .01$). Among the demographic variables, males were more likely than females to overestimate their financial knowledge by a difference of .10 points ($\beta = .10$; $p < .01$), and immigrants were more likely than Canadian-born to overestimate their financial knowledge by a difference of .33 points ($\beta = .33$; $p < .001$). Respondents with First Nations status were more likely to overestimate their financial knowledge ($\beta = .29$; $p < .001$). The explanatory power of this model increased to 4 percent.

In the final regression model (Model 3), we entered socioeconomic variables. When we controlled for all the demographic and socioeconomic variables, the coefficient for older adults decreased from .53 to .35 (34%) of the magnitude from Model 2 ($\beta = .35$; $p < .001$). Younger adults underestimated their financial knowledge by .21 points ($\beta = -.21$; $p < .01$). Again, the results for other age groups were not statistically significant. Of note, the coefficient for older adults was reduced while controlling for socioeconomic variables. Gender, immigration, and First Nations status were still significant with similar magnitude and direction. Education was related to the FKG. Compared to those with a university degree, respondents with a high school degree or less overestimated their financial knowledge by .28 points ($\beta = .28$; $p < .001$). Retired respondents compared to employed respondents overestimated their financial knowledge by .18 points ($\beta = .18$; $p < .001$). With reference to respondents with higher incomes ($120,000

Table 3

Regression Results Predicting the Financial Knowledge Gap

	Model 1	Model 2	Model 3
Variables	*β(SE)*	*β(SE)*	*β(SE)*
Age			
18-24	-.16(.06)*	-.18(.07)*	-.21(.07)**
25-34	-.02(.05)	-.05(.05)	-.03(.05)
35-44 (ref)			
45-54	.03(.05)	.07(.04)	.03(.04)
55-64	.07(.05)	.15(.05)**	.03(.05)
65 and over	.53(.05)***	.60(.05)***	.35(.06)***
Gender			
Male		.10(.03)***	.11(.03)***
Family structure			
Married (ref)			
Living common law		.07(.05)	.04(.05)
Living single		.12(.03)***	.04(.04)
Children			
Have children		.01(.04)	.01(.04)
Immigration status			
Immigrant		.24(.04)***	.25(.04)***
First Nations status			
First Nation		.29(.09)***	.19(.09)***
Education			
High school and less			.28(.04)***
Some college and college			.10(.04)**
University (ref)			
Employment status			
Employed (ref)			
Unpaid work			-.04(.04)
Unemployed			.12(.06)
Retired			.18(.05)***
Income			
Less than 32,001			.14(.06)*
32,001-54,999			.07(.05)
55,000-79,999			.04(.05)
80,000-119,999			-.04(.04)
120,000 and over (ref)			
Home ownership			
Do not own home			.02(.04)
Account ownership			
Unbanked			.23(.15)
Model R^2	.03	.04	.06

Note. Reference categories are female for gender, no children for children, born in Canada for immigration status, not First Nations for First Nations status, own home for home ownership, and banked for account ownership.
* $p<.05$, ** $p<.01$, *** $p<.001$

and over), those with low incomes (less than $32,001) overestimated their financial knowledge by .14 points (β = .14; p < .05). This regression model (Model 3) explained 6 percent of the variation of the FKG across age groups, which is double the explanatory power of the bivariate regression model (Model 1).

Last, we calculated the predicted FKG of older adults in a series of scenarios that varied family structure, gender, and level of education (see Table 4). The postestimation test results

Table 4

Predicted financial knowledge gap of older adults

Family structure	Men	Women
Married, high school degree or less	.25***	.14**
Living common law, high school degree or less	.28***	.17**
Single, high school degree or less	.28***	.17**
Married, some college or a college degree	.07	-.04
Living common law, some college or a college degree	.10	-.01
Single, some college or a college degree	.10	-.01
Married, university degree	-.03	-.14**
Living common law, university degree	.01	-.11
Single, university degree	.01	-.11

Note. Predicted knowledge gap score estimated from the survey-weighted regression reported in table 2 model 3. The predicted gap scores presented control for children, immigration status, First Nations status, employment status, income, home ownership, and account ownership. ** p<.01, *** p<.001

showed that the predicted FKG varies significantly across education levels. Male older adults with a high school degree or less, regardless of their marital status overestimated their financial knowledge. For example, married older males who had a high school degree or less overestimated their financial knowledge by .25 points. Holding other demographic characteristics constant, for male older adults who were single, the predicted FKG was .28 points. However, the predicted FKG scores for male older adults with college education and above were not significantly different from the financial knowledge alignment. For female older adults, a similar decreasing-with-education pattern was found. Female older adults with high levels of education did not overestimate their financial knowledge (i.e., predicted gap score was negative). Married female older adults who had a high school degree overestimated their financial knowledge by .14 points. Holding other characteristics constant, the predicted FKG for female older adults with a university degree was -.14.

Discussion

Demographic change is altering the landscape of the most vulnerable in society. As people live longer and financial options become more complex, financial exploitation of older adults is an emerging social welfare concern. We use nationally representative survey data on financial capability collected by Statistics Canada in 2009 and 2014 to understand the FKG across age groups. We define the FKG as the distance between subjective financial knowledge and objective financial knowledge. As such, the FKG can go in either direction; people can either underestimate or overestimate their financial knowledge.

Important for gerontological social workers, we find that there is significant variation of the FKG for older adults. Specifically, older Canadian adults overestimate their financial knowledge. This pattern was robust to controlling for a range of demographic and socioeconomic factors. Demographic factors such as gender and immigration status predict one's FKG in expected directions, but do not account for much change in the magnitude of the regression coefficients. Socioeconomic characteristics - particularly education and income levels – were more influential than demographics and moderated the relationship between age and FKG. However, beyond the influence of gender, education, and income, the FKG was still higher among older adults.

Cognitive abilities may explain the relationship between age and financial knowledge. Individuals' ability to acquire financial knowledge, evaluate information, and make informed financial decisions is influenced by a range of cognitive skills (Drever et al., 2015; Friedline, 2015). Horn et al. (1967) explained cognitive aging by indicating two types of cognitive skills: fluid intelligence, the basic mechanism for processing information; and crystallized intelligence, the knowledge acquired throughout life via education and other experiences. Older adults tend to have higher levels of crystallized intelligence as it has slower rate of age-related decline than fluid intelligence (Horn & Cattell, 1967; Mazzonna & Peracchi, 2012; McFadden, 2008), which might explain the higher level of FKG among older adults. However, to examine the effect of cognitive aging was beyond the scope of this study.

In addition, the age, period, and cohort (APC) effect might influence the nature of the financial knowledge gap among older adults. The older adults who participated in this survey were born after World War II, a period of industrial and economic prosperity in North America. This cohort of older adults grew up in a relatively prosperous economy compared to the young and middle age adults of today, which might influence the financial confidence of older adults. As such, the APC effects might partially explain the disconnect between their levels of confidence and actual knowledge. However, in this study, we were unable to adjust for the period and cohort effect on the FKG. Future research is needed to isolate the period and cohort effects to better understand how the FKG is related to individuals' age.

Our results further illuminate within-group risk of overestimation among older adults. The predicted FKG varies significantly across family structures in combination with gender and level of education. Male older adults with a high school degree or less are more likely than other groups to overestimate their financial knowledge. Low educated older men are likely to have experienced cumulative and compounding disadvantage that place them at greater risk for economic uncertainty. Social workers and policy advocates might target vulnerable groups, and adopt practice and policy measures to protect them from the risks associated with financial vulnerability.

Practice implications

Building financial knowledge among older adults requires assessment of individuals' levels of financial knowledge and confidence; raising awareness of the FKG and other risk factors for financial fraud, exploitation, and abuse; and encouraging participation in knowledge-building interventions. Because of their close involvement and concern with their clients' financial wellbeing, social workers are well positioned to take part in this process.

Intervention can occur at the community level. Social workers can offer informational seminars, workshops, and financial planning and counseling sessions. These interventions should target the specific needs of older adults. Given the increasing presence of digital technologies in the financial product and services sector, an emphasis on helping older adults develop skills to make use of these technologies is particularly important. Further, because the focus at this stage of the life course is on maintaining, rather than building wealth, there should be an emphasis on budgeting, planning and consumer safety.

Older adults who are overconfident may not be motivated to participate in financial knowledge-building interventions. As such, making clients aware of the knowledge gap, and its relationship to financial vulnerability is vital for stimulating participation. Further, social workers can advocate for the financial rights of their clients, and help bridge the gap between individuals and financial institutions. Together, these action-oriented approaches can help protect older adults from financial fraud, exploitation, and abuse.

Policy implications

The pattern of overconfidence in financial knowledge among older adults requires a policy response. Governments in the United States and Canada have launched national strategies to promote financial capability with a special focus on financial literacy (FCAC, 2013; U.S. Department of the Treasury, 2014). Community organizations have joined this initiative to promote financial knowledge among low-income and other vulnerable populations, including older adults. Our findings on the FKG should encourage policymakers, community organizers, and financial institutions to address inequalities across age groups. While not tested here, the life course perspective may be a useful approach. This perspective considers individual trajectories within a broader social and historical context, and emphasizes the role of social structures and inequalities in shaping people's lives (McDaniel & Bernard, 2011).

Governments can require financial institutions to take special measures when servicing older adults in order to protect this vulnerable population from financial fraud and exploitation. For example, Siddiqi, Zdenek & Gorman (2015) have proposed "age-friendly" banking that includes helping older adults obtain financial education, financial counseling, protection from fraud and abuse, and assistance with aging in place. Financial institutions can offer customized financial products and services that would build capacity and reduce vulnerability in old age. Further, financial institutions can take measures to safeguard older adults' financial assets. For example, institutions might send notification to older adults if any unusual transactions take place in their accounts.

We also suggest that governments consider supporting public, private, non-profit, and community-based initiatives that provide financial information, education, and training. Further integrating financial capability interventions in the wider network of health and social services already used by older adults can make them more accessible to this population. However, financial education interventions vary considerably in their observed impact (Fernandes, Lynch, & Netemeyer, 2014). More evidence based approaches are needed to improve the effectiveness of interventions for building awareness and promoting financial knowledge among older adults (McCallion et al., 2013).

Limitations

This study used a cross-sectional design, which does not claim to establish causality of the FKG. We acknowledge that such a design was not able to disentangle age effects, from period and cohort effects (Glenn, 2005). Longitudinal data on these constructs, not yet available, would be necessary to properly identify these potential alternate explanations. A summary score for the objective financial knowledge scale and a single item for subjective financial knowledge were used for measurement. Not only a single item but an ordinal scale with four choices was used to measure subjective financial knowledge. A ratio scale has an advantage over an ordinal scale by capturing a wider domain of a construct (Stevens, 1946). As such, the scale sued in this study is susceptible to lose much of the variability of responses. A latent variable approach such as Item Response Theory could be an alternative method for constructing the objective financial knowledge scale. Substantively, the pattern of overestimation of financial knowledge among older adults, and underestimation among younger adults can be accounted for by cognitive and psychological aging. However, this was beyond the scope of this study.

Conclusion

Financial vulnerability is a rising concern. Social workers are now actively engaged in building financial capability. This study uses a novel analysis of the FKG to establish a new need for interventions to focus on older adults. Social workers can create equitable economic conditions and enhance financial wellbeing in old age by building financial knowledge and awareness of the FKG.

In Study I, I examined the nature of financial knowledge gap of Canadian adults and its variation cross age groups. Findings of this study suggest that older adults (65 and above) significantly overestimate their levels of financial knowledge, which is considered a risk factor of financial fraud, abuse, and exploitation. As such, the financial vulnerability among older adults calls for policy and practice responses to protect this group from financial exploitation and insecurity.

Age is an important characteristic that determines individuals' social locations. However, other demographic feature such as gender and socioeconomic status such as income levels are also important factors that contribute to positioning individuals in their social environment. I hypothesized that individuals' levels of income might influence their levels of financial knowledge. As such, lower income groups may lack financial knowledge compared to higher income groups and might be vulnerable to financial insecurity. I also hypothesized that financial knowledge questions used in surveys have biases for income groups, which needs to be tested. And the literature suggests that women have lower financial knowledge than men. In Study II below, I first created a measure of financial knowledge and tested the measurement equivalence across income groups. I then examined the variation of financial knowledge across income and gender groups, including the nature of gender gaps in financial knowledge both within and across income groups.

Chapter V

Study II: Understanding the Income and Gender Gap in Financial Knowledge in Canada: An Application of Item Response Theory

Abstract

Understanding the disparity in financial knowledge across income groups is important for enhancing the financial capability and wellbeing of individuals and families in poverty and low income. There is limited empirical work that has examined the disparity in financial knowledge between low-income and non-low-income groups. Using nationally representative data from the 2009 and 2014 Canadian Financial Capability Survey, I examine the income and gender gap in financial knowledge. I find robust evidence that individuals living in low income have significantly lower levels of financial knowledge than their non-low-income counterparts. However, in contrast to existing literature, the gap in financial knowledge between genders within income groups was not statistically significant. Building financial knowledge among individuals in poverty and low income therefore needs to be a policy priority. Social workers working with individuals and families in low income and poverty can build awareness and help improve their financial knowledge for financial wellbeing.

Keywords: Financial knowledge; financial capability; low income; poverty; gender

Social work has a longstanding commitment to vulnerable populations, particularly to people living in poverty and low income. Social work efforts in the late 19th and early 20th century of the profession's development, during the years of charity organizations and the settlement house movement, included helping vulnerable people to enhance their lives in dealing with everyday finances such as bill paying, savings, and participating in macroeconomic life

(Stuart, 2013). Later, the focus shifted to the more psychosocial aspects of individuals and families rather than on their economic lives and its relation to macro environment (Specht & Courtney, 1995). In recent years, some social workers have retuned to the historical role and focused on financial capability and asset-building approaches to help individuals and families experiencing increasing disparities in wealth and income (Birkenmaier et al., 2013).

The concept of financial capability is a recent development and social work scholars have adopted this approach to better understand poverty and economic inequality in society. Financial knowledge is an important component in the financial capability framework, which includes both financial knowledge and financial inclusion (Sherraden, 2013). People who have higher levels of financial knowledge make better financial decisions, such as saving for emergencies, than people who have lower levels of financial knowledge (Hilgert et al., 2003), which is one of the central arguments for adopting financial capability building as an anti-poverty approach. People with low income tend to demonstrate lower levels of financial knowledge when compared to their upper-income counterparts. However, the relationship between financial knowledge and income is not fully understood. It is not yet evident whether financial knowledge influences people's income-ability or levels of income and wealth influence people's level of financial knowledge (Hamilton & Darity, 2017). A reciprocal effect is also possible. Moreover, the measures of financial knowledge used in different studies were not tested for measurement equivalence across income groups. A measure that has biases for a particular income group cannot produce accurate and precise assessment of financial knowledge. Therefore, it is important to examine the complex relationship between financial knowledge and income with an unbiased measure. It is also important to understand how financial knowledge varies across demographic characteristics such as gender, both within and across income groups.

The purpose of this study is to develop an unbiased measure to compare the levels of financial knowledge across income groups. I first examine the reliability and validity of the financial knowledge quiz items used in the Canadian Financial Capability Survey (CFCS) and test the measurement equivalence across income groups to capture precise, accurate, and unbiased measurement of financial knowledge. I then examine the variation of financial knowledge across income groups and the gender gap in financial knowledge both within and across income groups. A financial knowledge scale that has measurement equivalence across income groups will be an effective tool to understand the relationship between financial knowledge and income. This will also help to identify the particular types of financial knowledge useful for people living in particular income groups. Understanding the variation of financial knowledge across income groups will help to innovate effective interventions to improve financial management skills among individuals on low income to improve their financial wellbeing.

Financial knowledge

Financial knowledge, which scholars sometimes use synonymously with financial literacy, is people's understanding of their everyday finances. Different components that make up financial knowledge generally include people's understanding of assets, debts, savings, and investment (Leskinen & Raijas, 2006). Surveys conducted in different countries to understand people's financial knowledge included a number of knowledge quiz items on savings, inflation, interest rates, and insurance (FINRA Investor Education Foundation, 2009; Statistics Canada, 2009, 2014). For example, the 2009 and 2014 Canadian Financial Capability Survey included 14 items on price comparison of consumer goods, inflation, savings, credit, stocks, and insurance to measure people's financial knowledge (Statistics Canada, 2009, 2014). Lusardi and Mitchel

(2014) proposed three specific areas of financial knowledge that includes numeracy and capacity to do calculations related to interest rates, understanding of inflation, and understanding of risk diversification.

Although there are disagreements on the definition of financial knowledge, scholars tend to agree on several components that reflect people's level of understanding of issues around everyday finances. The next step is to develop a reliable and valid set of measures to capture these components and assess the levels of financial knowledge. There is little work on the development of rigorous measurement tools of financial knowledge. In most empirical studies on the topic, summary scores of survey items were used to measure people's levels of financial knowledge. Lusardi and Mitchell (2014) identified three areas of financial knowledge that included calculation of interests, understanding inflation, and understanding risk diversification, which have been widely used in various surveys and empirical studies as a summary scale. For example, Xiao, Chen & Chen (2014) used a summary score of five dichotomous financial literacy questions on interest rate, inflation, bond, price, mortgage, and stock from the National Financial Capability Survey in the United Sates. Rothwell, Khan & Cherney (2016) used a summary score of a 14- dichotomous items from the 2009 Canadian Financial Capability Survey (CFCS) to measure financial knowledge. In other studies, researchers used similar measurement approaches (Babiarz & Robb, 2014; Lusardi, 2011) that lack critical measurement issues such as reliability and validity.

To understand people's levels of financial capability and its relation to downstream financial behaviours and practices, it is important to develop a set of valid and reliable measures of financial knowledge. A simple summary score of the quiz items used in a survey might not measure people's levels of financial knowledge accurately and consistently because such a scale fails to capture the greater variation of responses. Hence, the levels of financial knowledge measured with less reliable and valid instruments might not correctly predict individuals' financial behaviours and practices.

Financial knowledge and household income

Building financial capability as an anti-poverty strategy requires better understanding of the variation of financial knowledge across income groups. The current state of knowledge about the relationship between financial knowledge and income is limited. There is an assumption that people in low income possess low levels of financial knowledge compared to their upper income counterparts. For example, Lusardi and Tufano (2009) examined debt literacy and over indebtedness using survey data. The authors used a measure of debt literacy that focuses specifically on debt and debt behavior. In this, study, the authors reported that individuals with higher incomes had higher rate of answering debt literacy questions correctly compared to individuals with low incomes. However, the measure used in this study did not capture the greater domain of financial knowledge. As such, research on the relationship between individuals' levels of financial knowledge and of income is limited.

Most studies that examined the effect of financial knowledge on downstream financial behaviours and practices (Robb & Woodyard, 2011; Xiao et al., 2014). A number of studies particularly focused on low-income population and examined the association of financial knowledge with saving practices (Babiarz & Robb, 2014; Rothwell et al., 2016). Some other studies reported positive impacts of financial education programs on saving practices and asset holding among people in low-income (Grinstein-Weiss, Guo, Reinertson, & Russell, 2015; Zhan, Anderson, & Scott, 2006). None of these studies examined how the nature and levels financial knowledge are different across people in low-income and non-low-income.

Therefore, there is a gap in knowledge of understanding the variation of financial knowledge across income groups. Moreover, to my knowledge, the assessment tools used in different surveys were not tested for measurement equivalence across income groups. For example, the Canadian Financial Capability Survey (CFCS) and the National Financial Capability Survey (NFCS) in the USA are two comprehensive surveys to assess individuals' financial knowledge and its relationship with financial behaviours and practices. The CFCS used a 14-item financial literacy quiz and the NFCS used a 5-item scale to measure individual's level of financial knowledge (FINRA Investor Education Foundation, 2009; Statistics Canada, 2009, 2014). There are two major measurement issues with these surveys. Firstly, there is no clarity or mention of the reliability or the validity of the items used in the survey. Items were included in the survey based on expert opinions (Statistics Canada, 2009, 2014). Secondly, it was not considered whether some of the survey items might favor or disfavor certain individuals due to their membership with certain income groups, something which might produce measurement biases or errors. For example, individuals living in low income might not be familiar with complicated calculation of bond prices or investment trade-offs because these are not relevant or appropriate for their everyday financial issues. But they may still have optimum levels of financial knowledge within their financial reality. As a result, inclusion of an unfamiliar or a biased item in the scale will underscore the true latent construct of financial knowledge of individuals in low income.

Some have made the argument that financial knowledge is dependent on socioeconomic context (Buckland, 2010). As such, individuals living in different income levels have different types of financial issues in their lives; a separate instrument is needed to measure financial knowledge of people in low income (Kempson, Perotti, & Scott, 2013). In addition, to compare the levels of financial knowledge across income groups, it is necessary to develop a scale that has measurement equivalence across income groups by eliminating the biased items.

Financial knowledge and gender

There is a general agreement in the literature that a gender gap in financial knowledge is evident. A number of studies examined the gender gap in financial knowledge and claimed that women have significantly lower levels of financial knowledge than men (Fonseca et al., 2012; Lusardi & Mitchell, 2014; Lusardi & Tufano, 2009).

Lusardi & Mitchell (2014) examined data from the 2009 National Financial Capability Study in the United States to measure financial literacy of different groups. The authors used three financial literacy questions that covered calculation of interest, understanding of inflation, and understanding of risk diversification. The authors reported that among the respondents who correctly answered all three questions, 38% of them were male and 23% were female. The same measure was used in 11 other countries including Germany, the Netherlands, and Switzerland, and the authors found a similar pattern. Building on the work of Lusardi and Mitchell (2014), Bucher-Koenen at al (2017) used a subset of data from American, Dutch, and German Surveys to better understand the gender gap in financial knowledge. After controlling for marital status, age, education, and income, the authors found statistically significant lower levels of financial knowledge among females in the USA (β= -.138; p<.001), the Netherlands (β= -.116; p<.001), and Germany (β= -.066; p<.01) compared to their male counterparts. Lusardi and Mitchell (2010) examined financial literacy among the young and reported that females scored significantly lower than males in all three literacy questions - interest calculation, inflation, and risk diversification. In a separate study to examine debt literacy and over indebtedness, Lusardi and Tufano (2009) reported that the rates of answering a question on interest calculation correctly were 46 % for males and 26% for females.

Fonseca, Mullen, Zamarro, & Zissimopoulos (2012) used RAND American Life Panel (ALP) survey data of 2,500 respondents interviewed periodically over the internet to examine the gender gap in financial knowledge. While controlling for race, education, income, and marital status, authors found a statistically significant gender gap in financial knowledge where females had .54 standard deviations lower level of financial knowledge compared to male (β= -.54; p<.000). Hsu (2015) used data from the Cognitive Economic Survey that collected data form a national sample of persons 51 and older and their spouses regardless of age to understand the impact of spousal incentives of financial literacy. For this study, the author examined data collected from 224 couples (N = 448). A 24-question battery on financial literacy was used to measure financial knowledge of respondents. They calculated the difference in financial knowledge of wives and husbands and reported that a negative mean score (M = -.37, SD = 1.10) which indicated a lower levels of financial knowledge among wives compared to their husbands. However, findings also suggested that in the families where wives were the immediate members who took care of household finances, the knowledge gap was positive (M = .30) meaning wives demonstrated higher levels of financial knowledge than husbands. When husband's age was considered in determining the knowledge gap, the author claimed that husbands' financial knowledge followed an upside-down U shape pattern, whereas wives' scores were an upward sloping with respect to their husbands' ages. Findings of this study suggested that the costs and benefits of financial knowledge are not equal for men and women across their life course. Whereas men get incentives in learning financial knowledge early on in their lives, women benefit from learning about finances in their late life. As such, the gender gap in financial knowledge may not always be favourable to men at every point across the lifespan. Women may well demonstrate higher levels of financial knowledge than their men counterparts when they are in the charge if household finances.

As such, it is important to further investigate the gender gap in financial knowledge. Moreover, the gender gap in financial knowledge both within and across income levels is not yet understood. And the nature of the gender gap in financial knowledge within the Canadian population is not yet studied. It is important to understand the gender gap in financial knowledge both within and across income groups because of its association with financial behaviours such as retirement planning and savings and its relation with gender-specific life circumstances. Women in general live longer than men (Bucher-Koenen et al., 2017). As such, women are in greater need of financial knowledge to prepare them for retirement and ensure financial security in their late life.

Financial knowledge and measurement theory

Financial knowledge is a latent construct manifested through a number of indicators of everyday finances. These indicators need to be sufficiently identified and consistently and adequately measured. This process requires a rigorous psychometric examination.

Classical measurement theory offers a number of methods for scale development. Factors Analysis (FA) and Item Response Theory (IRT) are two important classical measurement methods (DeVellis, 2016; Kappenburg -ten Holt, 2014). FA is the most traditional and widely used method of scale construction and evaluation. FA includes both exploratory and confirmatory analyses. Exploratory Factor Analysis (EFA) allows us to explore the possible underlying factor of a set of items without imposing a preconceived structure, while Confirmatory Factor Analysis (CFA) allows us to test the hypothesis that an underlying latent construct exists. In scale development, FA relies on the items that are internally consistent or highly correlated (DeVellis, 2016). The second method – IRT – is considered an extension of classical measurement theory and a powerful tool of measurement, particularly in educational assessment (Bock, 1997; DeVellis, 2016). Instead of relying on internal consistency, IRT seeks items that can capture the larger domain of a latent ability. Although both FA and IRT have advantages in certain contexts, in some cases IRT has advantages over FA (Knoll & Houts, 2012). For example, to measure a latent ability such as the ability to solve a problem, IRT is more powerful than traditional FA. In scale development, traditional FA emphasizes the internal consistency or the reliability alpha coefficient of the items and selects the items that are highly correlated (Kappenburg-ten Holt, 2014). In contrast, IRT captures the difficulty levels of the items and this is why an IRT scale can more efficiently differentiate individuals according to their latent ability (Kappenburg-ten Holt, 2014).

To be financially knowledgeable, an individual requires some level of numeracy to do financial calculations and acquire information about the relationship of micro and macro-economic choices and events with a person's everyday finances (Huhmann & McQuitty, 2009). This conceptualization suggests that individuals must have some level of latent ability to be financially knowledgeable. Both IRT and FA can measure the latent ability of financial knowledge. However, a scale developed through IRT can capture the greater domain of this latent ability since an IRT scale includes items with different levels of difficulty whereas an FA scale seeks to identify the items that have higher level of internal consistency (DeVellis, 2016; Kappenburg-ten Holt, 2014). Therefore, to develop a scale of financial knowledge , IRT can be a more appropriate method than traditional FA (Knoll & Houts, 2012). A scale that has items with different difficulty levels can efficiently measure individuals' latent ability or levels of financial knowledge. In addition, two other features of IRT make it a more suitable method of scale development for this study. First, IRT is useful in shortening an existing scale by dropping redundant items (Edelen & Reeve, 2007; Kappenburg -ten Holt, 2014) . Second, IRT allows us to test measurement equivalence of a scale across groups with its Differential Item Functioning technique. DIF is a technique of IRT that helps to identify any item in the scale that has bias to a particular group. In this case, DIF helps to identify any item in the financial knowledge scale that may favor or have bias for non-low-income group or vice versa. DIF is a powerful tool for developing a scale with unbiased items (Nugent, 2017) that can measure a latent construct such as financial knowledge more precisely and accurately and make comparison between groups.

Research questions

Financial knowledge, which refers to people's knowledge, skills and attitude about daily and long-term financial management, is socioeconomic context dependent (Buckland, 2010). This notion suggests a plausible variation of financial knowledge across income levels, and part of this variation is due to people's membership of a particular income group. Some people might not know certain aspects of personal finances. This does not confirm that they do not possess certain kinds of ability. Instead, this might imply that they do not require particular kinds of financial knowledge to manage their daily finances. This proposition triggers a number of critical issues. First, people living in different income levels might require different types of financial knowledge. Second, to compare the levels of financial knowledge across income groups, it is essential to develop a scale that has measurement equivalence across income groups. Making comparisons between groups with a measure that does not have measurement equivalence is vulnerable to producing biased results. A number of nationally-representative surveys on financial capability were conducted in many developed countries and numerous empirical studies have examined financial knowledge and its association with financial behaviours and practices (FINRA Investor Education Foundation, 2009; Lusardi, 2011; Statistics Canada, 2009; Xiao et al., 2014). There are some limitations with these studies. Many of these studies lack rigorous measurement requirements. For example, reliability, validity and, particularly, measurement equivalence of the financial knowledge scale were not examined in most of these studies. In this study, I examine the reliability, validity, and measurement equivalence of the financial knowledge assessment items used in the Canadian Financial Capability Survey (CFCS). In addition, I examine the variation of financial knowledge across income groups and the gender gap in financial knowledge both within and across income groups. More specifically, in this study, I investigate the following research questions (RQ):

RQ-1: To what extent are the original CFCS survey items reliable for measuring people's financial knowledge?

RQ-2: To what extent are the original CFCS survey items valid for measuring people's financial knowledge?

RQ-3: To what extent do the original CFCS survey items have measurement equivalence across income groups?

RQ-4: To what extent does financial knowledge vary across income groups?

RQ-5: What is the nature of the gender gap in financial knowledge both within and across income groups?

Method

Data

This study used restricted data from the 2009 and 2014 Canadian Financial Capability Survey (CFCS), accessed through the McGill-Concordia Research Data Centre (RDC). Statistics

Canada conducted the first national survey of financial capability in 2009 and sampled 15,519 adult Canadians (Statistics Canada, 2009). The second survey was conducted in 2014 and sampled of 6,685 respondents (Statistics Canada, 2014). I pooled data from both these years. Therefore, combined, these two cross-sectional surveys sampled 22,204 respondents. The samples were drawn through a stratified random sample administered with computer-assisted telephone interviewing. In the first phase, households were selected using Random Digit Dialing (RDD), and in the second phase, one individual from each household was selected. Individuals living in the institutional settings and individuals living in Yukon, Northwest Territories, and Nunavut were excluded from the sampling frame. The overall response rate of the survey was 56.3% in 2009, which was 53% in 2014. The survey provided weights for adjustment of nonresponse, bias for selecting one individual from each household, and inconstancy in province age-sex ratio with the population estimates projected in the Census. Hence, the findings are nationally representative.

Measures

Financial knowledge

A Financial Knowledge Scale (FKS) was created from the 14-item financial literacy quiz using Item Response Theory. The FKS included 6 items. I used the standardized FKS in all analyses. Each item was scored correct or incorrect. The financial literacy quiz covered a wide range of concepts on financial knowledge that included interest rate calculation, understanding of inflation, stock market, credit, insurance, and other financial products and services. A sample question reads, “By using unit pricing at the grocery store, you can easily compare the cost of any brand and any package size.” The FKS was tested for measurement equivalence across income groups.

Household income

Household income was measured by the Low Income Measure (LIM) used by Statistics Canada. According to Statistics Canada, the LIM is 50% of median adjusted household income (Statistics Canada, 2015). The creation of the LIM involved certain steps. First, equivalent household income was calculated for each household by dividing household income by its adjusted size, which is the square root of number of persons in the household. Next, the adjusted household income was assigned to each individual in the population. In the next step, the median of the equivalent household income was calculated. The LIM for a household of one person was 50% of the median of the equivalent household income. Thus, The LIM for the other sizes of households was the value calculated by multiplying the LIM for a household of one person with the equivalent household size. Finally, the household income was coded with two categories (0=Non-low-income household; 1=Low-income household).

Demographic variables

Literature suggests that financial knowledge significantly vary across demographic characteristics of individuals. A number of demographic variables were used in this study, including age, gender, family structure, number of children, immigration status, and First Nations status. Age was measured with a chronological age position in six categories, ranging from 18 years to 65 years and above (1 = 18–24; 2 = 25–34; 3 = 35–44; 4 = 45–54; 5 = 55–64; 6 = 65 and above). I used gender as a dichotomous variable (1 = female; 2 = male)[3]. A variable of family structure was created by recoding marital status into three categories (1 = married; 2 = common law; 3 = single). I recoded the variable of the number of children in the household with

[3] While I recognize that dichotomous gender variables will not capture all participants' self-identity, this was the design of the original survey.

two categories (0 = no children; 1 = children). I also coded immigration status (1 = born in Canada; 2 = immigrant) and First Nations status (0 = Not First Nations; 1 = First Nations) with two categories.

Socioeconomic variables

Socioeconomic variables can explain a large portion of the variation of financial knowledge. In this study, socioeconomic variables included education level, employment status, and home ownership. Education level was coded with three categories (1 = high school diploma or less; 2 = some college and college; 3 = university degree or above). I coded employment status with four categories (1 = employed; 2 = unpaid work; 3 = unemployed; 4 = retired). Home ownership was used as a dichotomous variable (0 = renter or other housing status; 1 = home owner).

Banking status

Financial capability framework includes both financial knowledge and financial inclusion, which means individuals need both financial knowledge and access to financial products and services to be able to manage their personal finances (Sherraden, 2013a). I used a variable of banking status to measure financial inclusion with two categories of those who do not have any personal or joint saving or checking account and those who do. (0 = unbanked; 1 = banked).

Analysis

I started the analysis with a description of the sample. The description of the sample is presented in Table 1. Gender is almost equally distributed. Female (51percent) was a percentage point higher than male. The distribution of age suggested an almost symmetrical distribution of respondents across the age groups. The largest age group (45-55 years) made up 19 % of the sample while the smallest age group made up 12 %. Married respondents made up 51 % of the sample while another 11 % were living in common law. The rest of the respondents were living single, separated, divorced or widowed. The proportion of the respondents having children living with them in the households was 32 %. Immigrants made up 22 % of the sample while First Nations made up only 3 %. Respondents with university degree represented 26 % of the sample and another 50 % of the sample had some college and college degree. The rest of the respondents had high school degree or less. Employed respondents made up 52 % of the sample while 21 % reported retired. The rest were unemployed or doing unpaid work. Most of the respondents (74 percent) reported owning a home and almost all respondents (99 %) reported having a bank account. As assessed with Low Income Measure (LIM), 19 % of the respondents were living in low income.

This study involved a two-phase analysis. In the first phase, FKS was created through Item Response Theory (IRT) and in the second phase, the variation of financial knowledge across income groups and gender was examined.

Proportions of correct responses of the original survey items were calculated. The scale development began with an Exploratory Factor Analysis (EFA) to examine the unidimensionality of the items, which is one of two primary assumptions of IRT (Nugent, 2017). I further assessed this assumption with Confirmatory Factor Analysis (CFA) and evaluated the fit of the CFA models with the Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and Standardized Root Mean Square Residual (SRMR) (DeVellis, 2016). The second primary assumption is local independence of items, which means items in the scale are unrelated to one another (Bock, 1997; Kappenburg -ten Holt, 2014; Nugent, 2017). To examine the second primary assumption of IRT, a One Parameter Logistic (1PL) model was used to

Table 1

Description of the sample

Variables	Proportion *N* = 22,204
Gender	
Female	51
Age	
18-24	12
25-34	18
35-44	17
45-54	19
55-64	16
65 and over	18
Family type	
Married	51
Living common law	11
Living single	38
Children	
Have children	32
Immigration status	
Immigrant	22
First Nations status	
First Nations	3
Education	
High school and less	24
Some college and college	50
University	26
Employment status	
Employed	52
Unpaid work	16
Unemployed	11
Retired	21
Household Income	
Low income	19
Home ownership	
Own home	74
Account ownership	
Unbanked	<1

identify and remove the redundant or related items. Once the redundant items were removed from the pool, measurement equivalence of the items across income groups was tested with the Differential Item Functioning (DIF) of IRT to examine RQ-3. At this stage, items that did not have measurement equivalence across income groups were removed to avoid biases of items towards any income group, and a 1PL model was run again on the remaining items for confirmation. Then, items were plotted with Item Response Curve (ICC) and with Item Information Function (IIF) to see the distribution of item difficulty of the items. In the next step, the reliability of the FKS was examined with the Test Information Function (TIF) of IRT to examine RQ-1. In the final step to examine RQ-2, the construct validity was tested with Pearson and Spearman's correlations.

In the second phase of analysis, I examined RQ-3 and RQ-4. In this phase, I examined the variation of FKS across income groups and the gender gap in financial knowledge both within and across income groups. The second phase of the analysis began with description of the sample. I then ran a t-test to examine the mean difference of FKS between low-income and non-low-income groups. A t-test was also run to examine mean difference of FKS between male and female. Finally, I ran four regression models predicting FKS. In the first regression model, I regressed FKS on household income only. In the second regression model, FKS was regressed on gender. In the third model, demographic variables were entered with household income and gender. In the final model, in addition to demographic variables, I controlled for socioeconomic variables and banking status. Last, I simulated FKS scores to examine the gender gap in financial knowledge both within and across income groups. A year dummy variable was included in all regression models. Survey weights for individuals were used in all analyses.

Results

Financial knowledge scale development

Proportions of the correct responses of the original survey items are presented in Table 2. Proportions varied widely between 26 and 89 percent in the full sample. Most of the respondents

Table 2

Proportion of correct responses of the survey items of financial knowledge scale

Item#	Item content	Full sample (%)	Low-income (%)	Non-low-Income (%)
Item 1	If the inflation rate is 5% and the interest rate you get on your savings is 3%, will your savings have at least as much buying power in a year's time?	64	53	67
Item 2	A credit report is...?	42	31	44
Item 3	Who insures your stocks in the stock market?	30	25	31
Item 4	By using unit pricing at the grocery store, you can easily compare the cost of any brand and any package size.	73	69	74
Item 5	If each of the following persons had the same amount of take home pay, who would need the greatest amount of life insurance?	76	67	78
Item 6	If you had a savings account at a bank, which of the following statements would be correct concerning the interest that you would earn on this account?	72	61	75
Item 7	Inflation can cause difficulty in many ways. Which group would have the greatest problem during periods of high inflation that lasts several years?	54	42	57
Item 8	Lindsay has saved $12,000 for her university expenses by working part- time. Her plan is to start university next year and she needs all of the money she saved. Which of the following is the safest place for her university money?	65	59	66
Item 9	Which of the following types of investment would best protect the purchasing power savings in the event of a sudden increase in inflation?	40	31	42
Item 10	Under which of the following circumstances would it be financially beneficial to borrow money to buy something now and repay it with future income?	26	20	27
Item 11	Which of the following statements is not correct about most ATM (Automated Teller Machine) cards?	73	60	76
Item 12	Which of the following can hurt your credit rating?	89	81	91
Item 13	What can affect the amount of interest that you would pay on a loan?	72	63	74
Item 14	Which of the following will help lower the cost of a house?	87	74	89

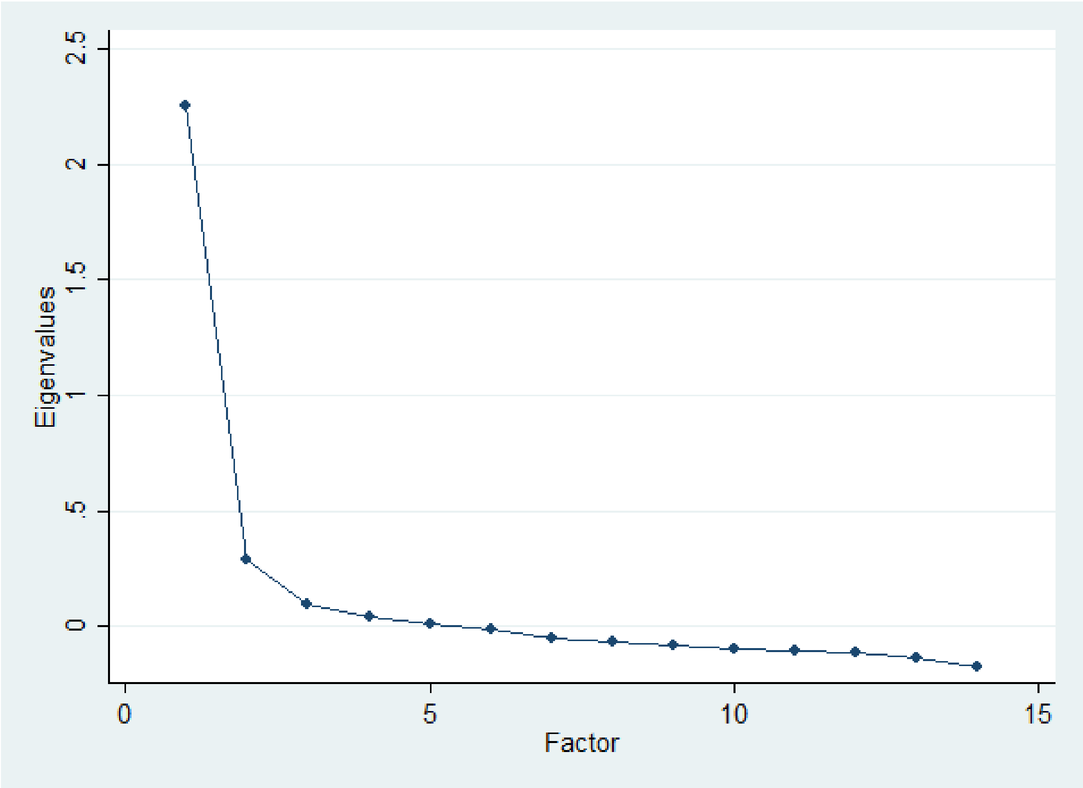
(89 %) got Item number 12 correct while only 26 % of the respondents got item number 10 correct. Not surprisingly, lower proportions of correct responses were found among the

respondents in low-income were low, which varied between 20 %and 81% while among the respondents in non-low-income varied between 27% and 91%.

The Financial Knowledge Scale (FKS) development started with exploratory factor analysis of the original survey items. The results of the EFA suggested a single dimension. The eigenvalues of the 14 original items with a scree plot are presented in Figure 1. The eigenvalues were 2.25 for the first factor and .29 for the second factor with a difference of 1.96. The eigenvalues for the other factors were less than .10, which suggested a one factor model (Girden & Kabacoff, 2010).

Figure 1

Scree plot of eigenvalues after factor analysis of 14 items



The CFA results further confirmed adequate fit for a one-dimension model. The model RMSEA was .04. A value of RMSEA less than .05 is considered a good fit model (Kline, 2011) . The values of model CFI and SRMR were .91 and .03 respectively.

In the initial 1PL analysis of 14 items, 6 items were found to be redundant. Therefore, the redundant items were eliminated from the pool. The redundant items were item number 1, 6, 9, 11, 13, and 14. While eliminating items, I followed a principle of maximizing the local independence of items, which means eliminating the item that has higher correlation with another item in the scale (Nugent, 2017). Hence, the initial scale of financial knowledge included 8 items, which was then tested for measurement equivalence across income groups with DIF. The results of DIF suggested that item number 3 had measurement non-equivalence across income groups [χ^2 (1) = 87.5, p<.001]. Item number 7 also exhibited measurement non-equivalence [χ^2 (1) = 17.73, p<.001]. I further tested the Mantel-Haenszel DIF to examine the biases of item number 3 and 7 towards low-income or non-low-income group. The results of Mantel-Haenszel DIF suggested that item number 3 favoured the non-low-income group (*OR*=1.38, p<.001) while item number 7 favoured the low-income group (*OR*=.90 p <.01). Therefore, items number 3 and 7 were eliminated from the initial scale due to the measurement non-equivalence. Hence, the final scale included six items.

The 1PL parameter values of the final scale are presented in Table 3. The item difficulty values of the final scale ranged between -2.49 and 1.33. Item 12 demonstrated the least level of difficulty (θ =-2.49). On the other hand, item 10 demonstrated the highest level of difficulty (θ =1.33), covering the concept related to the calculation of trade-off/opportunity maximization through borrowing.

Table 3

Item number, content, and estimated 1PL IRT parameter values for selected 6 items

Item#	Item content	*b*	*SE*
Item 12	Which of the following can hurt your credit rating?	-2.49	.04
Item 5	If each of the following persons had the same amount of take home pay, who would need the greatest amount of life insurance?	-1.55	.02
Item 4	By using unit pricing at the grocery store, you can easily compare the cost of any brand and any package size.	-1.19	.02
Item 8	Lindsay has saved $12,000 for her university expenses by working part- time. Her plan is to start university next year and she needs all of the money she saved. Which of the following is the safest place for her university money?	-.71	.02
Item 2	A credit report is...?	.41	.02
Item 10	Under which of the following circumstances would it be financially beneficial to borrow money to buy something now and repay it with future income?	1.33	.02

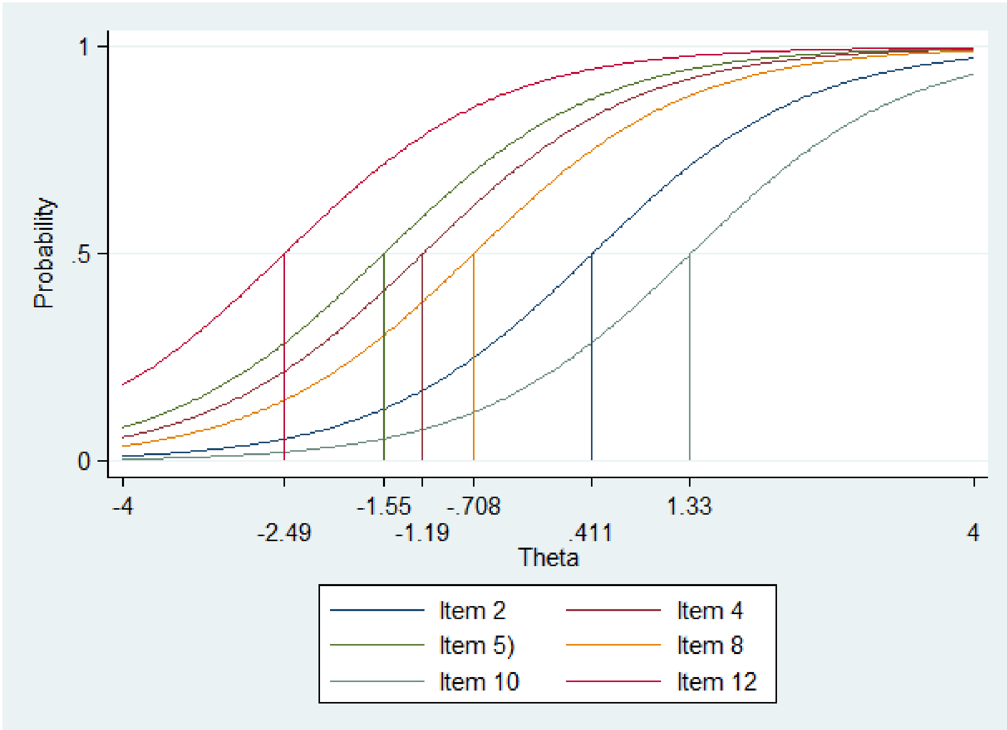
The Item Characteristics Curve (ICC) of the final scale, which provided visual display of the local independence of the items, is presented in Figure 2. The ICC showed there was no item highly correlated with any other item in the scale, which suggested the absence of local dependence of items.

The Item Information Function (IIF) is another curve that displayed further detail on each individual item. Specifically, the IIF displays where an individual item provides maximum information (Baker, 2001). The results of the IIF are presented in Figure 3. The IIF showed that item 12 which was with the least difficulty provided maximum information at the difficulty level -2.48 and provided almost no information around the difficulty level -4. Similarly, item 10, the most difficult item, provided maximum information at the difficulty level 1.33 but almost no information around the difficulty level 2.5.

The Test Information Function (TIF) and the Standard Error Curve (SEC) of IRT provide the reliability information of the scale. The TIF and SEC together displayed the range of difficulty levels in which a scale provides reliable measurement of a latent ability.

Figure 2

Estimated IPL IRT parameter curves of 6-item Financial Knowledge Scale



The results of the TIF with SEC are presented in Figure 4. In this figure, the horizontal axis represented the item difficulty levels and the vertical axis represented the test information function with standard errors. The TIF and SEC suggested that the scale provided the most precise estimate for latent ability of financial knowledge close to the difficulty level -1. The level of precision decreased as the curve moved up and down. At this point (θ=-1*)*, the FKS provided the most reliable measurement with the least amount of error. The TIF curve started falling in either side after this point. The point at which the TIF intersect the SEC curve does not provide any reliable information. The FKS did not provide any reliable information below the difficulty level -3 and above 2. Therefore, the TIF and SEC results suggested that the FKS passed the reliability test as the difficulty levels of the items ranged between -2.48 and 1.33.

Figure 3

Item information of 6-item Financial Knowledge Scale

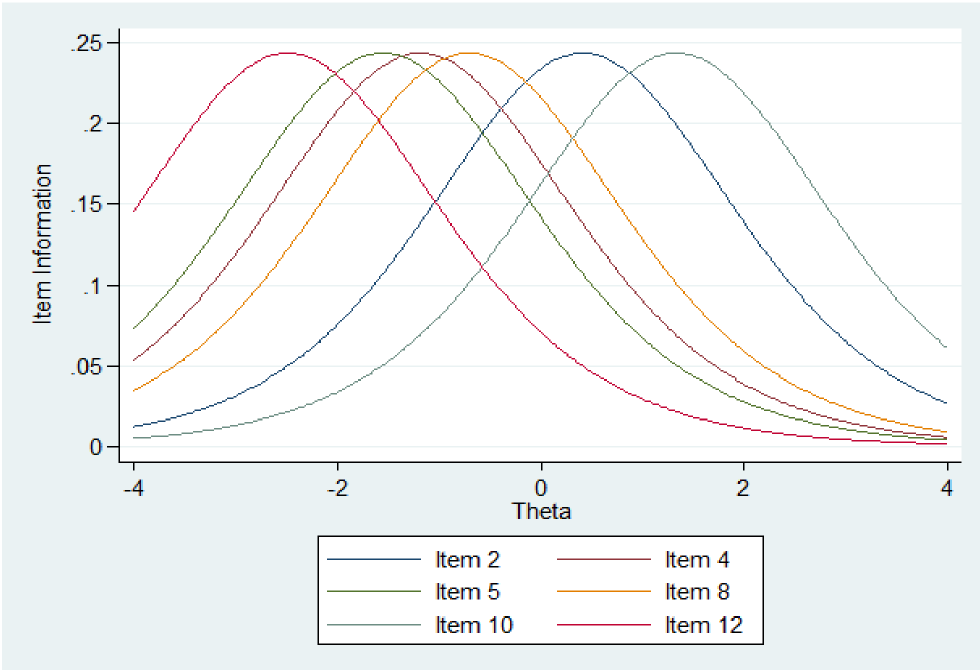
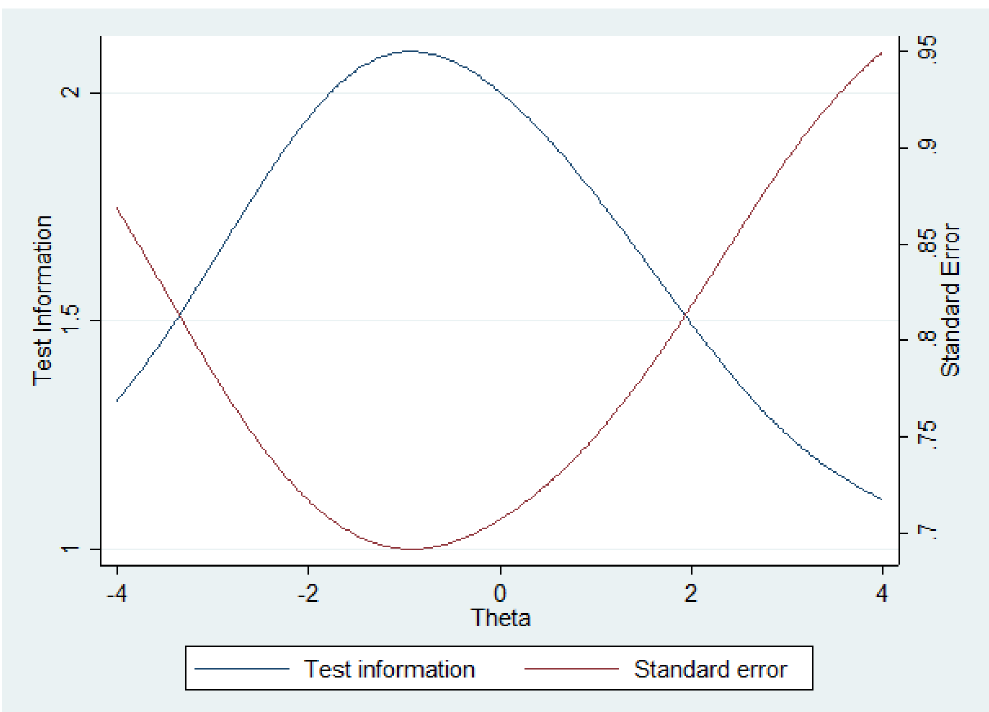


Figure 4

Test information and Standard error curves of 6-item Financial Knowledge Scale



To examine the RQ-2, Spearman's rank correlations were run between the FKS and a number of variables related to financial behaviour and practices to test the convergent construct validity. The correlation matrix of the testing variables is presented in Table 4. Variables such as frequency of checking the balance in an account, saving, maintaining Registered Education Saving Plan (RESP), investment, and maintaining tax-free saving account are expected to be positively correlated with FKS. The results of correlation analysis showed statistically significant positive correlations between FKS and frequency of account balance checking (ρ= .16, p<.000), saving (ρ= .11, p<.000), maintaining Registered Education Saving Plan (RESP) (ρ= .10, p<.000), investment (ρ= .14, p<.000), and maintaining tax-free saving account (ρ= .10, p<.000). To test the divergent validity of the scale, I ran correlation between FKS and a variable of seeking no financial advice. The analysis suggested statistically significant negative correlation between FKS and seeking no financial advice (ρ= -.19, p<.000).

Table 4

Correlation Matrix of Financial Knowledge and testing variables

Variables	FKS	Balance check	Saving	RESP	Investment	Tax-free account	No financial advice
FKS	1.00						
Balance check[1]	.16***	1.00					
Saving[2]	.11***	.00	1.00				
RESP[3]	.10***	.11***	.05***	1.00			
Investment[4]	.14***	.01	.35***	.10***	1.00		
Tax-free account[5]	.10***	.00	.22***	.03**	.26***	1.00	
No financial advice[6]	-.19***	-.14***	-.18***	-.17***	-.22***	-.18***	1.00

Note: [1]Frequency of checking balance in accounts; [2]Cash saving in saving or checking accounts; [3]Having any Registered Saving Education Plan; [4]Investments in stocks, bonds, term deposits, GICs, or Non-RRSP Mutual funds; [5]Having a Tax free saving account; and [6]Did not use any financial advice

Spearman's rank correlation; * p<.05, ** p<.01, *** p<.001

Financial knowledge across income groups

The unstandardized mean score of FKS[1] was 3.72 with standard deviation of 1.38. The standardized score of FKS[2] ranged between -1.84 and 1.21 with mean score of 0 and standard deviation of 1. The standardized scores of the FKS were used in all analyses. The results of the *t*-test suggested a statistically significant difference of mean scores of financial knowledge between low-income (*M*= -.23, *SD*=.01) and non-low-income (*M*= .05, *SD*=.01) groups; t (22,202) =25.14, $p<.001$. The results of *t*-test also suggested a statistically significant gender gap in financial knowledge with mean scores for male .02 standardized points (*SD*=.01) and for female -.01 standardized points (*SD*=.01); t (22,202) =3.94, $p<.001$.

The regression results are presented in Table 5. The bivariate regression (Model 1) suggested a statistically significant variation of financial knowledge across income groups. Individuals living in low income had .25 standardized points lower level of financial knowledge than their non-low-income counterpart (β = -.25; $p<.001$). This model explained 2% of the variation of financial knowledge across income groups. The bivariate regression (Model 2) suggested a gender gap in financial knowledge. Females had .04 standardized points lower level of financial knowledge than males (β = -.04; $p<.05$). This model explained only .1% of the variation of financial knowledge. I then entered the demographic variables into the regression model (Model 3) with income groups and gender. After controlling the demographic factors, the coefficient for the low-income group decreased slightly but remained statistically significant. Now, the low-income group had .19 standardized points lower level of financial knowledge compared to the non-low-income group (β = -.19; $p<.001$). After controlling for household income and demographic factors, the gender gap in financial knowledge become statistically non-significant. However, a number of demographic factors showed statistically significant effects on financial knowledge. With reference to the middle age adults (35-45), the young adults

[1]Unstandardized score is a summary score of six items of FKS.
[2]Standardized score is IRT generated Z score of FKS.

Table 5

Regression Results Predicting the Financial Knowledge

	Model 1	Model 2	Model 3	Model 4
Variables	*β(SE)*	*β(SE)*	*β(SE)*	*β(SE)*
Household income				
Low income	-.25(.02)***		-.19(.02)***	-.10(.03)***
Gender				
Female		-.04(.02)*	-.01(.01)	-.02(.02)
Age				
18-24			-.09(.03)*	-.06(.04)
25-34			-.03(.03)	-.03(.03)
35-44 (ref)				
45-54			-.04(.02)	.01(.02)
55-64			-.09(.03)**	.02(.03)
65 and over			-.30(.03)***	-.16(.04)***
Family structure				
Married (ref)				
Living common law			-.03(.03)	-.02(.03)
Living single			-.10(.02)***	-.07(.04)***
Children				
Have children			-.01(.02)	-.01(.02)
Immigration status				
Immigrant			-.20(.02)***	-.25(.02)***
First Nations status				
First Nations			-.18(.06)**	-.12(.06)*
Education				
High school and less				-.44(.02)***
Some college and college				-.22(.02)***
University (ref)				
Employment status				
Employed (ref)				
Unpaid work				.04(.02)
Unemployed				-.06(.03)
Retired				-.07(.03)*
Home ownership				
Do not own home				-.02(.02)
Account ownership				
Banked				.25(.09)***
Model R^2	.02	.001	.06	.11

* *p*<.05, ** *p*<.01, *** *p*<.001

(18-24) and the older adults (55 and above) had statistically significant lower levels of financial knowledge. For example, the young adults had .09 standardized points lower level of financial knowledge (β = -.09; p<.05). A similar magnitude of difference in financial knowledge was found for the age group 55-64. (β = -.08; p<.01). However, the older adults (65 and above) showed a huge gap in financial knowledge. This age group had .30 standardized points lower level of financial knowledge compared to the middle age (35-45) group (β = -.30; p<.001). Individuals living single had lower levels of financial knowledge compared to those who were married (β = -.09; p<.001). However, individuals living common law did not show any significant difference of financial knowledge. The presence of children in the households also did not predict any variation. Immigrants had .20 standardized points lower levels of financial knowledge compared to their Canadian-born counterparts (β = -.20; p<.001). Individuals with First Nations status showed .18 standardized points lower levels of financial knowledge (β = -.18; p<.01). This regression model explained 6% of the variation of financial knowledge across income groups and demographic characteristics.

In the final model (Model 4), I entered socioeconomic variables with income groups and demographic variables. As I controlled for both demographic and socioeconomic variables, the regression coefficient for the low-income group decreased but remained statistically significant. The low-income group now had .10 standardized points lower levels of financial knowledge than the non-low-income group (β = -.10; p<.001). The gender gap in financial knowledge remained statistically non-significant. In this final model, only the older adults (65 and above) among the age groups showed a statistically significant gap in financial knowledge (β = -.16; p<.001). Individuals living single still had lower levels of financial knowledge with reference to married individuals (β = -.07; p<.001). Both immigration and First Nations statuses significantly predicted the levels of financial knowledge.

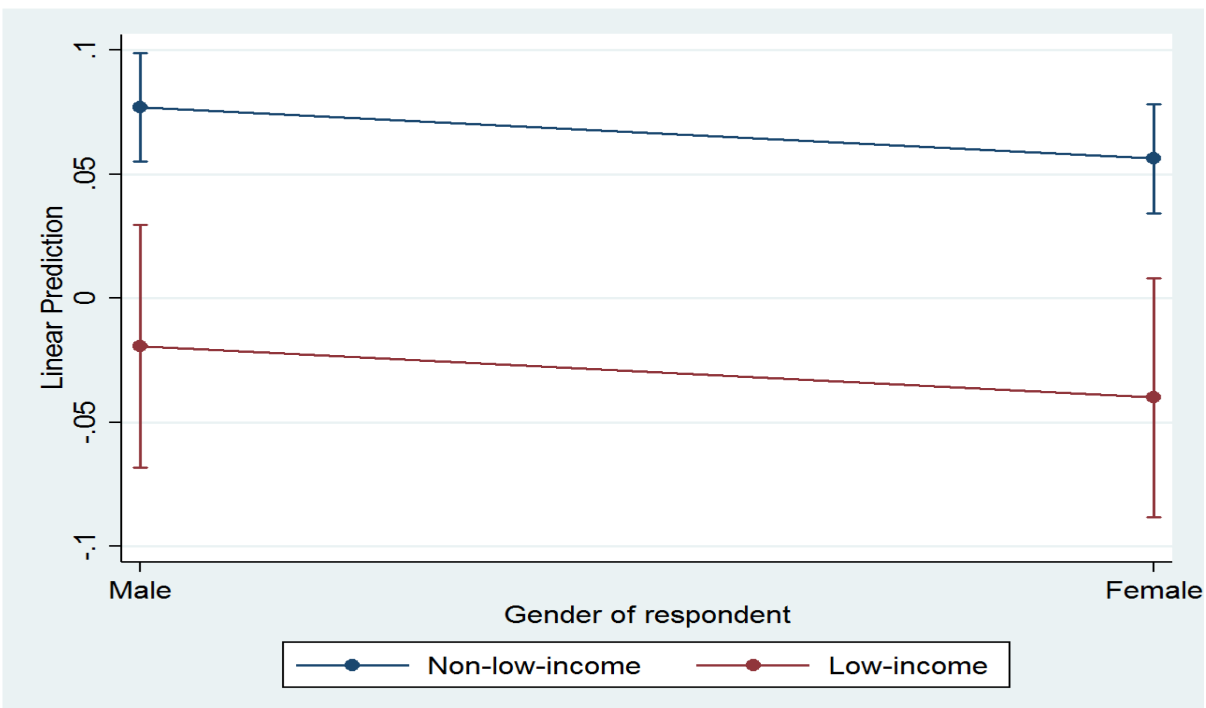
Among the socioeconomic characteristics, education had a significant effect on financial knowledge. With reference to the individuals with a university degree, individuals with a high school degree or less had .44 standardized points lower levels of financial knowledge (β = -.44; p<.001) and those with some college and college degree had .22 standardized points lower levels of financial knowledge (β = -.22; p<.001). Across the employment status, only the retired group showed a significant gap in financial knowledge compared to the employed group (β = -.07; p<.05). Homeownership status did not significantly predict individuals' level of financial knowledge. However, status of bank account ownership had a statistically significant effect on financial knowledge. Individuals having bank accounts had .25 standardized points higher level of financial knowledge compared to those who did not have any (β = .25; p<.001). This final regression model explained 11% of variation of financial knowledge across income groups, demographic and socioeconomic characteristics.

I then calculated the predicted scores of FKS for males and females living in low income and non-low income (See Figure 5). The post-estimation test results suggested that there was no gender gap in financial knowledge within income groups. For example, the predicted score of FKS for a male with non-low income was .08 standardized points (*CI* .05 to .10) versus .06 standardized points (*CI* .03 to .08) for a female with the same income group. Similar patterns were found across gender with low-income group. The contrast analysis further supported this pattern. The contrast of the predicted score of FKS between male and female was -.02 standardized points, which was not statistically significant (p=.17).

However, the predicted FKS scores significantly vary between genders while compared across income groups. For example, the predicted score of FKS for a female living in low income was -.04 standardized points (*CI* -.09 to .01) while it was .08 standardized points (*CI* .05 to .10) for a male living in non-low income. Even, across income groups, there was a significant gap in financial knowledge within gender. For example, the predicted score for a female living in low income was -.04 standardized points (*CI* -.09 to .01) versus .06 standardized points (*CI* .03 to .08) for a female living in non-low-income. Contrast analysis further confirmed a statistically significant gender gap in financial knowledge across income groups. There was a contrast of -.10

Figure 5

Predicted Scores of Financial Knowledge for Male and Female



standardized points gender gap between low-income and non-low-income groups (p<.001).

Discussion

Financial capability - financial knowledge and access to financial products and services, and sufficient income -is an important concept to understand individuals' financial decision-making and financial wellbeing. Lack of financial capability may partly explain the financial stress and economic hardship of individuals and families. Hence, it is important to understand the disparity in financial knowledge across income groups. To make a comparison of the levels of financial knowledge between income groups, it is essential to develop a measure of financial knowledge that has measurement equivalence between income groups. I use the financial literacy quiz items from the Canadian Financial Capability Survey to develop a measure of financial knowledge. I then use the financial knowledge scale to describe: (1) the disparities in financial knowledge across income groups and; (2) the gender gap in financial knowledge both within and across income groups.

The Canadian Financial Capability Survey used 14 items to assess individuals' levels of financial knowledge. I use the One-parameter Logistic Regression technique of Item Response Theory to examine whether there are redundant items used in the survey. I find six redundant items in the summary scale used in CFCS. This implies that the CFCS scale can be reduced to only eight items to measure individuals' levels of financial knowledge. However, this eight-item-scale is not yet free from unbiased items that might favour or disfavour any income groups on their economic locations. This leads to a need for further examination of the scale to eliminate the biased items through testing measurement equivalence.

The objective of this study is to examine the income gap in financial knowledge. For an unbiased comparison, it is important to examine the measurement equivalence of the financial knowledge scale across income groups. Hence, I use the DIF technique of IRT to test the measurement equivalence of the financial knowledge scale and find that two items in the reduced scale of eight items do not pass the test of measurement equivalence across income groups. Item 3 (“Who insures your stocks in the stock market?”) exhibits measurement non-equivalence, with a favorable bias for the non-low-income group. Item 7 (“Inflation can cause difficulty in many ways. Which group would have the greatest problem during periods of high inflation that lasts several years?”) also exhibits measurement non-equivalence, favoring the low-income group. Therefore, these two items need to be eliminated from the scale to establish measurement equivalence across income groups. Thus, the final financial knowledge scale being proposed here includes six items. The results of the test of measurement reliability suggests that the FKS has a high level of reliability as it has items of both lower and higher regions of continuum of financial knowledge (DeVellis, 2016). The test of construct validity produces statistically significant relationships between FKS and a number of variables in expected directions that suggests a very good level of construct validity of the scale (DeVellis, 2016).

In addition to developing a measure of financial knowledge and testing its measurement equivalence, I examine the variation of financial knowledge across income groups and the gender gap in financial knowledge. Important for financial capability and asset building researchers, I find that levels of financial knowledge significantly vary across income groups. Individuals living in low income have significantly lower levels of financial knowledge compared to their non-low income counterparts. This pattern was robust to controlling for a number of demographic and socioeconomic characteristics. Demographic factors such as age, immigration status, and First Nations Status also significantly predict the levels of financial knowledge. Socioeconomic factors, particularly education, have a strong influence on the levels of financial knowledge. However, after controlling for both demographic and socioeconomic variables such as age, immigration status, First Nations status, and education, individuals living in low income still had lower levels of financial knowledge compared to individuals living in non-low income. This result suggests a strong influence of income on individuals' levels of financial knowledge. For example, as individuals move from low-income to non-low-income group, their levels of financial knowledge improve by .10 standardized points on average on a scale of -1.84 and 1.21.

Findings on the lack of gender gap in financial knowledge is surprising and contrary to the existing literature. In a number of studies, others report that women have lower levels of financial knowledge than men (Bucher-Koenen et al., 2017; Fonseca et al., 2012; Lusardi & Mitchell, 2014; Lusardi & Tufano, 2009). In this study, the bivariate gender gap in financial knowledge disappears after controlling for income. It is important to note that income gap remains statistically significant after controlling for gender and other demographic and socioeconomic characteristics but gender gap disappears after controlling for income. Therefore, income significantly predicts the levels of financial knowledge of individuals which gender does not. I further examine the gender gap in financial knowledge both within and across income groups. Findings suggest no gender gap in financial knowledge within income group. The gender gap is apparent only across income groups. As such, it is not gender that explains the gap in financial knowledge; instead it is income, which explains the gap. In most societies, women face inequality in labour market participation and wage earnings (Pettit & Hook, 2009; Rosenfeld & Kalleberg, 1990) which might explain the gender gap in financial knowledge others have reported in a number of studies.

Findings of this study might be unique to Canadian population as others reported a gender gap in financial knowledge in the USA and other countries (Bucher-Koenen et al., 2017;

Lusardi & Tufano, 2009). Bucher-Koenen et al (2017) reported statistically significant gender gap in financial knowledge in the USA, Netherlands, and Germany after controlling for marital status, age, education, and income. A possible mechanism that may explain the gender gap in financial knowledge which most scholars agree on is the household division of labour (Bucher-Koenen et al., 2017; Fonseca et al., 2012; Hsu, 2015). Household financial management is a task that is generally performed by a male member of a family. The benefit and cost of financial knowledge is different for men and women (Bucher-Koenen et al., 2017) and men benefit more from learning about household finances than women as men can make immediate use of their learned financial knowledge. Because of the unequal life expectancies, women engage in learning about household finances and take charge of household finances at a later age or at the time of widowhood. As such, women have an incentive to delay investing in financial knowledge until later life (Hsu, 2015). However, women's participation in household finances was not examined in this study. As such, further investigation is needed to examine the relationship between gender-based participation in household decision-making and financial knowledge among Canadians.

There are, however, three possible explanations of the nature of gender gap in financial knowledge in Canada. First, unlike other studies, I used a measure that has measurement equivalence across income groups, which might have affected the results and reduced the magnitude of gender gap in financial knowledge. Others who observed a gender gap in financial knowledge used income-biased measures in their studies, which inflated the magnitude of gender gap. Second, among Canadians, there is no gender gap in financial knowledge within both low-income and non-low-income groups. However, a gender gap is apparent across income groups, as gender-based income inequality in Canada is a strong determinant of the gender gap in financial knowledge. Third, Canada may have more gender equality in terms of participation in household decision-making, labor market participation, and political participation etc. compared to peer countries, which might influence the gender gap in financial knowledge. However, these forms of gender in/equality were not examined in this study.

Policy and practice implications

Building financial knowledge is now a policy priority in many countries and many governmental and development organizations around the world are now promoting financial literacy. Findings of this study have a number of policy and practice implications. First, this study suggests that financial knowledge is contextual. For example, individuals living in different income groups perceive financial knowledge differently. While individuals and families in low-income struggle with everyday expenses, those who are in higher income can focus on investment opportunities such as savings, stocks, and bonds. As such, It is important for policymakers to understand the context and identify the domains of financial knowledge that are relevant to everyday life of individuals living in low-income or in non-low-income. Second, individuals living in low income have significantly lower levels of financial knowledge than their non-low-income counterparts, which implies a policy priority to promote financial literacy among this vulnerable groups.

Financial education and coaching are popular interventions to improve financial knowledge. Government and development organizations can adopt innovative approaches for better outcomes of financial education programs among individuals and families in low income. For example, governments adopt many welfare programs such as social assistance to support individuals and families who cannot make ends meet with their regular earnings. Governments can integrate financial education programs into welfare programs to improve the money management skills. Improved money management skills might help individuals and families in precarious financial situations have better control over their limited finances and save for emergencies. In addition, workplace financial education and financial education curricula in schools can help build a financially literate society.

Social workers and community workers are well positioned to build financial knowledge and help enhance financial wellbeing as they work closely with individuals and families in low income. For this, social workers and community workers need to understand the everyday financial lives of their clients and communities and provide financial coaching and counseling accordingly. Social workers practicing with individuals and families in low income should pay special attention to the precarious financial lives and the ability to manage household finances. Social workers can refer their clients to organizations that provide financial education, and financial planning and counseling. Community organizations can offer specially designed informational seminars, workshops, and financial education programs to individuals and families living in low income. Development organizations that offer different income-generating programs, such as micro finance, to individuals and families in low income may integrate financial education into the existing programs for effective outcomes.

Research implications

This study has a number of implications for researchers studying financial capability. First, the application of IRT in assessing the latent construct of financial knowledge can be especially useful. Because financial knowledge requires some level of numeracy and ability to solve problems, IRT exhibits some advantages over the traditional factor analysis techniques. For example, an IRT scale can provide a greater domain and variability of the latent construct of financial knowledge through capturing the lowest and the highest levels of difficulty. Second, future surveys can include a shortened version of the scale developed in this study. For example, this study provides evidence of redundant items in the financial literacy assessment scale of the CFCS. The CFCS, in the future, can eliminate the redundant items and use the shortened version of the scale. This will help minimize the cost of the survey and, at the same time, increase the response rate (Sahlqvist et al., 2011). Third, important for poverty researchers, individuals and families living in low -income require different types of financial knowledge. To compare the levels of financial knowledge across income groups, researchers need to examine the measurement equivalence of the assessment tools. In addition, future research can focus on developing a separate measure of financial knowledge for the population in low income.

Limitations

The scale development in this study was limited to the items used the CFCS, thereby restricting the inclusion of other potential items in the scale. Future research can test a larger number of items covering a wide range of financial issues of everyday life such as emergency savings, education savings, retirement planning, online banking, and mobile banking among others including the ones used in the CFCS, and apply IRT to develop a measure of financial knowledge. This will improve the content validity of the financial knowledge scale.

This study used a cross-sectional design. As such, findings do not claim to establish a causal relationship between income and financial knowledge. There might be a reverse causation or a reciprocal causation between income and financial knowledge. Explanatory designs such as a longitudinal panel study would help examine the alternative explanations.

Conclusion

The historical role of social workers to help vulnerable populations, particularly those who are in poverty and low income, has gained the renewed attention of the scholarly world due to the rising concern of financial vulnerability and exclusion. In this study, I analyse nationally representative, complex survey data that demonstrates the disparity in financial knowledge across income groups. To minimize the income gap in financial knowledge, there is a need for interventions to develop financial knowledge among individuals and families in low income. Social workers, by improving levels of financial knowledge, can help enhance the financial wellbeing of individuals and families in low income and poverty and contribute to creating an equitable society.

Findings of Study I suggested that Canadian older adults (65 and above) significantly overestimate their levels of financial knowledge. I examined the income and gender gap in financial knowledge in Study II. Findings of this study suggested that individuals in low income have significantly lower levels of financial knowledge than non-low-income group. The gender gap in financial knowledge was not statistically significant within income groups (i.e., there is no gender gap in financial knowledge between males and females both within the low-income and non-low-income group). However, there is significant gender gap in financial knowledge between income groups. As such, it is not gender but rather income difference that explains the gap in financial knowledge.

The analyses of data from the Canadian Financial Capability Survey helped us understand the patterns of the disparity in financial capability across age, income, and, gender. However, these analyses do not allow us to understand why older adults overestimate their levels of financial knowledge and why individuals in low income have lower levels of financial knowledge than their non-low-income counterpart.

In Study III, I interviewed six key informants working in public, private, and community organizations to cross-check the findings of Study I and Study II. Findings of this study also allowed us to deepen our understanding of the nature of the disparity in financial capability across individuals' social locations. More specifically, this study provided a deeper understanding of why older adults are more likely to overestimate their levels of financial knowledge than any other age groups, why the gender gap apparent in studies in other contexts might not be present in Canada, and why individuals living in low income demonstrate lower levels of financial knowledge that non-low-income group.

Chapter VI

Study III: A Practitioners' Perspective on Financial Capability: Implications for Anti-poverty Practice

Abstract

To enhance individuals' financial wellbeing, it is important to understand the disparity in financial knowledge and confidence across individuals' social locations such as age, income, or gender. To date, we have limited knowledge as to why individuals in low income have lower levels of financial knowledge than their non-low-income counterparts or why older adults overestimate their levels of financial knowledge. In this study, I examine practitioners' perceptions of this disparity in financial knowledge and confidence considering practitioners' rich perceptions of individuals' financial lives. Practitioners suggest that financial knowledge is contextual and driven by financial practices. Financial knowledge alone is not sufficient to make informed financial decisions; individuals need financial confidence, access to financial products and services, and sufficient income to achieve financial wellbeing. Social workers can help disadvantaged groups to improve financial knowledge and confidence and advocate for policy changes to increase access to financial products and services and sufficient income.

Keywords: Financial knowledge, financial confidence, financial capability, low income, older adults, gender

The study of financial knowledge, decision-making, and wellbeing has gained increasing importance in poverty research. In recent years, social workers have focused on financial knowledge, financial inclusion, and asset-building as anti-poverty strategies (Birkenmaier et al., 2013). Building financial capability that includes promoting financial knowledge, confidence, and financial inclusion has been identified as one of the twelve grand challenges for social work in the twenty – first century (Uehara et al., 2014). Studies suggest that financial knowledge is positively associated with desirable financial behaviours and practices (Hilgert et al., 2003; Robb & Woodyard, 2011; Xiao et al. 2014) that may help achieve financial wellbeing. Considering the positive impact on individuals' lives and for the economy in general, many governmental and non-governmental organizations around the world are promoting financial knowledge.

Financial knowledge refers to individual's understanding of everyday finances. However, it is difficult to conceptualize and measure individuals' levels of financial knowledge. Like many other latent constructs, financial knowledge is socioeconomic context-dependent (Buckland, 2010) and has a very complex nature. Individuals living in different social locations such as in poverty, old age, or retirement have different financial realities, and may therefore perceive financial knowledge differently and may have different levels of financial knowledge. The analyses of the data from the 2009 and 2014 Canadian Financial Capability Survey (CFCS) have revealed the complex nature of financial knowledge and its variation across age, income, and gender (see Study I & Study II). Findings have suggested that older adults (65 and above) have lower levels of financial knowledge than younger groups but higher levels of perceived knowledge, which implies that older adults overestimate their levels of financial knowledge (see Study I). Also that individuals living in low income have lower levels of financial knowledge than their non-low-income counterparts (see Study II) The analyses of CFCS data have provided descriptions and broadened our understanding of the complex nature of financial knowledge. However, we still do not know why older adults overestimate their levels of financial knowledge or why individuals living in low income have lower levels of financial knowledge than their upper-income counterparts.

The purpose of this study is to deepen our understanding of the complex nature of financial knowledge and confidence. More specifically, in this study, I aim to understand practitioners' perception of financial knowledge and its variation across age, income, and gender. Practitioners paly an important role in building financial capability through providing financial coaching, counselling, and helping building assets (Grote, 2018). As practitioners work with diverse individuals and observe their levels of financial knowledge, financial confidence, and decision-making process, they develop cumulative experience. As such, practitioners' perception can help crosscheck and interpret the findings from survey data and deepen our understanding of the nature of financial knowledge and confidence. In addition, although practitioners' voices are important in building financial capability, to my knowledge, no studies examined practitioners' perspective on financial capability before.

This article begins with a literature review to understand the relationship between financial knowledge and individuals' social locations, and financial education programs in Canada to find the gap in knowledge. The study methodology including data collection and analysis technique is presented before turning to a discussion of the findings, particularly related to the themes of social context, individuals' need for financial knowledge and confidence, the importance of life stages and the impact of income scarcity and living in poverty. The results of this study can contribute to the development of policy and practice interventions to enhance the financial wellbeing of Canadians as well as of individuals living in similar contexts across the world.

Financial knowledge and social locations

Financial knowledge is an important component in the financial capability framework (see Figure 3, Chapter II). Despite some disagreement on operationalization, scholars agree that financial knowledge refers to individuals' understanding of household financial management, which may include basic understanding of financial planning, budgeting, savings, debts, investments, inflation, interest rate, and other related issues of everyday finances (Leskinen & Raijas, 2006; Lusardi & Mitchell, 2014). Both objective and subjective assessments are used to measure individuals' levels of financial knowledge. The objective assessment is a form of literacy or numeracy quiz on a specific domain of financial knowledge such as interest rates, inflation, and savings, while the subjective assessment is individuals' self-assessment of their levels of financial knowledge (Xiao et al., 2014).

Financial knowledge is important because of its association with financial behaviour and practices. As financial realities are different for individuals at their different life stages and for individuals living in different social locations (Buckland, 2014), the nature and levels of financial knowledge may differ accordingly. Studies suggest that individuals' levels of financial knowledge vary across different demographic and socioeconomic factors such as age, gender, levels of education, income groups, and immigration status (see Study I & Study II).

Among the demographic characteristics, age is considered an important one in most social research. As individuals at different life-stages experience different financial realities, a number of studies have focused on understanding the variation of financial knowledge across age groups (Finke, Howe, & Huston, 2016; Lusardi, 2011; Palameta, Nguyen, Hui, & Gyarmati, 2016). Xiao, Chen and Sun (2015) claimed that both objective and subjective financial knowledge increase with age. Others suggest that older adults have lower levels of financial knowledge compared to their younger adult counterparts (Finke et al., 2016; Lusardi, 2011). An analysis of the CFCS data has suggested that older adults overestimate their levels of financial knowledge by .35 standardized points with reference to middle aged (35-44) adults (see Study I). Older adults not only have lower levels of financial knowledge but they have higher levels of confidence (Khan & Rothwell, 2018; Khan et al., 2017; Palameta et al., 2016). However, we have limited evidence of why older adults overestimate their levels of financial knowledge.

Gender is another important demographic characteristic considered for understanding the variation of financial knowledge. Some studies report a gender gap in financial knowledge and claim that men have higher levels of financial knowledge than women (Fonseca et al., 2012; Lusardi & Mitchell, 2014). However, as mentioned above, the analysis of the CFCS data does not suggest any statistically significant gender gap in financial knowledge (see Study II).

Among socioeconomic characteristics, income is considered an important and strong factor in most financial capability studies. There is limited research on the relationship between financial knowledge and income. In a study, Lusardi and Tufano (2009) examined debt literacy using survey data. The authors reported that individuals living on low-income have lower levels of debt literacy than their upper-income counterparts. The findings of this study are consistent with the findings of the CFCS data. Findings of the CFCS data also suggest that individuals living in low income have lower levels of financial knowledge than their non-low-income counterparts (see Study II). The income gap in financial knowledge is now evident. It is important to identify and understand the contributory factors for lower levels of financial knowledge among individuals living on low income.

Understanding the relationship between individuals' levels of financial knowledge and their social locations such as age, gender, or income is important because this helps identify not only the groups that have lower levels of financial knowledge but the types of financial education they need for managing their everyday finances. As such, better understanding of the context of financial knowledge is necessary to develop effective programs and to improve practice.

Financial capability programs in Canada

Considering the importance of financial knowledge, the government of Canada has adopted a national strategy that sets goals and priorities to promote financial knowledge and help Canadians better manage their finances. Organizations from the public, private, and community sectors in Canada are now involved in promoting financial knowledge in every province of Canada. Here, a brief discussion on initiatives from public agencies, private sector financial institutions, and community organizations to promote financial literacy provides an understanding of the current financial capability policy, program and practice in Canada.

The Financial Consumer Agency of Canada (FCAC) is a federal agency that exercises significant leadership with regard to financial capability programs in Canada. One of the two roles of the FCAC is to promote financial literacy and raise consumers' awareness of their rights and responsibilities (FCAC, 2015). The Research and Education Department of the FCAC works closely with a number of organizations from the public, private, and community sectors to reach people in the community to build financial literacy and raise awareness. The FCAC commissioned the first national financial capability survey of Canada in 2008 to measure the levels of financial knowledge of adult Canadians and understand their financial behaviour and practices (Statistics Canada, 2009). Through its National Steering Committee, Interdepartmental Committee, National Research Committee, and Financial Literacy Networks, the FCAC engages in developing effective financial capability programs and offers them to individuals and families in the community (FCAC, 2014).

Financial institutions in the private sector such as banks provide financial advice to their customers and help build financial knowledge as a part of their regular activities. Banks in Canada provide financial support and volunteers for financial literacy programs run in communities across the county by educational and not-for-profit organizations, and create their own financial education programs for their clients and general public (Canadian Bankers Association, 2017). For example, the CIBC Money Smart and Learning with Leo are two financial literacy programs created and offered by the CIBC bank and the Royal Bank of Canada respectively (Canadian Bankers Association, 2017). There are also a number of financial literacy programs funded and sponsored by financial institutions such as Talk with Our Kids about Money Day sponsored by Scotiabank, Junior Achievement Programs supported by several banks who have come together[4], and Money Matters sponsored by TD Bank Group (Canadian Bankers Association, 2017). The financial literacy programs supported by the private sector financial institutions are general in nature and do not have any special focus on people from lower socioeconomic background.

Community organizations also play an important role in building financial knowledge in Canada, particularly among those on low-income. There are national, provincial, and local non-profit organizations across Canada providing financial coaching and financial counseling. Prosper Canada Centre for Financial Literacy, a non-profit organization working across Canada, helps improve the financial knowledge and wellbeing of vulnerable Canadians by increasing

[4] CIBC, RBC, TD Bank, HSBC Bank Canada, Scotiabank, National Bank of Canada, and the BMO Financial Group

their access to quality financial information and counseling (Prosper Canada, 2014). In addition to financial coaching and counseling, Prosper Canada also promotes financial empowerment of vulnerable people through helping them with filing taxes and getting access to benefits, helping with savings and asset building, and building awareness of safe financial products and consumer protection (Prosper Canada, 2015). A number of community organizations with similar missions, goals, and activities are working in the Canadian provinces and territories. These organizations work collaboratively towards a common goal of building financial knowledge and financial empowerment. The Alberta Financial Empowerment collaborative, Chilliwack Financial Literacy Committee in British Columbia, Financial Education Network in New Brunswick, Financial Literacy Action Group in Toronto, ON, Manitoba Financial Literacy Forum, Quebec Financial Literacy Experts Network, Saskatchewan Financial Literacy Network, and Yukon Literacy Coalition are the major provincial and territorial community organization networks for financial knowledge (Financial Consumer Agency of Canada, 2014). Community organizations mostly work with vulnerable communities such as immigrants and individuals and families living on poverty and low income.

There is limited work that examined the effectiveness of financial capability building programs. To my knowledge, no studies examined the outcomes of financial capability programs in Canada. Examining data from the 2012 National Financial Capability Survey in the USA, Xiao and O’Neil (2016) claimed that individuals who received financial education had higher scores in financial capability indicators such as objective and subjective financial knowledge, and desirable financial behaviors. Walstad et al (2017) also reported a positive effect of financial education on financial knowledge, although the effect is limited. However, scholars debate the feasibility of financial education as it involves a huge cost and seek to find ways to make it an effective tool for promoting financial capability. For example, Fernandes et al. (2014) conducted the first systematic meta-analysis to explore the effects of financial education interventions, and reported that financial education interventions can explain only 0.1 percentage of the variation in financial behaviours, and the effect size is even smaller among the low-income population. The findings of this meta-analysis suggested the correlational studies reported comparatively a larger effect size than the studies using manipulated education interventions, and the true randomized experiments showed a smaller effect size than less rigorous quasi-experimental studies. Fernandes et al. (2014) came up with the conclusion that financial education produces weak effects on financial knowledge, and in turn, it brings about small changes in financial behaviour. Authors also argued that the effects of financial education decay over time, which is another reason for the smaller effect of the interventions.

The question therefore arises why financial capability interventions are not effective in enhancing financial knowledge and shaping individuals' financial behaviours as expected. Is there any component missing that can augment the effect of financial education? As such, there is a call for developing an in-depth understanding of the financial knowledge and confidence. Such an understanding of individuals' financial knowledge and confidence, along with their relationships to social locations, might help uncover the missing pieces of financial capability building programs, making the difference to increase their effectiveness.

Study objectives and research questions

The literature reviewed for this study highlights the importance of understanding the contextual dynamics of financial knowledge and confidence. The analyses of survey data undertaken in the context of our project have been helpful to describe the variation of financial knowledge and confidence across different groups living in different social locations (see Study I

& Study II). However, such analyses alone are not sufficient to answer *why* certain groups have certain levels of financial knowledge and confidence. Practitioners who work closely with diverse individuals have the opportunity to observe the process through which individuals develop and use financial knowledge and confidence in their everyday finances. Thus, practitioners develop rich perceptions of individuals' financial lives through their professional knowledge and practice. As such, practitioners are an important source of compiled and aggregated information to crosscheck and make meaning of the findings of a complex survey and move towards program and policy responses (Scott, 1989). Considering the importance of practitioners' perspective, this study aims to understand practitioners' perception of financial knowledge and confidence and how financial knowledge and confidence are shaped by individuals' life stage situations. Understanding the income and gender gap in financial knowledge from practitioners' perspective is another important objective of this study. More specifically, this study addresses the following research questions:

1. How do practitioners perceive financial knowledge?
2. How do practitioners perceive the influence of age on people's levels of financial knowledge and confidence?
3. How do practitioners perceive the influence of income on people's levels of financial knowledge?
4. Do the practitioners perceive any gender gap in financial knowledge?

Methodology

Data collection process

A semi-structured qualitative interview was used to collect data from practitioners working in financial capability programs. Six practitioners considered key informants were purposively selected from public, private, and community organizations through professional network using a snowball sampling technique (Creswell, 2009). To gain in-depth information, participants who had at least five years of experience of providing financial education, financial coaching, or financial counseling were included in this study. Key informants interviewed for this study worked in various capacities such as frontline workers, managers, and supervisors. Since this study emphasized understanding the financial lives of individuals living in low income, four participants were selected from community organizations that mostly work with individuals and families on low-income. These organizations were engaged in the development of financial education programs, providing financial coaching and counseling in the community, and conducting research on financial knowledge and behaviours. The duration of the interviews ranged between 35 and 45 minutes. Practitioners were asked questions about financial knowledge and financial confidence, and how individuals' social locations such as age, gender, and income influence their levels of financial knowledge and confidence (see Appendix B).

Among the participants, four were women and two were men. Four participants had a managerial and supervisory role in their organizations and two participants were frontline workers. Data were collected through face-to-face and phone interviews. All interviews were audio recorded and then transcribed verbatim by the author for analysis. This study was conducted in accordance with standards set forth by the Tri-council Policy Statement for Ethical Conduct for Research Involving Humans, and approved by the Research Ethics Board at McGill University (REB File # 22-0617; Appendix C).

Data analysis

A thematic analysis approach was used in this study. Thematic analysis is still considered the most useful technique in capturing the complexities of meaning within textual data sets. In this study, a systematic and transparent process of data collection and analysis was followed and interpretations were derived directly form data observed (Guest, MacQueen, & Namey, 2011). Data analysis began with a process of open coding where I read the interview transcripts and made categories of meaningful phrases and concepts. QDA Miner Lite, a qualitative data analysis software, was used for coding. To ensure depth of analysis, interview transcripts were read a second time to develop substantive themes on financial knowledge, financial confidence, financial wellbeing, and age, gender, and income gaps in financial knowledge. During the analyses, I consulted with other qualitative researchers who use thematic analysis in their research and sought feedback on the analyses and interpretations made, which helped establish trustworthiness of the findings, including accurate understanding of the context. Furthermore, findings were shared with the participants and their feedback was incorporated. Themes were then compared with quantitative analysis of the CFCS data (see Study I & Study II) to examine the extent of agreement between findings.

Results

The first major theme was that financial knowledge is contextual and driven by financial practices. The second theme implies the importance of financial confidence in financial decision making; in addition to financial knowledge, individuals need financial confidence for making better financial decisions. The third theme suggested that individuals' life-stage influences their levels of financial knowledge and confidence. Income scarcity adversely affects individuals' levels of financial knowledge, which has emerged as the fourth important theme. The fifth theme indicated that the gender gap in financial knowledge is very miniscule. The final theme which is also a reflection of the preceding themes suggested more tailored financial education programs for better outcomes. A detail of the analyses of data are presented in the following sections.

Financial knowledge is contextual and driven by financial practices

Although traditionally financial knowledge is conceptualized as the understanding of everyday finances, what constitutes the knowledge of everyday finances is always debated. Practitioners perceive that individuals living in different income groups may have different financial realities and practices and may require different types of financial knowledge. Therefore, financial knowledge becomes meaningful to individuals when it can relate to their everyday financial practices. A frontline practitioner working in a community organization told me:

> The key part of an individual's financial literacy is understanding of their own relationship to finances, on their own values, what they want. I think that's the key drivers. People are interested in learning about budgeting, you know, not for the sake of gathering new knowledge, but for how that might help them deal with the financial issues they have or the goals they are working toward. (Interview # 5, community sector)

Practitioners also observed that individuals might not find a certain type of financial relevant to their everyday financial practices and this type of knowledge may not bring the desired change in their financial behaviours. Therefore, financial education should be designed considering the social context individual are living. One of the participants working in the public sector told me:

> You know, the more we see, we recognize that understanding compound interest has nothing to do with paying your bill on time. Understanding the things you do on a certain day and having a plan to make sure stuff gets paid has nothing to do with compound interest. So, I think the context is important here (Interview # 6, public sector).

However, this does not nullify that there are some types of financial knowledge that can be basic and fundamental to most individuals as most practitioners agreed on. According them, there are some financial issues that most individuals face in their everyday life. These may include payroll issues, paying rent and bills, doing groceries and shopping, and many others. A frontline practitioner in a community organization observed that:

> It's how you get paid, how you pay your rent, how you pay your bills. And if you make a mistake or you overspend for a month, you pull back the range. You are using a logical segment of time to be able to manage (Interview # 3, community sector).

Practitioners in the sample also think that once the basic financial knowledge is built, it is time to focus on specific types of financial knowledge that may be required for making more sophisticated financial decisions. This may vary across individuals at different stages of their life-course or individuals living in different income levels. For example, individuals at their late middle age may need knowledge about retirement planning and long-term financial investment products as one of the practitioners mentioned:

> If you are planning for retirement, especially if you don't have a workplace pension plan, and in terms of choosing insurance and investments, there are so many longer-term planning that requires quite substantial understanding as well as the confidence to work through problems and to able to figure it out and making good decisions and all that stuff that goes with that (Interview # 6, public sector).

Practitioners in the sample suggested that those who have some surplus money and want to invest so that it can grow may require knowledge about complicated financial calculations and understanding of the stock market and bond pricing as one of the practitioners appropriately mentioned:

> Someone like that needs to know how stocks and bonds work, looking at their investment position and at the decision point for opening a particular financial product (Interview # 6, public sector).

The excerpts above highlight the social context of financial knowledge. Although there are some types of financial knowledge that may be basic and fundamental to most individuals such as paying rent and bills, doing groceries and shopping, and household budgeting, it is still important to consider the financial realities individuals in which are living. Once the basic financial knowledge is built, a special type of financial knowledge can be provided considering individuals' financial goals.

Financial knowledge alone is not enough: Individuals need financial confidence as well

Practitioners in the sample think that financial knowledge is important but financial knowledge alone is not sufficient to bring desirable changes in individuals' financial behaviours and practices. Individuals need financial confidence as well to put their knowledge into action. A frontline practitioner working in a community sector clearly mentioned:

> Yah, it is very imperfect to make improvement just with knowledge or information. You have to be able to apply them in life. If you do not feel confident in your knowledge or you haven't learned how to do budgeting or goal setting and things like that it will be hard to apply knowledge (Interview # 3, community sector).

Therefore, it is important to build both financial knowledge and confidence for individuals' financial capability and wellbeing. Although a good balance between financial knowledge and confidence is expected, to develop a perfect matching between individuals' levels of financial knowledge and confidence is difficult. Some may have higher levels of financial knowledge but lower levels of confidence and others may have lower levels of financial knowledge and higher levels of confidence.

Individuals' life stage influence their levels of financial knowledge and confidence

Practitioners recognized the influence of social locations such as life-stage on individuals' levels of financial knowledge and confidence. According to them, individuals living in different life stages are exposed to different financial realities. For example, young adults who may be still in schools are less exposed to complicated financial decision making such as mortgage, long-term investment, insurance and pension plans. Middle-aged adults who are still working have a regular income. As they plan for the future, they are more exposed to complicated financial decision making. On the other end, older adults who are now retired and living on a fixed income pension may be less engaged in diverse and complicated financial calculations and decision-making. Some practitioners also argued that the older adults of today were not exposed to complicated financial decision making and use of technology in their everyday financial practices. Life stage thus may have a significant impact on individuals' levels of financial knowledge and confidence. One of the participants mentioned:

> I think when it comes to age, some of the factors are more related to, you know, as you get older you have different financial choices that you have to make. That provides opportunities for you to know more about your finances, the decisions you make,

> understanding things, how credit works - usually through using credit (Interview # 5 community sector).

Practitioners in the sample also observed that as individuals grow older and get exposed to complicated financial calculations and decision making, they develop both financial knowledge and confidence. Thus, middle-aged adults may be in a life stage where they can gain the optimum levels of financial knowledge and confidence. As individuals reach late life and become less engaged in complicated financial decision-making, their levels of financial knowledge may decline. However, their levels of financial confidence may not decline at the same rate as their financial knowledge.

> Older adults probably are more likely to be financially stable because they have benefited from several years of employment. They benefited from several years of saving. So, they are financially more stable which is why it is probably assumed that they have some knowledge as they have been able to do that saving and keep up their jobs and earning money (Interview # 3 community sector).

It is, thus, important to take the individuals' life stage into consideration to understand their financial knowledge and confidence and to develop financial education programs. Financial education programs targeting individuals at particular life stage might be more effective when they are designed to meet the financial needs and goals of that specific life stage.

Income scarcity limits the opportunity as well as the motivation for financial knowledge

According to the practitioners in the sample, individuals' levels of income and financial knowledge are assumed to be highly associated. Practitioners observed that individuals living in low income demonstrate lower levels of financial knowledge than their upper-income counterparts. They tend to lack knowledge of financial planning and financial products and services available for them. One of the participants working in a private sector financial institution told me:

> And the low-income group, they do not even know the financial products that banks are offering, and how they can benefit from this and how all these products and services can change their life and save money for their future as well (Interview # 1, private sector).

Practitioners in the sample think lower levels of income or poverty limits individuals' exposure to financial products and services and other financial opportunities available in the financial market, which affects individuals' levels of financial knowledge as narrated by one of the community sector practitioners.

> Right here, let's say you have more money and you are able to do more with that money; that exposes you to more opportunity. The opportunity to put that money into investment, in different kinds of savings accounts or maybe you have enough money to pay the fee for financial planners. So, you are exposed to more opportunities when you are financially well off. That is not the case when you are in low-income. And a lot of these things do not get explained (Interview # 3 community sector).

Practitioners in the sample think that this might have an effect in two ways. First, financial institutions may be less welcoming to individuals in low-income as they may not bring much business and be a good source of revenue for the financial institutions. This reality is depicted by a community sector practitioner in the following quotation:

> For low-income folks, it sort of gets tougher to come in to talk to their bank branch to say hey "can we do something differently?" They might not be starting off with the right form of the conversation. They could easily experience discrimination just to get into the bank, especially if someone is homeless or maybe it's parents who have a lot of kids to bring with them. They might not see them as ideal customers for all of those reasons. So, experiencing the financial services, this is really harder and that can easily damage their financial wellbeing when they are not able to access financial products and banking needs (Interview # 3 community sector).

Second, individuals in low income may be less interested in learning about financial products and services and other financial opportunities, considering the fact that they may not benefit from these products and services due to their insufficient income.

> They are facing a serious problem in managing their finances because many people do not have any surplus to save or invest. That's why they are not showing any interest in financial products and services that can help them in the future. They are thinking "This is basically not my area. I do not need it actually". So, when we are talking about, for example, a retirement savings account, we are talking about a tax-free savings account, we are talking about an education savings plan or any kind of investment, for example, mortgage, loan and other things... For example, the low-income group, they are thinking, "I am not qualified for a mortgage". So, he or she is not showing interest to discuss this (Interview # 1 private sector).

Practitioners in the sample observed that individuals living in poverty always struggle to figure out ways to meet their immediate needs such as food, clothing, shelter and other basic needs. They are so focused on the immediate needs that they almost find no space to shift their focus to learn new ideas and plan for future, to learn about financial issues and planning instead of planning for food and shelter seems some kind of luxury for them. Another participant working in a community organization explained this situation elaborately in the following quotation.

> I think there are a lot of reasons for that. The first one might be that the challenge of being poor gives so much stress, so many demands on your mental capabilities that you don't have the time or mental peace to stop and learn and educate yourself about your financial needs or goals or financial services. If you are really trying to make ends meet, if you are trying to figure out where I am going to live, I am going to be evicted or I need to make sure that my kids have food… All of those challenges are the real day-to-day necessities of living. Those are the ones you are most concerned with and everything else seems not that important because you are trying so hard to make your ends meet. And that's a real tough barrier to overcome (Interview # 5 community sector).

In addition, living in poverty may create a scarcity mindset that may block individuals' ability to learn about such things as financial issues and make informed decisions. Therefore, individuals living in low income and poverty may find it hard to learn new things and their current levels of knowledge may even decline over time. A frontline community worker pointed this in an interview:

> It's not to say that they lack the capacity for that financial knowledge. Sometimes, it's just more of a mindset or the effect of the poverty mindset. For somebody who is in low income and they are managing a difficult situation like life transition, or they lost their job or they have any health issue or end of a relationship, then the financial knowledge and education they have are gonna be different (Interview # 5 community sector).

The gender gap in financial knowledge is minuscule; it is rather a cultural than a gender issue

Although there is an assumption that women have lower levels of financial knowledge than men, in Canadian society, the gender gap in financial knowledge is minuscule as most practitioners in the sample observed in practice settings. According to most practitioners women in households where household financial issues are taken care of by men appear to show lower levels of financial knowledge than men. One of the participants working in public sector pointed out this in an interview:

> If you look at the household role and everything, you got more women handling day to day money management and less long-term management. Because of lack of exposure to longer-term things, they score lower on this. That's my read on the situation. I do think there is something here though that needs to be addressed (Interview # 6, public sector).

Practitioners in the sample also observed that immigrants who have been living in Canada for generations, the gender gap in financial knowledge is almost unnoticeable. However, immigrant women who migrated from a culture where women have limited scope to deal with household financial decision making demonstrate poor financial knowledge. For example, some may not even know how to use a credit card and pay a bill. One of the community sector practitioners depicted this situation in the following quotation:

> The only gender gap I have noticed in my work is when a woman comes from where sort of culturally not being allowed to participate in family finances. And, that's a new learning opportunity for them. But, looking at people who for many generations here in Canada, I do not actually see any difference between men and women (Interview # 2 community sector).

The more tailored the financial education programs, the better the outcomes

Most practitioners in the sample think that financial needs, goals, and practices are different for individuals living in different social locations. For example, the financial goals for a youth are different from the financial goals of an older adult. Similarly, the financial goals of individuals living on low income different from those of individuals living on upper income. It is important to consider individuals' social location in designing financial education programs. Programs that are relevant to everyday lives and meet specific financial goals of specific social groups can yield better outcomes as one of the community workers mentioned:

> Tailored education, tailored coaching that are right for their sort of needs, like things that are relevant for people in low-income or people who are single parents and youth. Resources are really helpful when they are oriented specifically (Interview # 3 community sector).

Practitioners in the sample also found that financial education programs come to be more relevant and meaningful when they integrate other related social service programs. For example, financial education programs can integrate tax filing workshops, and financial education programs may be offered to people who are planning to buy homes and seeking a mortgage. One community worker illustrated the scope of integrated programs in an interview:

> We now work in this field that a lot of programs integrating financial literacy education with these other kinds of services. They may get people to come to a workshop. After they come to the workshop, they invite them to financial coaching or let them know about the community tax filing they have or vice-versa. Or they may come to tax filing and from there, they can find "Oh! I can also learn more from this workshop". So, a lot of successes happen when these services are combined together (Interview # 3 community sector).

Practitioners in the sample suggested that financial education programs designed for individuals living on low income and poverty may need to include some support mechanism such as financial assistance, some form of counseling and any other supports that can help reduce the financial burden and improve confidence. Individuals struggling to earn enough and make ends meet may find it hard to see the benefit of financial education when they have little money to manage. The following quotation by one community worker illustrates the need for some extra support for individuals living in poverty and low-income:

> That's one of the reasons when people living in poverty need an extra bit of support to get them over that mental hurdle. They need maybe a mental coach, someone helping them to work through (Interview # 4 community sector).

Discussion

In this paper, I examined practitioners' perception of financial knowledge and confidence, and how these are shaped by individuals' social locations. More specifically, I examined how practitioners conceptualize financial knowledge and confidence and perceive their variations across age, gender and income groups. Six participants from public, private, and community organizations were interviewed for this study. A thematic analytical method was used to analyse data and results were presented in six major themes.

Findings suggest that perception of financial knowledge is influenced by the socioeconomic environment in which individuals live in. Individuals at different life stages or living on different income levels may perceive financial knowledge differently as they face different financial realities in their everyday lives. This implies that a one-size-fits-all tool to measure the levels of financial knowledge of individuals may not capture the real picture. Kempson, Perotti & Scott (2013) also argued for a separate instrument for measuring financial capability of individuals living in low and middle incomes. It is important to take individuals' social locations into consideration in measuring financial knowledge.

Findings also suggest that financial knowledge alone is not sufficient to bring about desired changes in financial behaviours and practices. Individuals need financial confidence as well. Individuals need to have confidence in their levels of knowledge to transform their knowledge into action. Therefore, it is important to understand individuals' levels of financial knowledge and confidence and develop and offer programs accordingly. Often, individuals' levels of financial knowledge and confidence do not match. An assessment of financial knowledge and confidence will help identify who needs what. Some may need financial coaching, some may need financial counseling, and others may need both financial coaching and counseling.

Individuals' life stage has a significant influence on their levels of financial knowledge and confidence (Finke et al., 2016; Lusardi, 2011; Palameta et al., 2016). As individuals at different life stages get exposed to different forms financial realities and decision making, the need, and motivation for financial knowledge change across the life course. As such, the levels of financial knowledge and confidence vary across the age groups. The analyses of CFCS data suggested that older adults overestimate their levels of financial knowledge compared to the middle age adults (see Study I), which indicates that older adults believe they have higher levels of financial knowledge although, in reality, they have lower levels of financial knowledge. Findings of this qualitative study have provided a deeper understanding of this tendency of overestimating the levels of financial knowledge among the older adults. Practitioners interviewed in this study have suggested three plausible situations. First, at later age, individuals get less exposed to complicated financial calculations and complex financial decision making as they mostly live on a pension and fixed incomes. Less exposure to complex financial decision making may contribute to lowering their levels of financial knowledge. Second, as older adults have long-term experience of household financial management and, often, relative success of building assets and wealth, they feel confident of their levels of financial knowledge. Third, the older adults of today were not exposed to the application of technology and complicated calculations in their everyday financial lives. As such, this life stage situation pushes some older adults to overestimate their levels of financial knowledge, with implications for their financial life. This situation might put older adults at financial risk and make them vulnerable to financial fraud, exploitation, and abuse. To protect older adults from financial fraud, exploitation, and abuse, it is important to build awareness and provide financial coaching and counseling.

The analyses of the CFCS data revealed evidence that individuals living on low-income have lower levels of financial knowledge than their non-low-income counterparts (see Study II). Practitioners' perspective also supported this pattern of the income gap in financial knowledge and provided important insights.

According to practitioners working in public, private and community sectors, both structural and individual factors affect the levels of financial knowledge among individuals in low-income and poverty. Low income limits individuals' financial opportunities and access to financial products and services. Being in low income and poverty adversely affects the access to financial products and services, and the discriminatory policies and practices of the financial institutions are mostly responsible for the disparity in access. Financial institutions are less welcoming to individuals in low income and poverty. In addition, individuals on low income and poverty are less motivated to take advantages of existing financial products and services due to their insufficient income. Thus, the lack of exposure to financial opportunities, products, and services impedes the development of financial knowledge among individuals in low income and poverty. A number of practitioners cautioned that living in low income and poverty may push people towards the development of a scarcity mindset. A scarcity mindset emerges when individuals feel that resources are limited relative to needs (Shah, Shafir, & Mullainathan, 2012). There are strong adverse effects of living in scarcity; the literature suggests that the scarcity mindset impedes the development of human capabilities such as financial knowledge and confidence, diminishes what financial knowledge and confidence already exists, and affects informed decision making (Mani, Mullainathan, Shafir, & Zhao, 2013; Shah et al., 2012).

Although a number of studies reported a gender gap in financial knowledge (Fonseca et al., 2012; Lusardi & Mitchell, 2014), the findings from the CFCS data suggested no significant gender gap in financial knowledge among Canadian adults (see Study II). Findings of this study supported the findings from the CFCS data that Canadian men and women are almost alike in terms of their levels of financial knowledge. However, for immigrants particularly those who have immigrated to Canada in recent years and have come from places where women are less exposed to household financial management, there is a visible gender gap in financial knowledge, and women demonstrate lower levels of financial knowledge than men.

Policy and practice implications

To promote financial knowledge among individuals and families in low income and poverty, there is a need for policy reformation in the financial system. Findings suggest that individuals' exposure to financial products and services influence their levels of financial knowledge. As such government as well as financial institutions in private sector should take initiatives that encourage individuals, particularly those who are in low income, to participate more in mainstream financial system. For example, financial institutions can introduce user-fee-free accounts for individuals in low-income and poverty for greater inclusion. Alternative banking such as credit union and co-operative banking can also contribute to better access to financial products and services to increase the exposure to financial opportunities.

Financial education program alone may not be sufficient to improve financial knowledge among individuals in low-income and poverty. Income supplement or income support programs are needed to be integrated into financial education programs for this vulnerable population to put them at ease and create rooms for exercising their capabilities. In addition, financial counseling may also be provided to heal the scarcity mindset and help and motivate them to take advantages of the financial opportunities, products, and services.

Findings of this study have important implications for researchers, financial educators and counselors particularly for those who work with individuals and families in low income and poverty and with other vulnerable populations. From a measurement perspective, researchers need to consider individuals' social locations such as age, income, and educational background in development of tools to measure the levels of financial knowledge. For individuals in low income and poverty, researchers may need to develop a separate measure of financial knowledge as suggested by Kempson and others (2013).

For financial education and counseling programs, one-size-fits-all programs may not be an effective one to improve financial knowledge, confidence, and wellbeing. Financial education and counseling programs need to be tailored in accordance with the needs and realities of individuals' social locations. For example, social workers, financial educators, and counselors who work with seniors should be aware of the tendency of overestimation of financial knowledge (Collins & Birkenmaier, 2013). Older adults need financial education to improve their levels of financial knowledge and to be aware of financial risks, fraud, and abuse. For individuals and families on low-income and poverty, social workers need to advocate for greater financial inclusion and income support programs to provide them with opportunities for exercising their capabilities in addition to financial education and counseling programs (Caminada, Goudswaard, & Koster, 2010).

This study suggests that we can learn much from practitioners. Their experience and analysis is essential to developing our understanding of the effectiveness of existing financial education programs in addition to learning about individuals’ financial knowledge and confidence towards improvement of financial wellbeing of individuals living in disadvantageous social locations.

Limitations

The data for this study were collected from six key informants working in public, private, and community sectors to crosscheck the quantitative findings of the Study I & Study II and deepen the understanding of individuals' financial knowledge and confidence. First, the small sample size from three sectors does not allow for a generalizable understanding of individuals' financial knowledge and confidence. Second, practitioners were selected purposively through a professional network using a snowball technique. As such, findings are not free from potential biases. Third, data were collected from practitioners instead of individuals who experience their everyday financial issues. Data collected from individuals with lived experience might provide important insights into the understanding of financial knowledge and confidence. As such, future research can include a larger sample size and individuals from different social locations to enhance the understanding of financial knowledge and confidence.

Conclusion

Although the variation of financial knowledge and confidence across demographic and socioeconomic characteristics such as age and income has been studied widely, plausible explanations have remained unknown. This is the first study in Canada that has provided novel insights into understanding the nature of individuals' financial knowledge and confidence within their social locations from a practitioners' perspective. This qualitative inquiry has revealed that individuals' social locations i.e., life stage and income levels impact exposure to financial products and services and opportunities to act, which in turn shape individuals levels of financial knowledge and confidence. Findings of this study will help financial educators and social workers develop financial education programs tailored to the social locations of individuals such as older adults and individuals in low income and poverty. Social workers can advocate for greater financial inclusion and income support for individuals in low income and poverty to provide the opportunity to advance and use financial knowledge for financial wellbeing.

Chapter VII

Conclusion

To enhance the quality of life of individuals and families living in poverty and low income has been at the core of micro and macro social work practice since the beginning of the social work profession. The concept of financial capability, including both individual and structural components of people's everyday finances, has gained much importance in the field of social work in recent years as an anti-poverty approach. Building financial capability for all has been declared one of the 12 Grand Challenges for Social Work for the 21st century (Uehara et al., 2014). In this dissertation, I discussed the historical development of the concept of financial capability and why it has gained importance among poverty and social work scholars. I then critically discussed the theoretical conception of financial capability across different disciplines and proposed a conceptual framework that captures the broader domain of individuals' everyday financial lives, particularly by expanding the domain of financial inclusion to capture the structural factors of financial capability. By financial inclusion, I refer to individuals' access to sufficient income in addition to the access to financial products and services. Whether through employment or government income support (perhaps even, one day, a guaranteed annual income), individuals have to have access to sufficient income to exercise their ability to make informed financial decisions for their financial wellbeing. Although the purpose of this dissertation is not to develop a new framework of financial capability, the proposed conceptual framework has guided the analyses of data presented in three interrelated manuscripts included in this dissertation.

The principal purpose of this dissertation was to understand the variations of financial knowledge and confidence across age groups, and financial knowledge gaps according to income and gender. Quantitative data used in this dissertation came from the 2009 and 2014 Canadian Financial capability Survey (CFCS) and qualitative data were collected from six key informants working in public, private, and community organizations. Findings were presented in three different but interrelated studies. In this chapter, I provide a summary of findings, overall policy and practice implications of the findings, limitations, and directions for future research.

Summary of findings

There are a number of important findings of this dissertation. First, according to practitioners, financial knowledge is context dependent and driven by financial practices. Individuals and families living in different socioeconomic conditions have different financial realities and may perceive financial knowledge differently (see Study III). For example, many individuals and families in poverty and low income use cheque-cashing businesses, pawn shops, and other fringe banking services, where upper-income groups use mainstream banking services. As individuals in different social locations, particularly in low income and poverty, get exposed to different kinds of financial issues in their everyday life, their perception of financial knowledge might be different from others.

Second, financial knowledge alone is not enough for making informed financial decisions. In Study III, I analysed qualitative interviews to demonstrate that individuals need financial confidence beyond just financial knowledge. As such, it is important to build both financial knowledge and financial confidence for people to achieve financial wellbeing. The literature suggested that financial confidence mediate the relationship between financial knowledge and financial behaviours (Rothwell et al., 2016).

Third, important for gerontological social workers, the older adults (65 years and above) significantly overestimate their levels of financial knowledge compared to the middle aged (34-

45) group (see Study I). Individuals' life stages impact their levels of financial knowledge and confidence. Individuals living in different life stages such as young adulthood, middle age, and late life have different financial realities. As such, individuals living in different life stages may have different levels of financial knowledge and confidence (see Study III). According to practitioners, as individuals grow older, they get exposed to complicated financial decision making and acquire more financial knowledge and confidence. Individuals at their middle age may obtain an optimum level of financial knowledge and confidence. At later age, individuals' levels of financial knowledge may decline as they are less exposed to complicated financial decision making. However, their levels of financial confidence may not decline at the same rate considering that they have built assets and wealth and developed the perception of being financially stable. As such, older adults are more likely to overestimate their levels of financial knowledge. The trend of overestimation of the levels of financial knowledge implies the tendency among older adults to engage in risky financial behaviours and practices and to exhibit vulnerability to financial fraud, abuse, and exploitation (Tokar, 2015). Findings also suggested that, among older adults, married males with a high school degree or less are more likely than any other group to overestimate their levels of financial knowledge; this group might be more vulnerable to financial fraud, abuse, and exploitation. Older adults with lower levels of education may be less engaged in sophisticated financial calculations compared to other groups as they might live in lower socioeconomic status, which might cause the rapid decay of their levels of financial knowledge and enlarge the financial knowledge gap.

Fourth, individuals living in low income have significantly lower levels of financial knowledge than their non-low-income counterparts (see Study II). The disparity in financial knowledge across income groups was robust after controlling for a host of demographic and socioeconomic variables. According to practitioners, poverty limits individuals' access to financial products and services, which in turn affects their levels of financial knowledge (see Study III). As such, the levels of financial knowledge vary across income groups and, at the same time, income scarcity may limit the opportunity and motivation for financial knowledge. Individuals living in poverty may be less motivated to learn about financial issues as they constantly struggle to make ends meet. This result is consistent to what others reported. For Lusardi and Tufano (2009) reported lower levels of debt literacy among individuals in low-income compared to their higher income counterparts. However, the result of this dissertation is more precise as the financial knowledge scale used in this study has measurement equivalence across income groups, which was not tested for the scales used in other studies. As such, the findings of this study provide strong evidence of the disparity in financial knowledge across income groups that calls for policy and practice priorities to support individuals and families in low income to improve their levels of financial knowledge.

Fifth, in this study, no significant gender gap in financial knowledge among adult Canadians was found (see Study II), also a surprising result. Where studies conducted in other countries reported that women are more likely to have lower levels of financial knowledge compared to men (Bucher-Koenen et al., 2017; Fonseca et al., 2012), this study did not find such disparity in financial knowledge between genders. The gender gap in financial knowledge appears if there is income disparity. Gender gap becomes statistically non-significant when controlled for income. As such, it is not gender that explains the gap, rather it is income disparity between men and women that explains the gap in financial knowledge. Moreover, the difference in approaches to measurement across different studies might have influenced the difference in results as well. However, practitioners observed some levels of gender gap in financial knowledge among recent immigrant population where women tend to have lower levels of financial knowledge than men (see Study III). This pattern was particularly observed among immigrant populations where women had been less engaged in household financial decision-making in their country of origins.

Sixth, findings suggested interventions need to be more tailored. Since individuals' social locations such as age and income shape their perception of financial knowledge, interventions such as financial education programs should be tailored accordingly (see Study III). For example, considering the diversity of low-income immigrant population in terms of their culture, language, and immigrant experiences, Zhan, Anderson & Scott (2013) suggested carefully tailored education programs that can address the specific needs of different groups. Financial education programs that can capture individuals' financial needs and realities are more likely to bring desired outcomes.

Policy and practice implications

Building financial capability for all is not only one of the grand challenges of social work but it has become one of the policy priorities in many countries. The findings of this dissertation have a number of implications for policy and practice to enhance financial capability, particularly among those who are in their late life or living in poverty and low income.

Policies and strategies to promote financial capability need to consider the socio-economic context of individuals and groups as social locations such as age and income influence individuals' perception and levels of financial knowledge. 'One size fits all' strategies might not bring desired changes, which contradicts to some who proposed a standard set of financial knowledge and skills for all individuals irrespective of their particular social locations (Huston, 2010). The findings of this dissertation will inform policymakers of the relationship between individuals' social locations and their levels of financial knowledge and confidence by providing a map of who sits where. Financial educators, counselors, and social workers who closely work with individuals and families need to understand the social locations of their clients while providing financial education and coaching.

The financial system needs reforms to make financial institutions user-friendly and accessible to older adults and individuals living in poverty and low-income. Financial institutions can introduce specialized services for seniors to protect them from the risk of financial fraud, abuse, and exploitation (Siddiqi et al. 2015). For example, financial institutions can open priority desks for seniors and send notifications to seniors or loved ones if any unusual transactions take place in their accounts. In addition, social workers and community workers need to build awareness among seniors about the tendency to overestimate their level of financial knowledge, and at the same time, encourage them to learn more about their everyday finances (Birkenmaier et al. 2013). Social workers working in institutional settings or in the community can offer seminars, workshops, and one-on-one coaching and counselling among vulnerable groups in the community to build awareness and help improve the levels of financial knowledge.

Individuals and families living in poverty and low income need special attention from policymakers and practitioners. As findings suggested a significant disparity of financial knowledge between income groups where individuals living in low income have significantly lower levels of financial knowledge than their non-low-income counterparts, building financial knowledge among this vulnerable group should be a policy priority. Individuals with low levels of financial knowledge are not only at risk of making uninformed financial decisions but they are also vulnerable to financial fraud, exploration, and abuse.

A number of strategies can be adopted to enhance financial capability of individuals and families living in low-income and poverty. First, specialized financial education programs that cover the financial issues the individuals and families living in poverty face in their everyday life such as budgeting, planned spending, price comparison, risk of fringe banking, and savings should be designed and provided in the community. Social workers and community organizers are in a good position to deliver these programs in the community as they work closely with this population. Second, policy reforms for financial institutions is important to ease access to financial products and services for individuals living in poverty as findings suggested that lack of exposure to financial products and services may influence the lower levels of financial knowledge individuals living in poverty. Financial institutions can introduce user-fee free bank account for certain groups particularly those who are living in poverty to enhance financial inclusion as a part of social responsibility. It is understandable that traditional financial institutions that operate for short-term benefits for the shareholders might not be willing to offer user-fee-free banking services to people with low incomes. A cooperative banking model that cares for not just the financial wellbeing of its members but for the social and environmental wellbeing of the entire community can be an alternative avenue of banking services. Third, in addition to access to financial products and services, individuals must have access to sufficient income through employment or income supplement to exercise their ability to enhance the quality of their financial lives.

Limitations

In this dissertation, a mixed method approach was used where both quantitative and qualitative data were analyzed to understand the disparity in financial capability across individuals’ social locations. However, there are a number of limitations.

The quantitative data used in this dissertation are cross-sectional. As such, findings do not claim any causal relationships. For example, the findings of lower levels of financial knowledge among individuals living in low income does not claim that income causes individuals levels of financial knowledge. There might be a reverse causation or a reciprocal causation between income and financial knowledge. An explanatory design can examine the alternative explanations.

A single item on an ordinal scale with four choices was used to measure subjective financial knowledge, which might not capture the greater variation of responses. A scale with multiple items or a ratio scale could be more effective. The creation of the Financial Knowledge Scale used in this dissertation was limited to the items provided in the Canadian Financial Capability Survey, which restricted inclusion of other potential items to increase the content coverage of the scale. Future research can test additional items from other domains of everyday finances such as online banking, telephone banking, and mobile banking among others using Item Response Theory.

Six key informants purposively selected from public, private, and community sectors through a professional network using a snowball technique were interviewed to collect data for the qualitative inquiry. As such, not only the sample is small and does not allow generalizing the findings but findings may have biases. In addition, data were collected from key informants instead of general individuals that might lack the insights about lived experiences of everyday finances. Data collected from a larger sample of individuals form different social locations may extend our understanding of individuals' financial capability.

Future research directions

Despite some limitations, findings of this dissertation will help advance future research and benefit policymakers, and practitioners. Understanding the complex nature of individuals' financial capability and wellbeing is my research agenda and this dissertation project is a beginning. The findings have helped me understand individuals' financial knowledge and confidence within their social locations and motivated me to understand how financial knowledge and confidence influence the financial practices and wellbeing of individuals, particularly those who are in poverty and low income.

In future research, I will examine (a) how financial knowledge and confidence influence the financial behaviours and practices, and financial wellbeing of individuals and families in low income and poverty, (b) how financial inclusion – access to financial products and services, and sufficient income- influences the financial behaviours and practices, and financial wellbeing of individuals and families in low income and poverty.

We know much about the relationship between financial knowledge and financial behaviours in general but we do not know much about the nature of this relationship among low-income and other disadvantaged populations. Moreover, the influence of financial inclusion, particularly access to sufficient income, on individuals' financial behaviours and financial wellbeing is not yet understood. Understanding the nature of financial capability of individuals and families in low income will help policymakers and practitioners develop appropriate strategies to building financial capability to enhance financial wellbeing among disadvantaged and vulnerable populations.

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Appendix A

Financial Knowledge Assessment Tools Used in Canadian Financial Capability Survey

Objective financial knowledge questions and responses

If the inflation rate is 5% and the interest rate you get on your savings is 3%, will your savings have at least as much buying power in a year's time?

Yes
No
Don’t know

A credit report is...?

A list of your financial assets and liabilities
A monthly credit card statement
A loan and bill payment history
A credit line with a financial institution
Don't know

Who insures your stocks in the stock market?

The National Deposit Insurance Corporation
The Securities and Exchange Commission
The Bank of Canada
No one
Don’t know

By using unit pricing at the grocery store, you can easily compare the cost of any brand and any package size.

True
False
Don’t know

If each of the following persons had the same amount of take home pay, who would need the greatest amount of life insurance?

A young single woman with two young children
A young single woman without children
An elderly retired man, with a wife who is also retired
A young married man without children
Don’t know

If you had a savings account at a bank, which of the following statements would be correct concerning the interest that you would earn on this account?

Sales tax may be charged on the interest that you earn
You cannot earn interest until you pass your 18th birthday
Earnings from savings account interest may not be taxed
Income tax may be charged on the interest if your income is high enough
Don’t know

Inflation can cause difficulty in many ways. Which group would have the greatest problem during periods of high inflation that lasts several years?

Young working couples with no children

Young working couples with children

Older, working couples saving for retirement

Older people living on fixed retirement income

Don't know

Lindsay has saved $12,000 for her university expenses by working part- time. Her plan is to start university next year and she needs all of the money she saved. Which of the following is the safest place for her university money?

Corporate bonds

Mutual Funds

A bank savings account

Locked in a safe at home

Stocks

Don't know

Which of the following types of investment would best protect the purchasing power savings in the event of a sudden increase in inflation?

A twenty-five year corporate bond

A house financed with a fixed-rate mortgage

A 10-year bond issued by a corporation

A certificate of deposit at a bank

Don't know

Under which of the following circumstances would it be financially beneficial to borrow money to buy something now and repay it with future income?

When something goes on sale

When the interest on the loan is greater than the interest obtained from a savings account

When buying something on credit allows someone to get a much better paying job

It is always beneficial to borrow money to buy something now and repay it with future income

Don't know

Which of the following statements is not correct about most ATM (Automated Teller Machine) cards?

You can get cash anywhere in the world with no fee

You must have a bank account to have an ATM

You can generally get cash 24 hours-a-day

You can generally obtain information concerning your bank balance at an ATM machine

Don't know

Which of the following can hurt your credit rating?

Making late payments on loans and debts

Staying in one job too long

Living in the same location too long

Using your credit card frequently for purchases

Don't know

What can affect the amount of interest that you would pay on a loan?

Your credit rating

How much you borrow

How long you take to repay the loan
All of the above
Don’t know

Which of the following will help lower the cost of a house?
Paying off the mortgage over a long period of time
Agreeing to pay the current rate of interest on the mortgage for as many years as possible
Making a larger down payment at the time of purchase
Making a smaller down payment at the time of purchase

Subjective Financial Knowledge question and responses

How would you rate your level of financial knowledge?
Very knowledgeable
Knowledgeable
Fairly knowledgeable
Not very knowledgeable
Don’t know

Appendix B

Interview Guide for Qualitative Data Collection

I am studying people's financial knowledge and confidence and their variation across age, income and gender. In the first phase of my study, I analysed the Canadian Financial Capability Survey (CFCS) data collected by Statistics Canada and came up with what I believe are some interesting findings. I am glad to know that your organization is promoting financial literacy. I want to learn about your experiences, understanding, and perception about people's financial knowledge and confidence as a way to cross-examine the findings of my analysis. This interview will take about 45 minutes. During the interview, I will ask some questions on financial knowledge/literacy, will share the findings of my analysis with you, and will request your comment on these findings. I thank you very much for participating in this study.

Question:

To start off, please tell me your name and your affiliation with your organization.

How long have you worked here and what was your background before joining the organization?

Question: Would you please tell me briefly about the mission/objective/motivation of your organization for promoting financial literacy among your clienteles?

Question: When you think about people's financial knowledge, what do you mean by financial knowledge/literacy? More specifically, what are the issues or areas people need to know to be financially knowledgeable?

Question: What could be some other factors that influence people financial wellbeing? [Probe for subjective knowledge, confidence, attitude, social discrimination]

Question: Do you think issues or factors that make up people's financial knowledge could be different for people living in low-income versus in upper-income? [probe: why or why not?]

Question: The findings of my study also suggest that people in low-income have lower levels of financial knowledge than their upper-income counterparts. What is your opinion on this? Does this fit with your practice experience? What do you think would explain this finding?

Question: Do you think there is any gender gap in financial knowledge? More specifically, do you think males have higher levels of financial knowledge than females or vice versa?

Question: In your practice, do you see any difference in the level of financial knowledge across age groups? More specifically, financial knowledge among young adults, middle-aged people and older adults.

Question: I see in my analysis that older adults overestimate their financial knowledge i.e. they know less about financial issues than they believe they know. And, in the case of the young adults, it is the opposite. Young adults underestimate their financial knowledge. Hence, there is a mismatch between the actual financial knowledge and perceived knowledge among the older adults and the young adults particularly. Does this fit with your practice experience? What do you think would explain this finding?

Question: Is there anything else you'd like to discuss about the measurement of financial knowledge in Canada?

Thank you very much for your cooperation.

Appendix C

Certificate of Ethical Acceptability of Research Involving Humans

McGill

Research Ethics Board Office
James Administration Bldg.
845 Sherbrooke Street West. Rm 325
Montreal, QC H3A 0G4

Tel: (514) 398-6831
Fax: (514) 398-4644
Website: www.mcgill.ca/research/researchers/compliance/human/

Research Ethics Board II
Certificate of Ethical Acceptability of Research Involving Humans

REB File #: 22-0617

Project Title: Understanding the Financial Capability Disparity in Canada: A Mixed Method Study

Principal Investigator: Mohammad N. Khan

Status: Ph.D. Student

Department: School of Social Work

Supervisor: Prof. Jill Hanley and Prof. David W. Rothwell

Approval Period: **July 24, 2017 to July 23, 2018**

The REB-II reviewed and approved this project by delegated review in accordance with the requirements of the McGill University Policy on the Ethical Conduct of Research Involving Human Participants and the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.

Deanna Collin
Ethics Review Administrator, REB I & II

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* All research involving human participants requires review on at least an annual basis. A Request for Renewal form should be submitted 2-3 weeks before the above expiry date. Research cannot be conducted without a current ethics approval.
* When a project has been completed or terminated, a Study Closure form must be submitted.
* Unanticipated issues that may increase the risk level to participants or that may have other ethical implications must be promptly reported to the REB. Serious adverse events experienced by a participant in conjunction with the research must be reported to the REB without delay.
* Modifications must be reviewed and approved by the REB before they can be implemented.
* The REB must be promptly notified of any new information that may affect the welfare or consent of participants.
* The REB must be notified of any suspension or cancellation imposed by a funding agency or regulatory body that is related to this project.
* The REB must be notified of any findings that may have ethical implications or may affect the decision of the REB.