

Comparing financial outcomes among households headed by women, men, or both genders: The gender pay gap prevails

Abstract

Research shows gender disparities in savings habits and financial literacy. However, recent studies indicate that the higher earner in a household, regardless of gender, typically manages finances more effectively. This study examines if households where women are the primary decision-makers face more financial challenges and if they have less financial resilience, knowledge, and capability due to lower household income. Using data from the Canadian Financial Capability Survey (N=2,149), we employ regression analysis to analyze differences in financial circumstances among households headed by women, men, and both genders jointly. Our findings show that women-led households have lower incomes, struggle to balance expenses, and are less likely to pay off credit card balances compared to households led by men or those with shared responsibility. Disparities in financial resilience, knowledge, and capability lessen when controlling for household income. Addressing the gender pay gap is crucial for improving financial outcomes for women and their households.

Keywords: Consumer Finance, Couples, Financial Capability, Financial Literacy, Gender

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Introduction

The separation of financial responsibility within a household significantly affects household financial well-being (García-Mata & Zerón-Félix, 2022). Since household financial management requires substantial determination and proficiency, couples can mutually decide to select one of them to take financial responsibility (Burgoyne et al., 2007) or to share the responsibility (Warmath et al., 2019). Contemporary research argues that the higher-income earner in households usually assumes this responsibility irrespective of gender (L'Esperance, 2020; Ward & Lynch, 2019). In other words, taking on financial responsibility and the execution of financial decisions largely depends upon the person contributing more to household income. However, it is not essential that those who earn more must showcase better financial behavior. Rather, they may develop financial expertise over time after making financial decisions time-by-time (Ward & Lynch, 2019).

Individual attributes like gender and income are associated with intra-household financial behavior and decision-making (Bertocchi, et al., 2014; LeBaron, et al., 2019). There is a limited amount of personal finance research that compares households with different people taking on financial responsibility. Recently, Wagner and Walstad (2023) found that women-led households are less likely to exhibit better financial behaviors than men-led households. Furthermore, L'Esperance (2020) showed that higher income earners are more likely to engage in household financial decisions and become more knowledgeable of their credit rating. Yet, beyond these two studies, little evidence exists in the literature, describing the association of different types of financial responsibility in a household (solely women, solely men, or shared) with various personal finance factors (like subjective financial knowledge, financial capability, and financial resilience) and financial behaviors (like timely paying off credit card debt, timely meeting financial commitments, and having a household surplus). Understanding these undetermined associations holds significant importance as this research can illuminate how financial responsibilities are linked with financial behaviors. Since an objective of taking on financial responsibility is to maximize household utility, little is known whether women-led households have better financial behavior where women are also the higher income earners.

Therefore, this research aims to investigate if the households where women are financially responsible for ongoing financial commitments contribute to improved decision-making. We ask three pertinent research questions: (a) do women in women-led households experience more dire financial situations than men in men-led or respondents in shared responsibility households, (b) do women in women-led households report less financial resilience, subjective financial knowledge, and financial capability than men in men-led or respondents in shared responsibility households, and (c) to what extent does household income explain the variance in financial resilience, financial capability, and subjective financial knowledge experienced by women in women-led households compared to others? If we find that women experience more dire financial situations, our research will then determine if the associated factor is lower household income.

Our research pursues this topic using unique data from Canada, a country receiving scant academic attention, except for Robson and Peetz (2020). Canadian women, like other women throughout the world, earn less on average than men but evidence shows that the gender gap for paid workers aged 20-54 has narrowed from 16% in 2007 to 12% in 2022 (StatsCAN, 2023a). However, 41% of non-indigenous Canadian born women have bachelor's degrees but 27% of non-indigenous Canadian born men do, showing Canadian women have higher education levels on average than men. Yet, issues of equality within a couple persist where women are more likely to take on part-time work than men, which economically disadvantages women in ascertaining savings for retirement. Additionally, the amount of unpaid work that women have is higher than men, where on average they spend 3.6 hours a day doing unpaid domestic and care work, while men do 2.4 hours (StatsCAN, 2023b). These differences highlight that whilst progress has been towards gender equality, more is still needed.

In our research, we make comparisons between three broad categories of how money is managed within households: women-led, men-led, and equally shared financial responsibility (Koomson et al., 2020; Warmath et al., 2019). Our focus is specifically on those who provide ongoing financial management and not those who conduct long-term financial planning. A comparison between these

three groups aims to identify if taking on responsibility may change the financial outcome of women in Canada compared to men and shared financial situations. Our findings show that women-led households tend to have poorer financial outcomes than the other groups in terms of spending more than they earn and not paying off monthly credit card balances nor meeting financial commitments. Women-led households also report less financial resilience, subjective financial knowledge, and financial capability than other groups. However, women-led households also have less household income than others. When household income is controlled for, the amount of variance in financial capability attributed to being women-led is ameliorated. Similarly, but to a lesser extent, variance in self-rated subjective financial knowledge and financial resilience explained by women-led households decreases when household income is controlled for. These results suggest that household income is a major determinant of gender-based differences in financial behavior for those who control household finances. Frequently personal finance research includes household income as a control variable in regression models (Tahir et al., 2022) and this can obfuscate the influence of household income on household personal finances. Future efforts to address gender pay gaps will have a positive effect on the financial well-being of Canadian families.

Literature Review and Research Questions

Gender differences

The current research landscape highlights gender disparities in financial literacy, financial capability, and financial resilience. Hasler and Lusardi (2017) highlighted a financial literacy gender gap worldwide. Through analysis of the Standard & Poor's ratings services global financial literacy survey, they showed that financial illiteracy is widespread, but particularly pronounced among women. Just one in three adults understand basic financial concepts, and the gap in financial literacy between men and women exists across countries with different social and cultural contexts. Men and women have underlying socioeconomic differences, such as income or education, that influence their objective financial knowledge, attitudes, and behaviors (Robson & Peetz, 2020). Research has shown the positive effect of planning for retirement on financial behavior (Willows, 2020) but gender differences prevail

again as women plan less for retirement (Farrar et al., 2019). While much research posits this to be a result of lower financial literacy (e.g., Lusardi & Mitchell, 2007; van Rooij et al., 2012), other studies suggest that the stubborn and unexplainable gap in the financial knowledge of men and women may be due to factors that have not yet been measured in the data (Cupák et al., 2018; Fonseca et al., 2012). D'Acunzio et al., (2020) found that gender differences in inflation expectations can be explained by those who take on the household chore of grocery shopping, which is predominantly taken on by women. We show in this literature review that household income, including the gender wage gap, is a possible factor, warranting the need for this research.

Using Canadian survey data, Robson and Peetz (2020) showed a nuanced relationship between financial responsibility and financial capability. Higher household income was consistently associated with higher scores in financial literacy and financial capability. Similarly, higher levels of education were also associated with higher scores in financial literacy and financial capability, but the strength of the association diminished when psychological traits were included. A high level of responsibility for financial decisions was not consistently associated with high financial literacy and high financial capability; however, the association became consistent when psychological traits were included. Robson and Peetz (2020) thus suggested that it might be individual differences in personality and economic beliefs that are related to the role a person takes in managing household finances.

The current research landscape points to differential behavioral traits between men and women (Halko et al., 2012; Neelakantan, 2010). Lower risk tolerance as a learned trait amongst women cannot be ignored (Booth & Nolen, 2012). Investigating the risk tolerance scores of more than 2,000 individuals immediately after the 2008 Global Financial Crisis, Gibson et al. (2013) found positive relationships between risk tolerance, income, and investment knowledge. As women earn less and report lower investment knowledge, these factors may contribute to having lower risk tolerances. Furthermore, a recent paper by West et al. (2023) also revealed that when women complete financial literacy questions they are twice as likely to say they're "unsure" than men are. Men often are overconfident and attempt a guess.

Drawing on 105 semi-structured interviews, James and Agunsoye (2023) found that men and women understand and respond to risk in different and ambiguous ways based on interpretations of gender. These divergent approaches result in distinct investment strategies. Men are risk-seeking investors; conforming to constructions of masculinity, they potentially take on excessive risk. Differently, women fit feminine norms where communal solutions are sought out (James & Agunsoye, 2023). These structural inequalities exacerbate long-term financial welfare for individuals. However, Nelson (2016) challenges gender differences in risk taking by questioning whether research has appropriately distinguished between differences that hold at the individual level (those that categorically differentiate between men and women) and those that appear only at the aggregate level (statistically detectable in the means of men's and women's distributions). As results are often expressed in a way that aims to differentiate men and women, gender stereotypes are created (Nelson, 2016). In this review, we are mindful of research which disregards the dominance of masculine norms which have shaped financial capitalism and the role of gender within the economy (James & Agunsoye, 2023).

Financial responsibility within couples

The decision on how to share the management of finances within a couple is unique to each couple but women's involvement in this division of financial responsibilities is increasing over time in Italy (Bertocchi et al., 2014) but decreasing in wealthier families in the USA (Hanna et al., 2021). When it comes to investing and saving, women are more likely to delegate financial decision-making to their partners (Meier et al., 1999). Using savings goal data from 1,760 clients of an advisory investment firm, Agunsoye et al. (2022) found that, for individuals living in a couple, men choose more ambitious savings goals than women. Their insights from further interviews revealed that these differences originate from gender-normative roles assigned within the household. Women look after the daily budget (short-term security) whereas men focus on long-term financial planning. Even when the women took on the long-term planning responsibility, men were not inclined to pick up the day-to-day budget, thus affirming the gender roles (Agunsoye et al., 2022).

The gender gap for involvement in financial decision-making in a couple depends on cultural factors. In Italy, Bertocchi et al. (2014) found that higher education, higher income, and lower age of a wife increase the likelihood that the wife is involved with financial decision-making in a couple. In India, Gupta et al. (2022) found that women in a couple are more explicitly conscientious about saving money than men but are limited in their ability to make large financial decisions. However, increases in the financial literacy of Indian women increased their involvement in financial decision-making in a couple (Banerjee et al., 2021). Koomson et al. (2020) found that increases in financial inclusion had a greater reduction in poverty and vulnerability to poverty for women-led households compared to men-led households in Ghana. Even though women do more unpaid labor than men on average, their role within a heterosexual couple may be limited which creates different opportunities to learn and practice certain financial behaviors. When considering that women outlive men on average, this gender gap in financial decision-making could have adverse financial consequences.

The roles that men and women adopt when managing finances can also have an impact on their financial behavior. Men's goal setting behavior increased by being in a couple, either married or cohabitating, but women's attitudes toward saving were stable regardless of their couple status (Agunsoye et al., 2022). Regardless of the difference in personal income, the difference in savings goal amounts was a function of role division, originating from gender norms (Agunsoye et al., 2022). Ke (2021) showed that the roles of intrahousehold bargaining and traditional norms shape household financial decisions. Using microdata from U.S. household surveys, they showed that families with a financially sophisticated husband are more likely to participate in the stock market than those with a wife of equal financial sophistication. Using the 2018 National Financial Capability Study, Wagner and Walstad (2023) found that households in which women are seemingly the main financial decision-maker were significantly more likely to engage in riskier, or less prudent financial behaviors, related to paying a credit card bill in full each month, keeping an emergency fund to protect against negative financial shocks, investing in financial assets outside of employment, and setting up an individual retirement account not connected to their employment. This was also mirrored in single women

households. In short, women appear to be at a distinct disadvantage in their financial behaviors (Wagner & Walstad, 2023) and gender identity norms constrain women's sway over intrahousehold financial decision-making (Ke, 2021).

Ke (2021, p. 1390) asked *"imagine a world without gender norms?"* A world where it doesn't matter if the husband or the wife has more knowledge or experience in household financial decisions. When both spouses were involved in financial processes, the relationship quality and stability are higher than when one person takes on sole responsibility (LeBaron et al., 2019). Additionally, joint financial decision-making was associated with decreased overconfidence in financial knowledge (Warmath et al., 2019). In recent decades there have been meaningful changes in household heads in terms of gender (Kim et al., 2022). More single women are becoming household heads, and women-headed two-earner households are becoming progressively more common (Kim et al., 2022). Internalized gender norms, whether these are adopted consciously or subconsciously, create gendered effects on wealth accumulation (Agunsoye et al., 2022). Women's lower financial knowledge pushes them to focus on day-to-day budgeting, rather than long-term savings goals. Agunsoye et al. (2022) suggest that these results might be less dramatic in a country where the state pension system is more developed, requiring less investment by individuals. However, Halko et al. (2012) studied the relationship between gender and stock holdings in Finland, a notably gender equal country, and yet again, found men to invest 2.8 percentage points more of their wealth in the stock market than women. Thus, culture or social norms may still prevail.

The gender pay gap

Stereotypes of women's behavior continue to highlight the burden of unpaid labor within the household, even when women earn equal or more than their partners (McMunn et al., 2020). In the United States of America, L'Esperance (2020) found that the division of labor occurs dependent on income, where higher income earners are more likely to pay bills and save or invest money. As women earn less on average, this often excludes them from making financial decisions for the couple. This is seen in the 2016 Survey of Consumer Finances (SCF), where 56% of households deemed the husband

(in husband-wife households) to be more knowledgeable about their finances but among households in the top 1%, this percentage was higher, at 90% (Hanna et al., 2021). Additionally, never having responsibility for saving and investing decreases a person's knowledge of credit scores (L'Esperance, 2020). Ward and Lynch (2019) found that responsibility for financial affairs in a relationship is not initially determined by ability, but that financial literacy develops as the relationship lengthens. They argue that consumers develop on a need-to-know basis, suggesting that the roles one undertakes in a couple will determine their level of financial capability. This potentially limits women's development of financial literacy and financial capability and further limits earning possibilities.

When men ask for a salary increase, they are considered competitive and logical, while women are seen as irrational or too emotional (Chappell & Waylen, 2013). Women are seen to be risk averse (Halko et al., 2012; Neelakantan, 2010) and less equipped to deal with financial affairs (Sent & van Staveren, 2019) when compared to men who are seen to be rational risk-takers. Because of these ingrained stereotypes, women abstain from demanding higher pay, adopt lower risk levels than men when investing, and are less confident with investment decisions (Bucher-Koenen et al., 2021). It is thus easy to see why these behaviors are categorized as irresponsible or less desirable when ignoring the contextual and normative factors that drive them (Agunsoye & James, 2023).

Prior research on personal finance has focused on differences between men and women in general (Hasler & Lusardi, 2017) or different roles within a couple (Gupta et al., 2022) to investigate differences in financial factors or financial behavior. However, the role ascribed to women and men in a couple will determine their level of financial sophistication if financial education is completed on a need-to-know basis (Ward & Lynch, 2019). If this occurs, then the financial factors that a household finds themselves in will be most influential in forming financial expertise of the person assuming financial responsibility. Additionally, the person who takes on financial responsibility will be more likely to develop financial expertise, and if women take on this role, then their financial knowledge and capability could improve.

In our research, we focus specifically on couples and differentiate between three types of arrangements to manage financial households; women-led (where women have assumed responsibility for ongoing household finances), men-led (where men have assumed sole responsibility for ongoing household finances), and shared (where ongoing financial responsibility is shared between a couple). We specifically address the following research questions:

R1: Do the women in women-led couples experience more dire financial situations than men in men-led or respondents in shared responsibility households?

R2: Do the women in women-led couples report less financial resilience, subjective financial knowledge, and financial capability than men in men-led or respondents in shared responsibility households?

By addressing the first question, we aim to ascertain if women who have sole responsibility for a couple's finances find themselves in a worse financial predicament than other couples. If so, we investigate the second research question to ascertain if the women in the women-led couples report more or less subjective financial knowledge and financial capability than other households. However, these two research questions could be related in that if women have a dire financial situation, this, in turn, will influence their subjective financial knowledge and financial capability. Thus, our third question focuses on household income to assess this:

R3: To what extent does household income explain the variance in financial resilience, financial capability, and subjective financial knowledge experienced by women in women-led households compared to others?

Methods

Data

In this research, we use the Canadian Financial Capability Survey which was published in 2019. The survey was conducted with 7,169 Canadians who were 18 years or older between February and May 2019. This was a national survey undertaken by the Financial Consumer Agency of Canada to ascertain Canadians' knowledge, abilities, and behavior concerning financial decision-making. The survey consists of many questions pertaining to personal finances for Canadians making it an apt dataset to address our research questions.

Our interest is specifically in couples, so we retain the 4,392 respondents who identified as either married or living with a partner. We are also interested in those who are involved in managing household finances. In the survey, respondents are asked who in their household is mainly responsible for making sure that the regular ongoing bills and other financial commitments are met. We omitted responses who stated mainly their partner and kept respondents who indicated that they mainly manage finances or that the responsibility is equally shared. This reduced the number of respondents to 3,507. We also omit responses if complete data was not available. We removed respondents where no answer was available to questions on gender, education, income, work situation, budgeting, emergency finances, and financial capability. This final sample consisted of 2,149 respondents.

Variables

The dependent variables used in our analysis are as follows:

Both working: A binary variable that takes the value of 1 if the participant reports that both members in the couple are currently working and 0 otherwise.

Household income: A categorical variable to report the annual household income of respondents. Values are 1= Less than \$20,000 p.a., 2= \$20,000 to \$40,000 p.a., 3 = \$40,000 to \$60,000 p.a., 4 = \$60,000 to \$80,000 p.a., 5= \$80,000 to \$100,000 p.a., 6 = \$100,000 to \$150,000 p.a., 7 = \$150,000 to \$200,000 p.a., 8 = \$200,000 or more p.a.

Household deficit: A categorical variable where respondents reported household annual income in relation to expenses. The values are 1= expenses less than income, 2= expenses about equal to income, and 3 = expenses more than income.

Paying off credit card balance: A binary variable where respondents report the extent to which they carried over or paid off their credit card balance. The values are 0 = Yes, I carried over; and 1 = No, I always paid off in full.

Financial resilience: A binary variable where respondents were asked “If an unexpected need arose within the next month, how confident are you that you could come up with \$2,000, if you needed it? We formed answers into a binary variable where “certainly could”, “probably could” equals 1 and “probably could not” and “certainly could not” equals 0. This is similar to the financial resilience defined by Tahir et al. (2022) as the ability to raise funds in an emergency.

Subjective Financial Knowledge: A self-rated financial knowledge question where participants rate their knowledge as Very knowledgeable = 4, Knowledgeable = 3, Fairly knowledgeable =2 and Not very knowledgeable =1.

Financial Capability: A continuous variable derived by taking the mean of four questions. These questions asked respondents to rate their ability at: keeping track of money, making ends meet, shopping around for the best financial products, and staying informed on financial issues. The answers ranged from 1 “Very good” to 4 “Not very good” and is based on a measure developed by Atkinson et al (2007). We inverted responses so that a score of 4 equates to very good and a score of 1 equates to not very good.

In addition to the above dependent variables, we also include the following control variables: age as a categorical variable where 18-24 years = 1, 25-34 years = 2, 35 – 44 years = 3, 45-54 years = 4, 55-64 years = 5 and 65+ years = 6, rural as a binary variable taking the value of 1 if the respondent lived in a rural setting or 0 if living in an urban setting, born in Canada as binary variable taking the value of 1 if born in Canada or 0 otherwise, and education as a categorical variable where less than high school = 1, high school diploma = 2, some college or university without diploma = 3, college

diploma or certificate = 4, university undergraduate degree = 5, university graduate degree = 6.

Analyses

Prior research on intrahousehold financial responsibility either compares women-led to men-led (Bertocchi et al., 2014; Koomson, et al., 2020) or shared responsibility to others (Warmath et al., 2019). Our focus of interest in this research is the differences between households where women take financial responsibility (women-led), men take financial responsibility (men-led), and shared financial responsibility (shared). Responses to a gender question and a question asking who is mainly responsible for making sure that regular bills and other financial commitments are met were used to identify 601 women-led, 704 shared, and 844 men-led respondents in the survey. We use this to create a categorical variable where women-led equals one, shared equals two, and men-led equals three.

Our methodology to identify differences between these three groups of households is to include each group individually in a regression analysis for various dependent variables. This method allows the identification of differences between the three groups whilst controlling for well-known influences on a person's financial situation. The regression models adopted are probit models (1) when the dependent variable is binary, ordered probit models (2) when the dependent variable is categorical, and ordinary least square regression models (3) when the dependent variable is continuous. The formulae for the three models are:

$$\Pr(y_j \neq 0 | x_j) = \phi(x_j\beta) \quad (1)$$

$$\Pr(Outcome_j = i) = PR(k_{i-1} < \beta_1 x_{1j} + \beta_2 x_{2j} + \dots + \beta_k x_{kj} + u_j \leq k_i) \quad (2)$$

$$y_j = \beta_1 x_{j1} + \beta_2 x_{j2} + \dots + \beta_p x_{jp} + \varepsilon_j \quad (3)$$

Where y_j is the dependent variable, x_j refers to independent variables, and ϕ is the standard cumulative normal. In the ordered probit model (2), k_i refers to the cut points where the coefficients β are estimated. In addition to the ordinary least square regression analysis (3), we use analysis of variance (ANOVA) to explore variance explained by independent variables.

We checked for possible endogeneity by assessing the correlation between the residuals of each independent variable with each category of categorical financial responsibility variable. The correlation coefficients of most residuals were below a small correlation of 0.3 (Cohen, 1988) and did not present endogeneity issues. One variable, household deficit, did present endogeneity issues. For the analysis of this variable, we introduced two instrumental variables; a dummy variable indicating financial responsibility for children, and household income, and then completed the analysis. The results remained very similar between the analysis with and without the instrumental variables. Additionally, the correlation coefficient of the household deficit residuals with each category of financial responsibility reduced with the largest being $r = -.316$. We conclude that endogeneity issues did not influence our interpretation of findings, and analysis including the instrumental variables is omitted for brevity.

Results

Descriptive statistics

The descriptive analysis outlined in Table 1 contains differences between three categories of respondents: women-led, men-led, and shared respondents. The number of respondents in each group is above 600 and the largest group is men-led with 844, indicating that this is the most common way of sharing financial responsibility for couples in this survey. We conducted tests using Chi-squared and ANOVA tests to test for significant differences between the three groups of financial responsibility. Compared to the other groups, men-led financial decision-making occurs with older respondents, those living in a non-rural area and those not born in Canada. The difference between the three education level groups is not statistically significant, despite women in Canada attaining higher education levels (StatsCAN, 2023a). L'Esperance (2020) found that the higher income earner in a couple would assume financial responsibility. This seems prevalent with men-led households as 82.23% of these respondents earned more income than their partner. For women-led, this trend also occurs, but at a less frequent occurrence than men (only 55.41%). The concepts of household income, household deficit, paying off credit cards, financial resilience, subjective financial knowledge, and

financial capability are presented in Table 1 but explored more thoroughly in the next subsections.

<insert Table 1 here>

Financial situation of households

Our regression analysis begins by investigating the relationship between the categories of financial responsibility (women-led, shared, and men-led) and financial situations. This is done to determine whether women-led couples experience more dire financial situations than men-led and shared responsibility households. Table 2 shows the results of four regressions with different independent variables. In these regressions, we include the financial responsibility categorical variable that includes women-led, shared, and men-led. The women-led variable becomes the base group and thus is omitted from the results.

<insert Table 2 here>

The regression in Table 2 column 1 has the dependent variable of both members of the couple working. The results show that there is a statistically significant difference between shared financial responsibility and women-led financial responsibility with this variable. It shows that when both members of a couple are working, the financial responsibility is more likely shared between partners than a woman having sole responsibility. Column 2 presents the ordered probit regression of household income because income was ascertained as a categorical variable in the data. The results show that women-led households report less household income than shared and men-led respondents. These results are statistically significant and align with research on the gender pay gap which indicates that on average women earn less income than men (Gardiner et al., 2016). Pertaining to research question 1, our results show that in relation to income, women-led couples experience a more dire financial situation than men-led and shared responsibility households.

Column 3 of Table 2 explores the dependent variable of household deficit, which is each respondent's rating of whether the household income is more, equal, or less than expenditure. The results present that women-led households are more likely to be running at a deficit (expenses more than their income) in comparison to both shared households and men-led households. The final

regression in Table 1 is presented in column 4. It contains a dependent variable of each respondent's self-reported tendency to pay off credit card debts at the end of each month. The results show that women-led households are less likely to pay off credit card balances monthly compared to both shared and men-led households. Returning to research question 1, our analysis shows that women-led households have more dire financial circumstances as they have less income, are more likely to be running a deficit, and are less likely to pay off monthly credit card balances than shared and men-led households. Overall, women-led respondents seem to be in a more precarious financial state than others.

Financial resilience, subjective financial knowledge, and financial capability

Table 3 of our analysis answers research question 2, which asks whether women in women-led couples report less financial resilience, subjective financial knowledge, and financial capability, than respondents in shared and men-led couples. Column 1 is a probit regression of financial resilience, which is the respondent's self-rated ability to raise funds in an emergency (Tahir et al., 2022). The results show that women-led households less frequently report being financially resilient than shared and men-led households. In column 2, the regression focuses on subjective financial knowledge and the results show that respondents in women-led households rate their subjective financial knowledge lower than shared and men-led respondents. Finally, column 3 shows that women-led respondents report lower levels of financial capability than men-led but the difference between women-led and shared is not of statistical significance. Even though prior research has suggested that the person who takes financial responsibility within a couple will learn finance on a need-to-know basis (Ward & Lynch, 2019), the women in our research report less financial resilience and less subjective financial knowledge than other respondents. Returning to research question 2, our results show that women in women-led households report lower financial resilience and subjective financial knowledge than shared households and men-led households. Women in women-led households report lower financial capability when compared to men-led respondents only.

<insert table 3>

As the results for financial capability showed a statistically significant difference between women-led and men-led, but not between women-led and shared, we explored the individual aspects of financial capability. Table 4 contains four ordered probit regressions for each aspect of financial capability: keeping track of money (column 1), making ends meet (column 2), shopping around (column 3), and staying informed (column 4). The results show a negative and statistically significant difference between women-led and shared for keeping track of money, showing that the women-led respondents report a better ability at keeping track of money than shared respondents. However, the opposite relationship occurs with staying informed as shared respondents report higher ability at this compared to women-led respondents. The difference between women-led and men-led respondents is not statistically significant for keeping track of money and making ends meet. The difference occurs in terms of shopping around and staying informed where men-led report higher scores on these two variables compared to women-led.

<insert table 4>

The impact of household income

In Table 5, the analysis focuses on research question 3, which assesses the extent to which household income explains the variance in financial resilience, subjective financial knowledge, and financial capability observed between women-led and other households. In this analysis, we include only a dummy variable of women-led to compare these respondents to all others. We also use ANOVA and calculate the η_p^2 to assess the variance in these three dependent variables explained by the women-led dummy variable when income is excluded and included in the model. ANOVA is better suited to this analysis as household income is a categorical dependent variable.

<insert table 5>

In column 1 of Table 5, the influence of women-led on financial resilience is statistically significant and the η_p^2 is 0.0073 ($1.15 / (1.15 + 156.96)$). Thus, women-led explains about 0.73% of the variance in financial resilience. In column 2, the household income variable is also included in the analysis and this variable is statistically significant. When household income is included, the influence

of women-led is statistically significant but the η_p^2 is now 0.0036 ($0.54/(0.54 + 149.73)$) meaning that 0.36% of the variance in financial resilience is explained by women-led. In column 3, the women-led variable has a statistically significant relationship with subjective financial knowledge. The η_p^2 is 0.0143 ($21.18 / (21.18 + 1458.31)$) or 1.43%. When household income is included in column 4, the relationship between women-led and subjective financial knowledge remains significant but the η_p^2 drops to 0.0111 ($15.97/ (15.97 + 1425.01)$) or 1.11%. Column 5 shows the ANOVA analysis for financial capability. The influence of women-led is statistically significant in this analysis and the η_p^2 is 0.0022 ($2.16/(2.16 + 986.07)$) or 0.22%. Finally, column 6 shows the ANOVA when household income is included, the influence of women-led is no longer at a statistically significant level. The η_p^2 is 0.0008 ($0.78/(0.78 + 963.37)$) which shows that the women-led variable explains 0.08% of the variance in financial capability when household income is controlled for.

Overall, the ANOVA analysis shows that the women-led variable only explains a very modest amount of variance in financial resilience, subjective financial knowledge, and financial capability. Additionally, when household income is controlled for, the amount of variance explained by the women-led variable on financial resilience, subjective financial knowledge, and financial capability drops significantly. This is most dramatic for financial capability suggesting that having a lower household income is the main reason why women who have taken financial responsibility score lower in financial capability than men-led or shared financial responsibility.

Discussion

Our research focused on Canadian couples and drew distinctions differences women-led, men-led, and shared financial responsibility to ascertain differences between the financial circumstances and financial behaviors of these couples. Firstly, we find that in line with previous findings (Hanna et al., 2021), there were more couples where men assumed financial responsibility than women and shared responsibility. This occurs despite women doing more unpaid domestic and caring work on average. However, we also found that it was more common for the person who assumed financial responsibility to be earning more than their partner and this was most prevalent when men assumed

financial responsibility (Bertocchi et al., 2014). A factor that increased shared financial responsibility was when both members of a couple were working.

Our research investigated the plight of women-led households in comparison to men-led and shared responsibility households. Prior research found that single women and women in couples engaged in less financial behaviors in the United States of America (Wagnar & Walstad, 2023). We find that women-led couples in Canada find themselves in more dire financial circumstances than other couples. They have less household income, are more inclined to have a budget deficit, are less likely to pay off entire credit card balances monthly, and are less likely to meet financial commitments. Overall, our analysis portrays that the circumstances in which a woman assumes control of finances are more disadvantageous than other couples.

Our analysis also investigated the financial acumen of women-led households compared to men-led and shared responsibility. Again, the findings do not portray well for women who are solely financially responsible for the family. We see that these women report less financial resilience, less subjective financial knowledge than men-led or shared responsibility, and less financial capability than men-led. However, Lynch and Ward (2019) argued that the development of financial capabilities and knowledge occurs on a need-to-know basis where the person in the couple who is financially responsible will learn the needed financial skills and knowledge as financial issues present themselves. Accordingly, we would expect that women who have assumed financial responsibility would have learned financial capabilities due to this role. However, we also need to contend that there is a relationship between the financial circumstances of a couple and the financial acumen developed.

We addressed the question of whether the financial circumstances would explain the gender gap in financial resilience, subjective financial knowledge, and financial capability. We specifically focused on household income as our research showed that women-led families have less household income than men-led and shared couples. Also, a gender gap exists in Canada where women earn 12% less than men on average. Our analysis of variance showed that the inclusion of household income reduced the variance in financial resilience, subjective financial knowledge, and financial capability explained

by having a woman solely financially responsible in a couple. The most significant variable was financial capability, where being women-led was no longer statistically significant when household income was considered. The analysis suggests that household income is a key factor to consider when investigating the gender gap in personal finances; that having less income will endear women to have less apt financial behaviors and less financial capability, in particular.

Limitations

It is important to note some limitations in this research. Firstly, this research specifically addressed couples and excluded singles, and for this reason, it is not generalizable to the whole Canadian population. Also, the data uses cross-sectional data so cannot show how financial resilience, financial capability, and financial knowledge evolve over a length of time. Similarly, we are unable to assess the role that culture and other personal circumstances might have on financial decision-making and decisions around financial responsibility. We believe this would be a meaningful area for future research. The focus of our research is on the person responsible for meeting their ongoing financial commitments but there could be equally interesting research completed on those who make long term financial plans. This would be an interesting avenue for future research to pursue. Whilst we do control for age as a proxy for experience, it could be that the learned behaviors of women in charge of finances will continue to develop, and we do not directly include learning due to our data. Finally, the data is self-reported, and this means that concepts such as financial capability and financial knowledge may be prone to bias. This might be particularly true when gender stereotypes permit that finance is more of a masculine area and not a feminine area (von Hippel et al., 2015). However, prior research has demonstrated that capabilities can be self-reported and thus reliance within this scope can be placed on the outcomes of this research (Al-Janabi et al. 2013).

Implications for Practitioners

In the ever-evolving landscape of household dynamics, our research shows that households where women take the lead in financial decision-making often face worse financial outcomes. This

raises the question about the factors influencing financial resilience, capability, and knowledge within women-led households. Understanding these factors is crucial not only for grasping the complexities of gender roles in financial decision-making but also for informing policies that aim to enhance financial well-being across households.

Our research shows that women-led households face a unique set of challenges that significantly impact their financial outcomes, particularly the glaring income divide between men-led and women-led households. An implication for policymakers is that addressing gender differences in financial capability, financial knowledge, and financial behaviours should also involve changes in gender pay equity to improve women's income. Because women earn less on average, they find themselves in a precarious situation with limited financial resources. This scarcity not only hampers their ability to weather economic shocks but also restricts their ability to build financial acumen. It is important to note that controlling for household income reduces but does not eliminate the variance explained by women-led households in financial resilience and subjective financial knowledge. This implies that other unknown factors will be related to these concepts and could be pursued by further research.

An implication from our research for financial counselors and educators is the need for greater awareness of the challenges faced by women-led households. Our research shows that help should be focused on women-led households, as they often have worse financial situations. Financial counselors and educators should help improve the financial behaviours and financial capability of women to help address differences between households. However, attempts to improve the financial capability of women through more education, knowledge, and resources will have a limited impact if the cause is income-based. Financial counselors might need to offer strategies that take income differences into account, given that women-led households typically have fewer financial resources. These strategies could involve helping women improve their income as well as focus on financial problems that result from earning less income.

Systems that accommodate varied experiences over the life trajectory of individuals would make financial capability and financial resilience more inclusive of women and improve long-term outcomes for all. Agunsoye and James (2023) made several suggestions. First, flexible access to workplace pensions would allow women who face periods of financial uncertainty during motherhood to amend their contributions temporarily. Second, improving access to affordable childcare could assist in increasing pension savings. Finally, workplace pensions should not be contingent on the terms and conditions of employment as women do not generally follow typical career paths. By 'typical', we mean the masculine career path, where work life is uninterrupted. Empowering women economically requires dismantling existing barriers that hinder their earning potential. This entails addressing wage disparities, promoting equal opportunities in the workforce, and fostering an environment that encourages women to pursue high-paying careers. We invite stakeholders, policymakers, and advocates to assist in creating this equitable financial landscape. Transformative action is required to recognize the challenges women face and actively work towards a future in which financial empowerment knows no gender bounds.

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Table 1: Descriptive statistics on differences between women-led, men-led and shared financial responsibility

Variable	Women-led	Shared	Men-led	Total	Significant test
Number of respondents	601	704	844	2,149	N/A
Percentage in each age category					$\chi^2 = 22.54^*$
1: 18-24	0.67%	0.57%	0.36%	0.51%	
2: 25-34	14.64%	16.76%	13.39%	14.84%	
3: 35-44	17.14%	23.30%	20.14%	20.34%	
4: 45-54	24.62%	19.03%	21.21%	21.45%	
5: 55-64	22.46%	19.03%	19.08%	20.01%	
6: 65+	20.47%	21.31%	25.83%	22.85%	
Percentage of women	100%	37.5%	0%	40.25%	N/A
Percentage of rural living	23.29%	23.44%	18.96%	21.64%	$\chi^2 = 5.89^*$
Percentage born in Canada	81.20%	82.81%	76.18%	79.76%	$\chi^2 = 11.52^{***}$
Percentage in each education category					$\chi^2 = 15.60$
1: Less than high school					
2: High school diploma	2.16%	2.84%	2.73%	2.61%	
3: Some college or university without diploma	15.31%	12.07%	13.63%	13.59%	
4: College diploma or certificate	8.82%	10.80%	13.63%	11.35%	
5: University undergraduate degree	21.63%	20.45%	17.65%	19.68%	
6: University graduate degree	27.29%	25.99%	25.12%	26.01%	
	24.79%	27.84%	27.25%	26.76%	
Percentage of couples both working	71.21%	78.51%	68.04%	72.48%	$\chi^2 = 17.34^{***}$
Percentage in each household income category					$\chi^2 = 36.66^{**}$
1: Less than \$20,000 p.a.	0.83%	0.85%	0.24%	0.60%	
2: \$20,000 to less than \$40,000 p.a.	6.32%	2.70%	3.79%	4.14%	
3: \$40,000 to less than \$60,000 p.a.	10.32%	9.66%	9.00%	9.59%	
4: \$60,000 to less than \$80,000 p.a.	14.98%	10.80%	13.03%	12.84%	
5: \$80,000 to less than \$100,000 p.a.	14.81%	13.78%	12.56%	13.59%	
6: \$100,000 to less than \$150,000 p.a.	28.79%	30.26%	29.27%	29.46%	
7: \$150,000 to less than \$200,000 p.a.	15.64%	17.47%	16.47%	16.57%	
8: \$200,000 p.a. or more	8.32%	14.49%	15.64%	13.22%	
Percentage of respondents earning more than their partner	55.41%	58.66%	82.23%	67.01%	$\chi^2 = 147.18^{***}$
Percentage in each Household deficit category					$\chi^2 = 16.99^{**}$
1: Spending less than income	49.08%	58.81%	55.92%	54.96%	
2: Spending about equal to income	32.45%	29.12%	30.57%	30.62%	
3: Spending more than income	18.47%	12.07%	13.51%	14.43%	
Percentage of respondents paying off credit card balance	53.91%	60.37%	64.34%	60.12%	$\chi^2 = 15.94^{***}$
Percentage with financial resilience	87.69%	92.47%	93.60%	91.58%	$\chi^2 = 17.00^{***}$

Percentage of respondents in each subjective financial knowledge category	11.48%	11.65%	6.99%	9.77%	$\chi^2=61.23^{***}$
1: Not very knowledgeable	51.75%	44.74%	38.51%	44.25%	
2: Fairly knowledgeable	28.95%	32.39%	36.61%	33.09%	
3: Knowledgeable	7.82%	11.22%	17.89%	12.89%	
4: Very knowledgeable					
Mean financial capability	2.891	2.903	3.014	2.943	F= 7.44***
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. p.a. = per annum. F is the statistic from an ANOVA, χ^2 represents the chi squared test. Respondents reported making ongoing financial decisions for their family and reported their gender. We separated respondents into three groups: women-led, shared and men-led. Percentages are within each type of financial responsibility. 'Financial Capability' is derived from scores to questions on keeping track of money, making ends meet, shopping around for the best financial products, and staying informed on financial issues. The data is from the Canadian Financial Capability Survey in 2019. Survey weights were not applied so the data is not representative of the Canadian population. It is used to compare the three groups.					

Table 2: Probit analysis and ordered probit analysis showing difference between types of financial responsibility sharing in couples

	(1) Both working	(2) Household income	(3) Household deficit	(4) Paying off credit card balance
Women-led (base group)				
Shared	0.26** (2.91)	0.27*** (4.59)	-0.26*** (-3.93)	0.18* (2.41)
Men-led	-0.07 (-0.86)	0.30*** (5.41)	-0.18** (-2.92)	0.25*** (3.52)
Age. 1: 18-24 (base group)				
2: 25-34	0.46 (1.05)	0.80* (2.53)	-0.07 (-0.19)	0.23 (0.58)
3: 35-44	0.36 (0.83)	1.21*** (3.85)	0.03 (0.10)	0.27 (0.70)
4: 45-54	0.38 (0.87)	1.23*** (3.93)	0.11 (0.32)	0.24 (0.60)
5: 55-64	-0.38 (-0.86)	0.80* (2.55)	-0.19 (-0.54)	0.73 (1.84)
6: 65+	-0.89* (-2.01)	0.36 (1.16)	-0.19 (-0.53)	1.09** (2.76)
Rural	-0.22* (-2.55)	-0.31*** (-5.64)	0.12 (1.88)	-0.19** (-2.76)
Born in Canada	-0.17 (-1.88)	-0.14* (-2.43)	0.09 (1.34)	>-0.01 (-0.03)
Education level Less than high school (base group)				
2. High school diploma	-0.12 (-0.52)	0.29 (1.93)	-0.24 (-1.45)	0.02 (0.12)
3. Some college or university without diploma	-0.05 (-0.21)	0.47** (3.10)	-0.16 (-0.92)	-0.03 (-0.13)
4. College diploma or certificate	-0.02 (-0.11)	0.63*** (4.32)	-0.27 (-1.62)	0.09 (0.05)
5. University undergraduate degree	0.03 (0.16)	0.97*** (6.64)	-0.31 (-1.93)	0.35 (1.92)
6. University graduate degree	0.04 (0.16)	1.06*** (7.29)	-0.39* (-2.39)	0.45* (2.41)

Constant	0.94 (1.85)	- 7 cuts omitted	- 2 cuts omitted	-0.39 (-0.87)
<i>N</i>	1686	2149	2149	2149

t statistics in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Regression 1 is a probit model of the variable 'both working' which takes value of 1 when both couples are working and 0 otherwise. Regression 2 is an ordered probit model of household income which is broken into 7 categories where 1= Less than \$20,000 p.a., 2= \$20,000 to less than \$40,000 p.a., 3 = \$40,000 to less than \$60,000 p.a., 4 = \$60,000 to less than \$80,000 p.a., 5= \$80,000 to less than \$100,000 p.a., 6 = \$100,000 to less than \$150,000 p.a., 7 = \$150,000 to less than \$200,000 p.a., 8 = \$200,000 p.a. or more. Regression 3 is an ordered probit of household deficit which is the previous year's household income in relation to expenses and the categories are: spending less than income = 1, spending about equal to income = 2, spending more than income = 3. Regression 4 is a probit regression of the variable 'Paying off credit card balance' where 0 = Yes, I carried over and 1 = No, I always paid off in full. The control variables are age, rural or urban, born in Canada and education level these are outlined in the paper. The data is from the Canadian Financial Capability Survey in 2019 and survey weights were not applied.

Table 3: Probit, ordered probit and regression analysis showing differences in financial resilience, subjective financial knowledge and financial capability between three types of financial responsibility sharing in couples.

	(1)	(2)	(3)
	Financial resilience	Subjective Financial knowledge	Financial capability
Women-led (base group)			
Shared	0.29** (2.86)	0.12* (2.03)	0.014 (0.38)
Men-led	0.35*** (3.52)	0.43*** (7.32)	0.12** (3.26)
Age. 1: 18-24 (base group)			
2: 25-34	0.54 (1.29)	-0.17 (-0.53)	0.01 (0.05)
3: 35-44	0.68 (1.61)	-0.25 (-0.76)	0.01 (0.03)
4: 45-54	0.59 (1.41)	-0.31 (-0.94)	-0.02 (-0.08)
5: 55-64	1.02* (2.43)	-0.19 (-0.56)	0.16 (0.78)
6: 65+	1.32** (3.10)	-0.22 (-0.67)	0.20 (0.98)
Rural	-0.17 (-1.72)	-0.068 (-1.17)	-0.05 (-1.44)
Born in Canada	-0.20 (-1.84)	-0.15* (-2.46)	-0.07* (-2.02)
Education level Less than high school (base group)			

2. High school diploma	0.82*** (3.89)	0.22 (1.38)	0.23* (2.31)
3. Some college or university without diploma	0.95*** (4.31)	0.08 (0.49)	0.16 (1.63)
4. College diploma or certificate	0.84*** (4.13)	0.09 (0.56)	0.15 (1.51)
5. University undergraduate degree	1.25*** (6.04)	0.39** (2.58)	0.23* (2.42)
6. University graduate degree	1.30*** (6.20)	0.38* (2.52)	0.27** (2.77)
Constant	-0.20 (-0.42)	3 cuts omitted	2.76*** (11.78)
N	2149	2149	2149

Notes: *t* statistics in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Regression 1 is a probit analysis of the variable ‘financial resilience’ where respondents are asked if they could come up with \$2,000 and responses of “certainly could” and “probably could” = 1 and “probably could not” and “certainly could not” = 0. Regression 2 is an order probit analysis of the variable ‘subjective financial knowledge’ with “Very knowledgeable” = 4, “Knowledgeable” = 3, “Fairly knowledgeable” = 2 and “Not very knowledgeable” = 1. Regression 3 is an ordinary least squares regression of the variable ‘Financial Capability’ derived from scores to questions on keeping track of money, making ends meet, shopping around for the best financial products, and staying informed on financial issues. The control variables are age, rural, born in Canada and education level these are outlined in the paper. The data is from the Canadian Financial Capability Survey in 2019 and survey weights were not applied.

Table 4: Ordered probit analysis of the components of financial capability showing differences between three types of financial responsibility sharing in couples

	(1) Keeping track of money	(2) Making ends meet	(3) Shopping around	(4) Staying informed
Women-led (base group)				
Shared	-0.23*** (-3.74)	-0.02 (-0.37)	0.11 (1.91)	0.16** (2.63)
Men-led	>0.01 (0.06)	0.01 (0.12)	0.14* (2.43)	0.37*** (6.38)
Age. 1: 18-24 (base group)				
2: 25-34	-0.05 (-0.16)	-0.39 (-1.08)	0.34 (1.05)	0.05 (0.17)
3: 35-44	-0.03 (-0.09)	-0.41 (-1.13)	0.18 (0.55)	0.21 (0.65)
4: 45-54	-0.07 (-0.21)	-0.47 (-1.30)	0.22 (0.68)	0.16 (0.50)
5: 55-64	0.20 (0.58)	-0.19 (-0.51)	0.37 (1.14)	0.35 (1.06)
6: 65+	0.36 (1.06)	0.02 (0.06)	0.21 (0.66)	0.38 (1.15)
Rural	-0.01 (-0.24)	-0.07 (-1.21)	-0.09 (-1.54)	-0.09 (-1.52)
Born in Canada	-0.03 (-0.50)	-0.08 (-1.31)	-0.15* (-2.44)	-0.10 (-1.65)
Education level				
1. Less than high school (base group)				
2. High school diploma	0.28 (1.78)	0.30 (1.90)	0.26 (1.65)	0.27 (1.75)
3. Some college or university without diploma	0.21 (1.30)	0.28 (1.71)	0.17 (1.05)	0.14 (0.87)
4. College diploma or certificate	0.174 (1.11)	0.29 (1.86)	0.12 (0.78)	0.16 (1.04)
5. University undergraduate degree	0.31* (2.01)	0.45** (2.92)	0.13 (0.89)	0.27 (1.75)
6. University graduate degree	0.43** (2.78)	0.56*** (3.60)	0.09 (0.60)	0.27 (1.79)

	3 cuts omitted	3 cuts omitted	3 cuts omitted	3 cuts omitted
<i>N</i>	2149	2149	2149	2149

Notes: *t* statistics in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Each component of financial capability was measured on a scale that ranged from 1 “Very good” to 4 “Not very good” and is based on a measure developed by Atkinson et al (2007). We inversed responses so that a score of 4 equates to very good and a score of 1 equates to not very good. The control variables are age, rural, born in Canada and education level and these are outlined in the paper. The data is from the Canadian Financial Capability Survey in 2019 and survey weights were not applied.

Table 5: Analysis of variance of financial resilience, subjective financial knowledge and financial capability for women-led households and household income

	(1)	(2)	(3)	(4)	(5)	(6)
	FR	FR	FK	FK	FC	FC
Women-led	1.15*** (15.59)	.54** (7.73)	21.18*** (31.00)	15.97*** (23.85)	2.16* (4.68)	.78 (1.71)
Household income		7.24*** (14.69)		33.30*** (7.10)		22.70* (7.16)
Age	3.54*** (9.63)	5.46*** (15.50)	2.91 (0.85)	8.68* (2.59)	17.79*** (7.70)	26.15*** (11.55)
Rural	.23 (3.12)	.04 (0.61)	1.53 (2.24)	.37 (0.55)	1.14 (2.47)	.36 (0.79)
Born in Canada	.17 (2.24)	.08 (1.08)	3.13* (4.59)	2.13 (3.18)	1.56 (3.39)	1.03 (2.27)
Education level	4.52*** (12.24)	2.17*** (6.16)	23.88*** (6.99)	14.18*** (4.24)	6.58* (2.85)	4.02 (1.78)
Model	8.80*** (9.20)	16.03*** (11.39)	52.76*** (5.94)	86.06*** (6.43)	26.59*** (4.43)	49.29*** (5.44)
Residual	156.96	149.73	1458.31	1425.01	986.07	963.37
<i>N</i>	2149	2149	2149	2149	2149	2149
<i>Adjusted r2</i>	.05	.09	.03	.05	.02	.04

Table 5 reports partial sums of squares with F statistics in parenthesis. Significant * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, FR is financial resilience, FK is subjective financial knowledge and FC is financial capability. Household income is broken into 7 categories where 1= Less than \$20,000 p.a., 2= \$20,000 to less than \$40,000 p.a., 3 = \$40,000 to less than \$60,000 p.a., 4 = \$60,000 to less than \$80,000 p.a., 5= \$80,000 to less than \$100,000 p.a., 6 = \$100,000 to less than \$150,000 p.a., 7 = \$150,000 to less than \$200,000 p.a., 8 = \$200,000 p.a. or more. The control variables are age, rural, born in Canada and education level and these are outlined in the paper. Data is from the Canadian Financial Capability Survey in 2019 and survey weights were not applied.