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CENTRAL EUROPEAN UNIVERSITY

Gender gaps in financial knowledge, financial behavior and spending attitudes in Argentina: a quantitative analysis

By

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Submitted to

Central European University

Department of Public Policy

In partial fulfillment for the degree of Master in Public Policy

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Vienna, Austria

2024

Author's declaration

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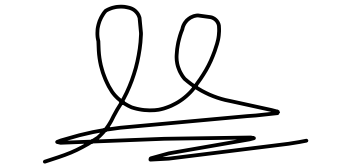

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Natalia Judith Esquenazi

Abstract

This thesis explores gender gaps in financial literacy in Argentina in 2017 through the lens of the theory of feminist economics, focusing on financial knowledge, financial behavior and spending attitudes. Using the 2017 CAF Financial Capabilities survey, this research implements a descriptive analysis and OLS models to investigate the effects of gender gaps in financial metrics in Argentina. The findings reveal that women in Argentina have lower levels of financial knowledge and exhibit worse financial behaviors compared to men. However, they are legit promoters of good spending attitudes within the family context. Low-income women with lower levels of education face the most substantial challenges. The policy recommendations include the implementation of targeted financial education programs to support women in becoming financial decision-makers and to promote their financial independence and economic empowerment.

Keywords: Financial knowledge, Financial behavior, Spending Attitude, Gender.

Acknowledgements

This thesis is a result of the one-year master's program in Public Policy at Central European University in Vienna, Austria. As a professional from a developing country, I have the lifetime commitment of contributing to the wellbeing of LAC countries. Studying abroad in a prestigious university not only has contributed to my professional career but also to a better prepared me to foster a brighter future of contemporary societies in my region.

I would like to thank the faculty and staff members from the Department of Public Policy of Central European University for their support and guidance throughout the academic year. In particular, I am especially grateful to my thesis supervisors, who provided theoretical, methodological, and analytical support from the beginning and engaged in further discussions. Your feedback and expertise were extremely valuable for my research.

To my fellow colleagues, even though we shared just a brief moment in life, I have no doubts that we have become lifelong friends. We discovered Vienna together, shared words during difficult times, and collected memories that are my most valuable treasures from this journey.

Last but not least, I want to thank my family in Argentina for their love, patience, and encouragement during my time in Vienna. To my parents for believing in me. All my achievements in life are a result of the excellent examples you have set in my life.

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Introduction

Gender equality has become one of the most relevant subjects in many public policy debates. Its importance has been reflected in the United Nations (UN) sustainable development goals, where emphasizes a global commitment in achieving gender equality and empower women and girls. Existing literature supports the statement that women play a key role in the economic development of a country (Mejía et al. 2023; Gunawan et al. 2021; Theodos et al. 2014; Farrell, Fry and Risse 2016; Goldsmith 2006; Soana 2016; Kennedy 2013; Espinoza-Delgado and Silber 2023). Therefore, they state that addressing gender inequalities contributes to increasing women's quality of life, reducing poverty, and facilitating economic growth. Gender inequalities can affect both developed and developing countries as well, and there are several dimensions to study its negative effects. From the wellbeing point of view, gender inequalities may reduce women's autonomy, independence, and empowerment. While from an instrumental approach, gender gaps may have negative effects on economic productivity, growth, and development.

After many years of research in gender inequalities, several gaps were identified in labor market participation, school enrollment, income level, household decision-making, health conditions, and more. However, one aspect of gender inequality that has received less attention from researchers and policymakers is financial literacy. The concept of financial literacy has been tested from different approaches and frameworks. However, one of the most convincing definitions is the multidimensional approach presented by the OECD (2012), who refers to financial literacy as "a combination of the awareness, knowledge, abilities, attitudes, and habits needed to make sound financial decisions and, ultimately, to achieve individual financial well-being". This definition uses the term financial literacy with a broader approach that contains dimensions and

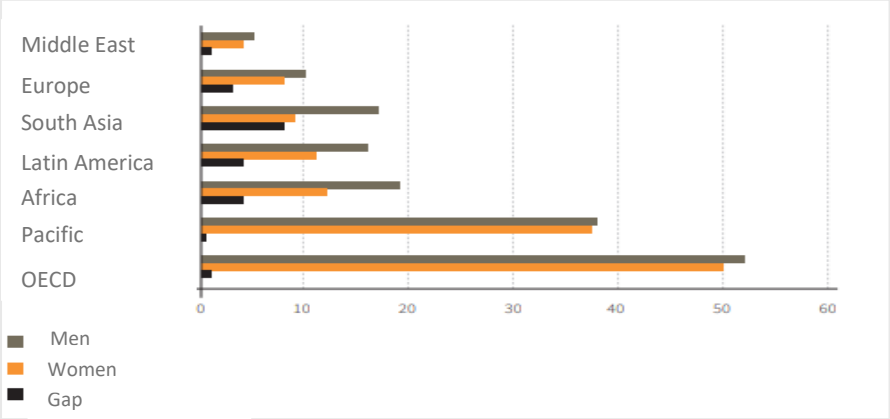
components that cannot be interchangeable. Three main dimensions are identifiable from the definition: financial knowledge, financial behavior, and financial attitude.

The term financial literacy is originally rooted in the mid-20th century, and in recent years has gained more importance. The emergence of sophisticated financial markets, increase in credit availability, followed by economic challenges are some factors that have led to a greater recognition of the importance of financial literacy to make informed decisions among governments, organizations, and individuals (Choudhary and Jain 2023:1). However, it was not until the beginning of the year 2000, that financial literacy become a priority in the economic development field. Its growing relevance led to the integration of financial literacy as a common objective among governments, policymakers, international organizations, banking institutions, and more. During these years, the empirical evidence increased significantly to explain the importance of financial literacy in improving people's quality of life, poverty reduction, and promoting of economic development (Mejía et al. 2023).

Not all groups in society are equally likely to become financially literate. Women's have been part of historically disadvantaged groups, who have less job opportunities, lower salaries and greater poverty rate compared to men. According to the International Labor Organization (ILO), less than half of economically active women participate in the labor market, compared to 75% of economically active men. As a result, women must dedicate more time and effort to improve their financial well-being compared to men. Considering the existing inequalities, the literature on financial literacy highlights that women are less financially literate than men (Giachero and Emiliani 2021).

As far as Latin America and Caribbean (LAC) is concerned, a study from the Organization for Economic Co-operation and Development (OECD), Development Bank of Latin America and Caribbean (CAF) and the Economic Commission for Latin America (ECLA) estimate that less than 30% of the region is considered financially knowledgeable. This rate is comparable to that of the least advanced regions in this regard. For instance, with regards to financial behavior the World Bank (2018) indicates that over the last 30 years, the savings rate in LAC has been below 18% of the gross domestic product (GDP), which is lower than that of more advanced economies in Europe, which reported 21%, and significantly lower than Asian emerging economies that registered 35%. Women in LAC countries exhibit low levels of wise financial behaviors. According to the World Bank (2018), there is a significant savings rate gap, with a difference of 5 percentage points between women and men (Figure 1). This means that women have a 30% lower probability of saving money in a formal institution compared to men. These challenges are certainly linked to macroeconomic and structural problems that limit progress towards a more equitable society.

Figure 1: People who save money in the formal banking system (%)



Source: Obtained from World Bank (2018, cited in Azar, Lara, and Mejía 2018)

Overall, Argentina registers a lower percentage of financial literacy compared to the G20 countries' average, and the Financial Education Index in financial knowledge, behaviors, and

attitudes positions Argentina in 37th place out of 39 countries with 11,5 points (López-Lapo et al. 2022:14). In this context, a study conducted by CAF in 2020 revealed that less than 26% of women decided to save money during the last year, and more than half of those who saved money did so outside of the formal financial system (CAF 2020). Even though there are several macroeconomic and structural problems in Argentina, it is important to highlight that one of the biggest reasons of the gaps in women's financial literacy is their elevated levels of participation in the informal labor market compared to men. In 2019, the Argentine bureau of statistics estimated that 34,2% of women work in the informal sector, meaning that they are exposed to low salaries, economic instability, and lack of social protection (INDEC 2019). Women participation in the informal economy is a threat not only to exacerbate gender inequalities, but also to create greater barriers in increasing their financial literacy and economic wellbeing.

I do not intend to suggest that increasing women's financial literacy will eliminate all gender inequalities. Instead, I support the existing literature who says that financial literacy is a mechanism to achieve greater empowerment, reduce inequalities, and facilitate economic wellbeing among women and girls (Gunawan et al. 2021:65). In recent years, the literature about financial literacy and gender inequalities has increased significantly. The most common approach among researchers has been to explore financial literacy using just one of its dimensions: financial knowledge. In other words, gender gaps have been explored only in financial knowledge, ignoring other important dimensions. This thesis proposes a different approach and supports a multidimensional understanding of financial literacy. Consequently, this analysis intends to incorporate additional dimensions to the policy debate such as financial behavior and financial attitude. Therefore, this thesis aims to explore how gender contribute to the variance in financial knowledge, attitudes, and behaviors in Argentina.

Most studies about women's financial literacy have been conducted by analyzing data from developed countries. In contrast, developing countries face a lack of quantitative studies that explore this issue, one of the main reasons is the difficulty to find data sources about financial literacy and its dimensions. This thesis aims to add quantitative insights to the policy debate of gender gaps in financial literacy in developing countries. In 2017, CAF was a pioneer in the LAC region in developing and implementing a Financial Capabilities survey in several countries, including Argentina, Paraguay, Ecuador, and Chile. The initiative encouraged many governments in the LAC region to invest in developing additional data collection methods about financial literacy, but that was not the case for Argentina. Thus, the 2017 CAF survey is the first and only data collection method about financial literacy implemented until today. Among other objectives, this thesis findings expect to also advocate for further investment in data collection methods about financial literacy in Argentina.

A quantitative analysis is conducted using the 2017 CAF Financial Capabilities survey in Argentina as the primary data source. The analysis includes a descriptive examination and data visualizations to explore how gender and other determinants are associated with financial knowledge, financial behavior, and financial attitude. Additionally, ordinary least squares (OLS) multiple regressions are implemented to estimate these relationships, with financial knowledge, financial behavior, and financial attitude as the outcome variables and gender as the main independent variable. Control variables such as income, education level, age, and region, and interaction and polynomial terms, are incorporated to increase the robustness of the estimations.

The thesis structure is as follows: Chapter 1 contains an extensive literature review of financial literacy and its dimensions: financial knowledge, financial behavior, and financial attitude. In addition, there is a presentation of different authors who studied gender differences in finance,

followed by an examination of the theory of feminist economics and its application to this analysis. Chapter 2 contains the research design where I explain the context and methodology of the 2017 CAF Financial Capabilities survey. Subsequently, I describe the procedure implemented to build the outcome variables, including how I used factor analysis to construct the variable spending attitude. The chapter also includes arguments for using an OLS multiple regression method. Chapter 3 is the discussion of results where I present a descriptive analysis and OLS models' interpretations for each outcome variable. Also, there is an exhibition of several robustness tests to check the model's explanatory power and level of unbiasedness. I will also include policy implications and research limitations. Finally, in conclusion I will present further policy discussions and recommendations.

Chapter 1: Literature Review

In this section, I will describe and compare concepts of financial literacy. There will be a particular explanation of the multidimensional approach to study financial literacy, and the definitions of its components: financial knowledge, financial behavior, and financial attitude. Subsequently, I will examine investigations about gender differences in financial literacy components and explain education and age as other determinants of financial metrics. Later, I will use the theory of feminist economist lens to prioritize a comprehensive approach while studying women's financial literacy in Argentina.

1.1 Definitions and conceptual framework

To date, the definition of financial literacy is highly debated in academia. Al-Tamimi and Kalli (2009) represent a group of authors who define financial literacy as financial knowledge and argue the terms can be used interchangeably. In contrast, another group of authors, such as Hung, Yoong, and Brown (2012), Bhargava et al. (2022) and Andarsari and Ningtyas (2019) argue that financial literacy has a broader and more complex meaning than other financial concepts and contains more dimensions rather than just financial knowledge. Indeed, they state that financial literacy is a combination of financial knowledge, financial behavior, and financial attitudes. The OECD supports the second group of authors and states that financial literacy has a multidimensional concept. They define financial literacy as "a combination of awareness, knowledge, skill, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing." (OECD 2012:8). This definition indicates that there are many relevant aspects connected to financial literacy such as cognitive capacity, type of personality, preferences, and even personal motivation. In addition, Bhargava et al. (2022) argue that financial

literacy refers to the ability of using financial information and skills with the objective of executing advantageous financial behavior while maintaining a positive attitude. Following this, the multidimensional approach offers a more comprehensive understanding of financial literacy and includes practical implications besides understanding basic financial concepts and terms. Thus, this thesis uses a multidimensional concept of financial literacy, which refers to three main dimensions: financial knowledge, financial behavior, and financial attitudes.

Financial knowledge is associated with the capacity to manage economic resources efficiently. The presented definitions not only associate financial knowledge with the possibility of gaining a basic understanding of financial services and products, but also highlight the opportunity of developing the abilities to make better choices regarding savings, investments, and debt. Hung, Yoong, and Brown (2012:8) argue that "financial knowledge includes the process by which financial consumers/investors improve their understanding of financial products, concepts and risks and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being". Even the inclusion of knowing where to seek help in the definition of financial knowledge is important, as it considers passing concepts and experiences to family members and peers. In addition, Bhargava et al. (2022) highlight that financial knowledge is the application of an analytical comprehension of financial products and services in day-to-day life to become financially capable and boost their financial competences. Rai, Dua, and Yadav (2019) examine experiments that have been carried out to measure an individual's financial knowledge, in most surveys there are questions about budget plans, risk diversification, inflation, and numerical

abilities. Following this, the authors support the statement that individuals with higher financial knowledge can efficiently manage their resources and, therefore, are more financially literate.

The practical application of financial knowledge matters as much as understanding financial concepts to positively impact individual's economic well-being. Researchers such as Rai, Dua, and Yadav (2019) and Bhargava et al. (2022) argue that financial behavior refers to any human behavior that is related to money decision-making. In addition, Andarsari and Ningtyas (2019) state that financial behavior indicates a personal responsibility regarding the way of managing resources. For instance, individuals can demonstrate effective financial management by developing a budget plan, prioritizing needs, and assessing prior purchases. Budgeting is the explicit demonstration of financial behavior and ensures that individuals can administer their income and obligations punctually (Andarsari and Ningtyas 2019:26). The definitions show that actions and knowledge matter in finance, and the practical use of individuals' abilities can lead to better financial outcomes.

Research into financial behavior and financial wellbeing finds that individuals with better financial behaviors are less likely to have money problems. According to Atkinson and Messy (2012, quoted in Rai, Dua, and Yadav 2019) a better financial behavior can lead to a long-term financial stability, whereas negative financial behavior weakens people's financial wellbeing. Andarsari and Ningtyas (2019) also support the idea that improving financial behaviors leads to a more balanced consumer spending and contributes to economic stability. Based on the exposed arguments, the possibility of developing a budget plan for daily expenses and saving a proportion of income demonstrates relevance for personal economic preparedness as well as for economic stability.

Financial attitude is the only component of financial literacy that captures intangible aspects in financial matters. The definition accepted in academia is that financial attitude refers to a personal inclination and interest in financial matters (Rai, Dua, and Yadav 2019:53). Financial attitude also consists of people's economic and non-economic beliefs, including attitudes towards saving overspending, risk aversion, financial system trust, self-confidence, ethical considerations, and personal values. Lusardi and Mitchell (2011, quoted in Andarsari and Ningtyas 2019) add that financial literacy should not be limited merely to financial knowledge and behavior, because it also involves attitudes to do something. The authors highlight that there are some limits in financial attitude, for instance, overconfidence is not a good symptom because it represents an overestimation of their knowledge which can lead to an underestimation of risky financial attitudes. Thus, understanding financial attitudes is as relevant as financial knowledge and behavior to enhancing an individual's performance in financial decision making.

Based on the literature exposed in this analysis, it is possible to affirm that financial knowledge, financial behavior, and financial attitudes are certainly connected. Behaviors such as the way a person administrates his money might influence positively or negatively financial attitudes. Bhargava et al. (2022) state that routine actions can shape financial attitudes which are, also, directly influenced by financial knowledge. Indeed, a combination of informed financial decisions, positive financial attitudes and good money management strategies may enhance financial decision-making power and economic wellbeing (Rai, Dua, and Yadav 2019:53). This thesis relays on this multidimensional approach to have a comprehensive understanding of financial metrics and their contribution to financial health and stability.

1.2 Gender differences in financial literacy

Gender inequalities have received less attention in financial literacy than in other areas. However, it should not be ignored that gender plays a significant role in financial literacy. Hung, Yoong, and Brown (2012) argue that in OECD countries women show lower financial literacy levels than men. The authors point out that there are several unintended consequences as a result of financial literacy disparities between women and men. For instance, in economies where there is a predominance of informal home-based enterprises run by women and childcare responsibilities, low levels of female financial literacy can be an impediment to their efficient participation in the formal labor market. In addition, financial literacy disparities can affect women's household decision-making power and lead to an allocation of resources that is not favorable for the family wellbeing. Moreover, the lack of an intergenerational transmission of financial learnings, behaviors and attitudes has facilitated the existing gaps (Hung, Yoong, and Brown 2012:10). Thus, addressing the gap in financial literacy is not only essential to enhance women's decision-making power but also to promote greater social equity in society. Interventions aimed at closing this gap must be focused on education and ensuring an intergenerational transmission of financial skills.

In recent years, the role of women in the economic development of countries has become more relevant, and with that, there has been a recognition of the importance of promoting wiser money management. Initially, the literature has explored in depth the existing gender gaps in financial knowledge. A research study by Theodos et al. (2014) found that in the U.S. women are less financially knowledgeable than men. They argue that, in general, women have lower employment rates and lower earnings, and their labor market outcomes can lead to differences in financial knowledge and, consequently, influence their financial health and wellbeing. The authors analyze the American Life Panel (ALP) survey to estimate women financial knowledge, and the

main findings suggest that women skills are associated with their financial tasks in the family (Theodos et al. 2014:2). For instance, women have greater knowledge with regards to paying bills and making short-term spending or savings plans, while men are more involved in paying taxes, tracking investments, and making long-term spending or saving plans. This complicated scenario is mostly observed among unmarried women with dependent children (Theodos et al. 2014:5). To put it differently, the literature highlights the contribution of socio-economic factors to gender disparities in financial knowledge. While women demonstrate competences in managing daily financial tasks, the financial knowledge related to long-term spending or investment lags behind men. This reveals a complicated picture in which there is a need for a targeted financial education policy that considers distinct roles and responsibilities taken by women and men within the family.

Financial knowledge alone does not ensure women financial welling. The contribution of financial behavior is also relevant to making good use of financial products and services. Subsequently, many authors have attempted to determine if women and men exhibit different financial behaviors. According to Lind et al. (2020, quoted in Gunawan et al. 2021), women that have the possibility to pursue a career with an independent income tend to have more prudent financial behaviors than men. Theodos et al. (2014) also analyze financial behaviors by differentiating women's characteristics. For instance, married and unmarried women exhibit different financial behaviors. Using financial behaviors towards credit cards, the authors explain that unmarried women with dependent children are less likely to pay their credit card in full, while married women are more likely to pay the full amount on time (Theodos et al. 2014:3). Once again, unmarried women with dependent children exhibit a most disadvantaged position.

Other examples of gender gaps can be driven from savings behaviors. Women commonly report spending more than they should and admitted that these spending habits create financial

constrains in their lives (Goldsmith 2006:57). Farrell, Fry, and Risse (2016), analyzed 1,542 Australian women and discovered that healthy financial behaviors can enhance their financial security and financial outcomes in the future, while the accumulation of unplanned expenditures and credit cards are indicators of major complications in money management and capacity to plan ahead. The evidence is consistent in indicating that certain actions such as budgeting, savings and control over expenditures are indicators of a reasonable financial behavior, which results in better financial outcomes for women.

Understanding that women's financial attitude is as relevant as financial knowledge and behavior for developing financial literacy policies is fundamental for policymakers. Following this, women's financial literacy is not merely based on their financial understanding and behavior, rather it has to do with financial attitudes. Lusardi and Mitchell (2011, quoted in Andarsari and Ningtyas 2019) conducted a survey to measure financial attitudes and they found that women score lower than men when there is an option "I don't know". However, when "I don't know" is not among the available choices, women score equally to men. This reveals that women self- confidence is a critical component of financial attitude and literacy.

Investigations indicate significant gender differences in financial attitudes, highlighting distinct challenges faced by women in money management. Hira and Mugenda (2000, quoted in in Goldsmith 2006) state that women and men behave and feel differently about money management. They conducted an adult study and found that there are major differences in the way women and men perceive financial issues, additionally women are more likely to be dissatisfied with their financial capabilities. Webster, and Ellis (1996, quoted in Goldsmith 2006) show that women are less confident in their ability to conduct financial analysis compared to men. For instance, in trading, men are more confident than women, leading them to trade more frequently. Other examples can

be driven from financial risk aversion, a field in which women report being less willing to take financial risks and invest in more conservatively way than men (Theodos et al. 2014:3).

The exposed arguments reveal the importance of education in personal finances to encourage women to use information effectively and become more confident about money management and decision-making when using financial services and products. This can be a beneficial improvement not only women but also for economic development.

1.2.1 Other determinants of gender differences in financial literacy

Studies dealing with the determinants of gender inequalities in financial knowledge, financial behavior and financial attitudes have shown relationships with additional relevant factors such as education and age. One of the most significant factors highlighted by the literature is education level. García et al. (2013:30) study financial inclusion in LAC countries and present evidence of the relationship between income, education level and the access to financial products and services. Indeed, they show that as income and education level increases, financial inclusion also goes up. In addition, Azar, Lara, and Mejía (2018:27) found evidence that women with higher levels of education are more likely to have greater financial decision-making power and economic empowerment. Another factor studied with financial knowledge, financial behavior and financial attitudes is age. The OECD (2020:58) says that women have "particular financial literacy needs, notably because they tend to live longer and earn less than men," so are more likely to experience financial difficulties in old age.

1.3 Theoretical framework

The theory of feminist economics is a valuable framework for analyzing women's financial literacy, emphasizing the importance of gender division of labor, unpaid work, and time-burden in shaping financial literacy dimensions. This subsection lays the groundwork for understanding the multifaceted nature of financial literacy and sets the stage for investigating the specific determinants affecting women's financial literacy in subsequent chapters.

The theoretical framework that contributes the most to a further understanding of gender differences in financial metrics in Argentina is the theory of feminist economics. The theory criticizes orthodox economic theories who claim to be gender neutral. Sweetman (2018, quoted in Sethi 2011) state that orthodox economics are focused on productivity, market efficiency and equality of opportunities, while they ignore the different inputs that women and men make to the economy. Berik et.al. (2009:5) argue that "is important to consider equality of outcomes alongside equality of opportunities, due to the fact that systemic inequality in outcomes contributes to unequal power and, as a result, unequal opportunities." Following this, the theory supports a broader understanding of women's role in both the economy and society.

The contribution of the theory of feminist economics is linked to a recognition of the role of women´s in economic development. The theory underscores the existence of women´s unpaid work and women's time-burden and proposes a further analysis of gender divisions of labor to understand why women are confined to domestic duties and reproductive work while men are mostly associated with paid and productive work (Sethi 2011:2). The feminization of domestic work, be it unpaid or paid, is undervalued in many societies. However, the feminist economics theory argue that it contributes significantly to the economy (Sethi 2011:2). This perspective offers

a more comprehensive understanding of how gender differences can shape the level of financial knowledge, healthy financial behaviors and good financial attitudes considering women´s dual role in both paid and unpaid labor.

Intersectionality is another contribution of the theory of feminist economics. The theory acknowledges that gender interacts with other social categories such as age, education level and marital status. For instance, Sethi highlights that "due to the universal perception of the male-breadwinner, the contribution women make to their households is perceived by many to be insignificant. This perpetuates inequality between women and men, because it fundamentally weakens women's bargaining power in marriage and the family" (2011:3). Indeed, the author describes a process of minimization or women´s position in the labor force as their wage is not perceived as high enough to positively contribute to household income. This comprehensive approach is essential for understanding the diverse experiences of women in financial contexts and how multiple layers of disadvantage affect their financial knowledge, behavior, and attitude.

In this literature review chapter, I supported a multidimensional approach of financial literacy to better explore its components and the relationship with gender. The discussion delved into the importance of higher financial knowledge, healthy behaviors and good financial attitudes to achieve financial wellbeing. However, as I mention, not everyone is equally likely to have a good performance in financial metrics. The literature showed that women face several disadvantages in increasing their financial literacy either for their marital status, employment situation or earnings. Finally, the theory of feminist economics offered a comprehensive approach to understand gender inequalities in financial literacy by a recognition of women's dual role in paid and unpaid jobs and their relevance in economic development.

Chapter 2: Research design

This chapter contains a detailed explanation of the research question and hypothesis, followed by a description of the data source selected for the study: the 2017 CAF Financial Capabilities survey in Argentina. Subsequently, there is a description of the survey questions used to build the outcome variables, which are dimensions of financial literacy: financial knowledge, financial attitude, and financial behavior. This is followed by an explanation of the mechanisms implemented to build each variable, including aggregation (summing) for financial knowledge and financial behavior, and factor analysis for financial attitude. Later, I will explain the methodological strategy and the quantitative approach selected to obtain the estimations. This includes an implementation of descriptive analysis, multiple regressions, and robustness checks.

2.1 Research question and hypothesis

This thesis attempts to answer the following research question: How do gender gaps influence financial knowledge, financial behavior, and financial attitude in Argentina? Therefore, I would like to mention that the main hypothesis that this study will test, using a quantitative methodology, are **Ho1** that establishes that there are significant gender gaps negatively affecting financial knowledge, financial behavior, and financial attitude, and **Ho2** that indicates that low-income women are disproportionally impacted by gender gaps in financial knowledge, financial behavior and financial attitude.

2.2 Data source

This thesis uses the 2017 CAF Financial Capabilities survey in Argentina as the main data source for the analysis. CAF is an international banking organization with a long history of working

in the LAC region. The organization is committed to improve the quality of life of people living in the LAC region, the partnerships with LAC governments have been focused on fostering sustainable development, promoting regional integration, and facilitating the economic and social revitalization of the region. As its main area of work, CAF is focused on providing financial assistance to both public and private sectors in LAC and enhancing knowledge development to improve public policies across the region.

CAF is an organization with huge prestige and presence in Argentina. In the past, they have provided economic assistance and financial advice to the Argentine government. In 2017, Argentina was going through a period of economic growth, followed by a reduction in poverty rate and unemployment levels. In this context, the Argentine Central Bank was concerned about the traditional financial system and wanted to expand the access and use of financial services and products among the population. They also wanted to promote an increase in citizens' financial knowledge, including creating incentives for saving and facilitating greater interactions with the formal financial system.

To address these concerns, CAF, in partnership with the Argentine Central Bank, designed, developed, and implemented a survey about financial capabilities in Argentina. The survey's main objective is to identify the level of knowledge, skills, attitudes, habits, and behaviors among citizens regarding financial topics. In addition, the methodology implemented follows the OECD International Network of Financial Education framework.

The survey has 1,185 responses from women and men older than 18 years old. The OECD methodology guarantees diversity of socioeconomic levels, regions, and rural/urban areas among respondents. The distribution of the sample in the regions was proportional to the population size, but with greater representation in those areas with higher population density. The sample was

selected through a probabilistic method to ensure balance among gender, age, and income level. The design and sample size allow us to make estimations with a +/-2,8% of error and 95% of confidence level.

The 2017 CAF Financial Capabilities survey is dated from 2017, which represents a significant year's gap in this study. In recent years, Argentina enhanced the efforts in promoting open data sources, including surveys and administrative records, to increase transparency and facilitate knowledge development. However, there is a lack of publicly available resources in financial literacy. The 2017 CAF Financial Capabilities survey is the first and only available resource, as no additional surveys have been published since then.

2.3 Variables construction

There are three main outcome variables in this thesis: financial knowledge, financial attitude, and financial behavior. The survey questionnaire has sections and questions that refer to each outcome variable (Table 1). The first outcome variable is financial knowledge, which was built using six questions and measures respondents' high-level understanding of financial services and products. The second outcome variable is financial behavior and was built using a combination of five questions about budgeting, saving, and financial products used by respondents. The last outcome variable is financial attitude, contains a combination of eight questions referring to respondents worries about the future, level of control over personal finances, and more.

Table 1: Variables description

Financial Knowledge	1 Imagine that five siblings receive a gift/inheritance of $1,000,000 (1 million pesos). If the siblings share the money equally, how much does each receive? 2 Now imagine that the siblings must wait a year to withdraw their share of the one million pesos from the safe, and the inflation rate remains at 3 percent annually. After a year, will they be able to buy...? 3 Imagine that you lent $500 to a friend one night and he returned the $500 to you the next day. Did your friend pay any interest on this loan? 4 Suppose you put $100,000 in a savings account with an interest rate of 2 percent per year. You make no other deposits into this account and do not withdraw any money. How much would be in the account at the end of the first year once the interest is paid? 5 And with the same interest rate of 2 percent, how much money would be in the account at the end of five years? (excluding fees and taxes) It would be... 6 I would like to know if you think the following questions statements are true or false: • It is likely that an investment with higher returns is high risk • High inflation means that the cost of living is rising rapidly • It is less likely that you will lose all your money
Financial Behavior	1 Does your family regularly make advance calculations of future income and expenses to organize household purchases and savings? 2 Does your family use this budget to make an exact plan for the use of money or to make a very general plan for the use of money? 3 How often do you meet the budget? 4 In the last 12 months, have you been saving money or not (whether you still have the money or not)? 5 Can you tell me if you currently have any of these financial products?
Financial Attitude	1 Before buying something I carefully consider whether I can afford it. 2 I prefer to live the day and not worry about tomorrow. 3 I would rather spend money than save for the future. 4 I pay my bills on time. 5 I am willing to risk some of my own money when I make an investment. 6 I personally monitor my financial issues. 7 I set long-term savings goals and strive to achieve them. 8 The money is there to be spent.

Source: Author's own elaboration

2.4 Methodological strategy

In the following subsections I describe the construction of the outcome variables and how I implemented factor analysis to measure financial attitude. Subsequently, I explain multiple linear regression and robustness checks as a method to achieve unbiased estimations.

2.4.1 Variables construction and factor analysis

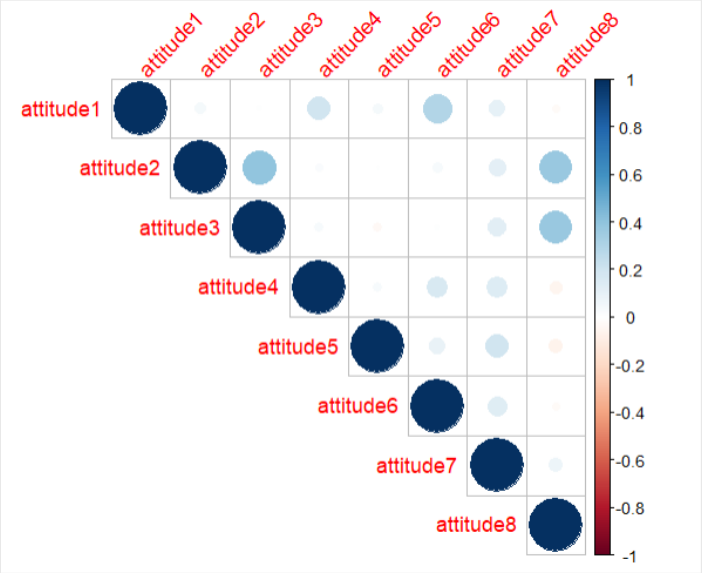
As mentioned above, three outcome variables are built to estimate gender and socioeconomic gaps in financial literacy. Financial knowledge is measured by aggregating (summing) the responses to six questions, each with a unique correct answer. Respondents receive one point for each correct answer and zero points for incorrect answers. This provides a general measure of financial knowledge for each respondent.

Financial behavior is measured similarly. This outcome variable is constructed by aggregating (summing) the responses to five questions about saving, budgeting, and financial product usage. For instance, respondents receive one point if they regularly make calculations of future income and expenses, and zero points if they do not. This provides an overall measure of financial behavior.

Financial attitude is the only variable that meets the criteria to conduct factor analysis. By using factor analysis, a feature extraction method, it is expected to eliminate the correlation between the questions and find the most representative factor. Factor analysis has four main assumptions: the factors are centered, the covariance and factors are independent, factors are randomly distributed, and factors and the errors are independent (Lawley and Maxwell 1962:209).

Initially, the correlation plot shows values lower than 0.5 (Figure 2). However, it is possible to identify moderately correlated questions such as question 2 and question 8 (38%), question 2 and question 3 (40%), and question 3 and question 8 (37%). Based on the description in table 1, it is possible to group these related questions under the name spending attitude. The low correlation values also indicate a lack of consistency of respondent's answers across financial attitude questions.

Figure 2: Financial attitude correlation plot (%)



Source: Author's own elaboration

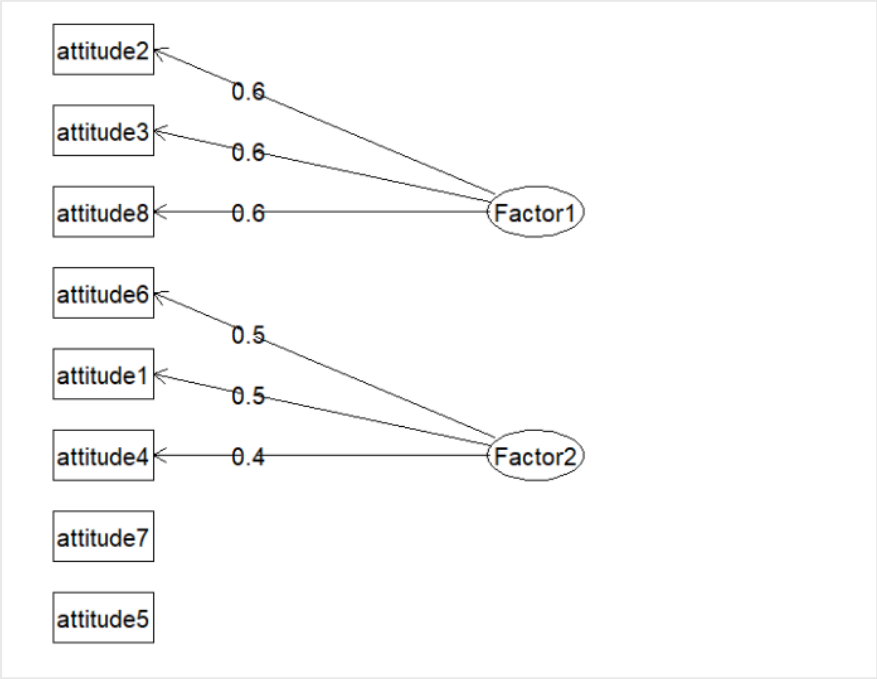
Factor analysis is implemented to address collinearity issues, and result in uncorrelated factors. The eigenvalue decomposition test determined that the optimal number of factors to consider is two. Factor loadings show the weights that determine how each factor affects each attribute. By explaining the loading matrix (Table 2), it can be seen that question 2 (63%), question 3 (62%), and question 8 (60%) contribute a lot to factor 1, so do question 1 (50%), question 4 (36%), and question 6 (52%) to factor 2. Factor 1 contains the loadings with higher values, while in factor 2 the loadings are significantly lower and, therefore, do not add additional information (Figure 3). Thus, it is possible to conclude factor 1 groups the most meaningful questions to create the variable financial attitude.

Table 2: Financial attitude factor loadings matrix (%)

Questions	uniqueness	Factor 1	Factor 2
attitude1	0.7498891	0.007	0.5
attitude2	0.5979158	0.63	0.072
attitude3	0.6091424	0.625	0.028
attitude4	0.8692445	0.001	0.362
attitude5	0.9624818	-0.038	0.19
attitude6	0.7233953	0.005	0.526
attitude7	0.8891742	0.159	0.293
attitude8	0.6306568	0.603	-0.079

Source: Author's own elaboration

Figure 3: Financial attitude factor loadings plot (%)



Source: Author's own elaboration

2.4.2 Multiple linear regression

The model selected to find meaningful insights about gender and socioeconomic gaps in financial knowledge, financial behavior, and spending attitude in Argentina, is multiple linear regression. Multiple regression is a model based on a linearity assumption and intends to fit a linear equation to the observed data. The regression line is the best linear approximation to the true relationship between the dependent (Y) and independent variables (X) (James et al., 2015:63). Following this, a change in the dependent variable is proportional to the change in the independent variables.

The most common method to estimate a linear regression model is ordinary least squares (OLS), which minimizes the sum of the squared differences between the observed and predicted values. OLS has three main assumptions: the conditional mean of residuals should be zero, the observations are identically and independently distributed, and there should not be large outliers. Complying with these assumptions is important to avoid biased estimations. In addition, multiple regression is a helpful model to address omitted variable biases, which violates the first OLS assumption.

In this case, there are three dependent variables (financial knowledge, financial behavior, and spending attitude), and the independent variables consists of gender and other co-variables such as income, education level, and age. Initially, the linear equations can be written as follows:

$$FinancialKnowledge = \beta 0 + \beta 1\, x\, gender + \beta 2\, x\, income + \beta 3\, x\, age + \beta 4\, x\, education + \varepsilon$$

$$FinancialBehaviour = \beta 0 + \beta 1\, x\, gender + \beta 2\, x\, income + \beta 3\, x\, age + \beta 4\, x\, education + \varepsilon$$

$$SpendingAttitude = \beta 0 + \beta 1\, x\, gender + \beta 2\, x\, income + \beta 3\, x\, age + \beta 4\, x\, education + \varepsilon$$

In addition, there is an analysis of model's explanatory power. I will implement several strategies such as using interaction terms and polynomials to increase the percentage of variability of the outcome variable that is explained by the predictors.

This study prioritizes finding unbiased, robust, and comparable estimations. On one side, a standardization process is implemented to guarantee comparability across outcomes, and to contrast the magnitude of gender gaps across financial metrics. On another side, robustness checks such as large outliers, heteroscedasticity and multicollinearity are tested.

In summary, the research design is focused on explaining the analytical set up implemented in this thesis to find meaningful and consistent estimations. A detailed description of the 2017 CAF Financial Capabilities Survey is provided, including its limitations regarding the year gap. In addition, I have detailed the process of constructing the key outcome variables: financial knowledge, spending attitude, and financial behavior. Financial knowledge and financial behavior are built through aggregation of specific survey questions, while spending attitude uses factor analysis. Subsequently, I explained the methodological strategy adopted in this study which includes descriptive analysis, multiple linear regressions, and various robustness checks. The quantitative strategy allows for the control of confounding variables, ensuring that the estimations are both unbiased and comparable.

Chapter 3: Findings and discussion of results

In this chapter, I will present findings and interpretations about the relationship between the outcome variables financial knowledge, financial behavior and spending attitude, and the independent variable gender, by using the 2017 CAF Financial Capabilities survey in Argentina. Firstly, I will implement a descriptive and data visualization analysis to show high-level insights about the above relationship. Later, I will present multiple linear regression coefficients and proper interpretations. Then, there is a section to discuss models' efficiency and robustness. The application of quantitative methodology will be helpful to test the presented hypothesis in previous sections. Finally, I will present policy discussions based on the findings.

3.1 Descriptive analysis

The initial descriptive statistics intends to set up the foundations for enabling a more rigorous statistical analysis in subsequent subsections. First, Table 3 provides an important summary of quantitative variables. Before the standardization, financial knowledge, financial behavior, and spending attitude show a high standard deviation (1.59, 1.94, and 1.24) which indicates a substantial variability considering the length of survey responses (1,185). This dispersion can be associated to a significant heterogeneity among respondents and their answers. Furthermore, skewness and kurtosis results support this statement. Financial knowledge has an asymmetric left-skewed distribution (-0.34), and the distribution of respondent's points is relatively flat (-0.10). Financial behavior has an asymmetric right-skewed distribution (1.08) with a higher peak (1.10). While spending attitude is the only outcome that shows a distribution that is approximately symmetric (-0.04) and mostly flat (-0.88). These results suggest that, overall, respondents got low points in financial knowledge, while there are higher points in financial

behavior. The normalization process transformed each dependent variable to have a mean of zero and a standard deviation of one, facilitating greater comparability.

Table 3: Descriptive statistics

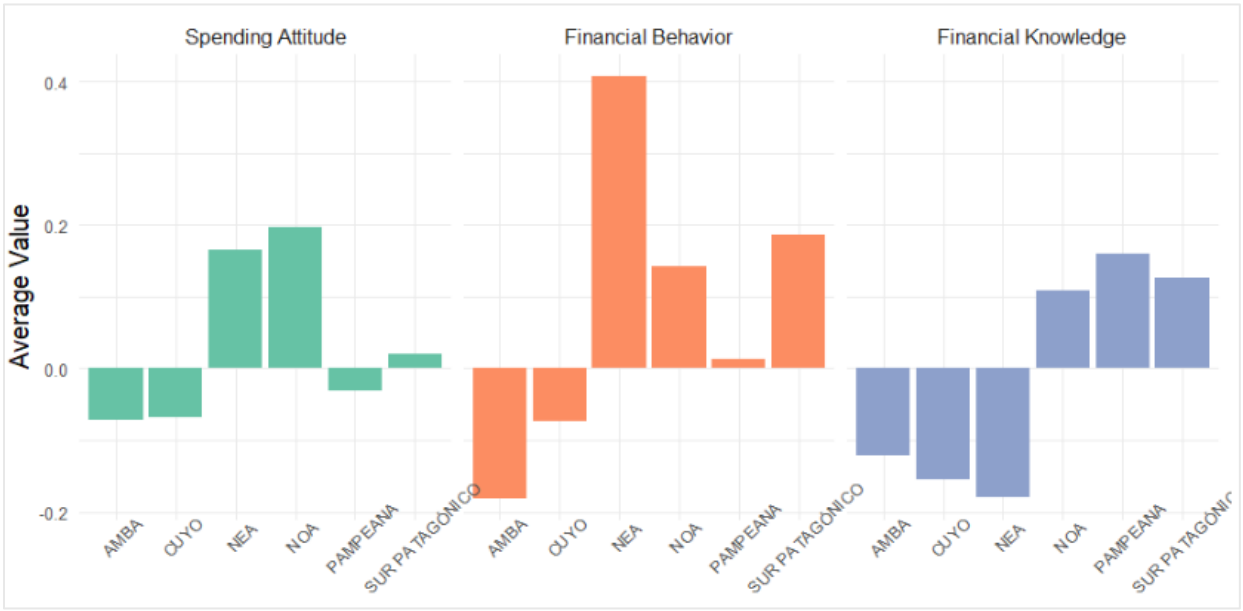
Descriptive Statistics

Statistic	Mean	Median	St. Dev.	Min	Max	N	Pctl(25)	Pctl(75)
age	40.962	38	16.393	18	90	1,185	27	53
education_level	5.241	5	1.831	1	10	1,185	4	7
income	2.689	2	2.925	0	9	1,185	0	5
financial_attitude	-0.000	0.009	1.237	-2.322	2.313	1,185	-0.900	0.917
financial_knowledge	4.910	5	1.588	0	8	1,185	4	6
financial_behavior	3.075	3	1.940	0	13	1,185	2	4
financial_knowledge_scaled	0.000	0.057	1.000	-3.092	1.946	1,185	-0.573	0.687
financial_behavior_scaled	-0.000	-0.039	1.000	-1.585	5.116	1,185	-0.554	0.477
financial_attitude_scaled	-0.000	0.007	1.000	-1.878	1.871	1,185	-0.728	0.742

Source: Author's own elaboration

The existing heterogeneity in survey responses can also be observed by region. Figure 4 shows respondents answers about spending attitude, financial behavior, and financial knowledge by region. Initially, respondents' answers differ significantly by region. Furthermore, within the same region respondents show a huge contrast in their answers. For instance, respondents in the region Pampeana got low points in spending attitude and almost no points in financial behavior, however, they are the region with the highest levels of financial knowledge. Following this, NEA shows high points in spending attitudes and financial behavior, but the lowest financial knowledge.

Figure 4: Financial metrics by region



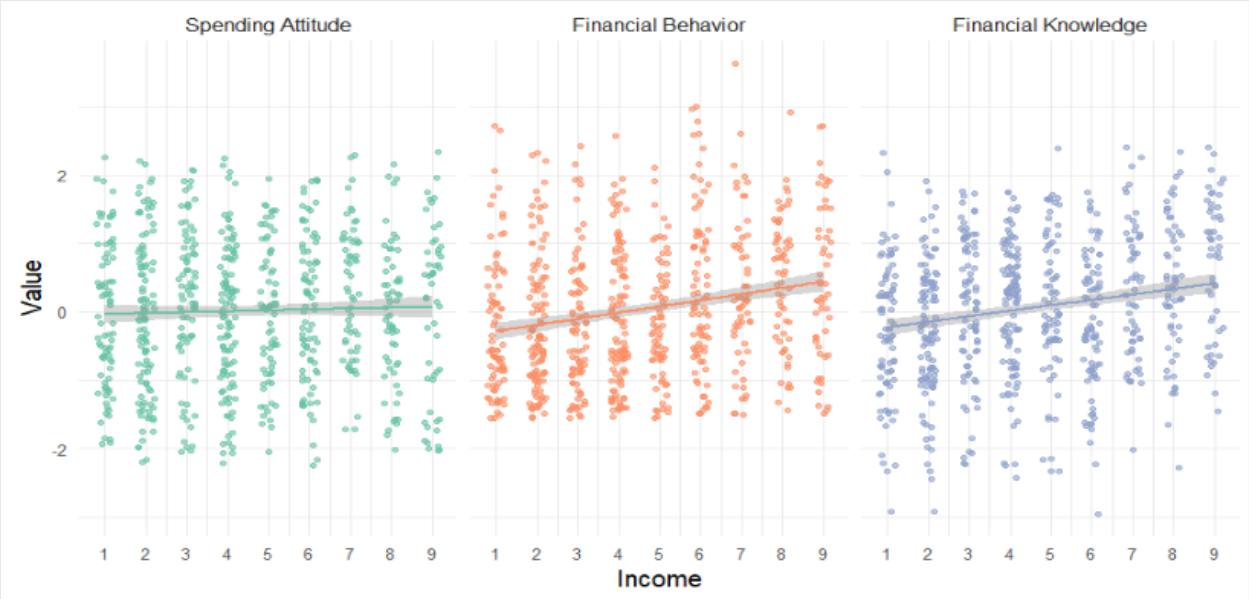
Source: Author's own elaboration

The analysis of income levels also demonstrates a high degree of heterogeneity in the data. In this case, there are many respondents who did not report their income level. This is a concern in terms of the consistency of respondent's answers and model estimates. To address this issue and increase data homogeneity, I took a subsample considering only respondents who reported an income level.

The charts in Figure 5 help to illustrate the relationship between financial knowledge, financial behavior, and spending attitude with income levels. The overall trend indicates a positive correlation between income and financial knowledge at 20%, which is greater than the correlation before the subsample (15%). Financial behavior also shows a positive correlation at 22%, which is stronger than correlation rate of financial knowledge and greater than the correlation before the subsample (20%). Accordingly, the scatterplots illustrate that as income increases, financial knowledge and financial behavior tend to increase, and the relationship is relatively moderate. However, there is still a significant dispersion across the distribution.

The situation is different for spending attitude, which is almost not correlated with income levels at 3%. The correlation rate and the scatterplot in Figure 5 suggest that there is not a linear relationship between income and spending attitude. In other words, there is not a linear association between respondent's answers in spending attitudes and income levels. For instance, they can choose saving over spending regardless of their income level. The weak relationship of spending attitude and income is a concern for the model explanatory power, and in subsequent subsections I will implement interaction terms and polynomials as a strategy to get a significant coefficient.

Figure 5: Financial metrics by income level



Source: Author's own elaboration

The incorporation of gender in analyzing the correlation rate is important for further understanding the relationship between income levels and financial metrics. The overall trend indicates a positive relationship between income and financial knowledge, with a correlation of 20%. However, this correlation is stronger for men (24%) than for women (13%). Thus, female respondents tend to exhibit lower levels of financial knowledge as their income increases compared to male respondents. In the case of financial behavior, women also show a slightly lower correlation

(21%) between income levels and financial behavior than men (22%). No major differences are identified for spending attitudes.

Continuing with the descriptive analysis, I explore if there are gender gaps in financial knowledge, financial behavior, and spending attitude. Table 4 describes the correlation rate between gender and the financial metrics disaggregated by age range. With regards to financial knowledge, it is possible to identify gender gaps mostly occurring in adults (-15%) and older age (-27%). In other words, adult and older women are more likely to have less financial knowledge compared to men in the same age ranges. In financial behavior, there are negative gender gaps only during youthhood (-5%) and adulthood (-8%), but the relationship is relatively weak. This insight indicates that women in their youth and adulthood are less likely to build a budget plan compared to men in the same age ranges. However, they tend to improve their financial behavior as they get older. Finally, no gender gaps can be found in spending attitudes across age ranges. Choosing saving over spending is an attitude that most women tend to incorporate in adult life, and they do it in a higher proportion than men.

Table 4: Correlation between gender and financial metrics disaggregated by age range

Correlation between gender and financial metrics by age

Metric	Young	Adult	Old
Financial Knowledge	-0.005	-0.155	-0.279
Financial Behavior	-0.056	-0.085	0.091
Spending Attitude	0.056	0.142	0.048

Source: Author's own elaboration

Figure 6 illustrates women's level of financial knowledge, financial behavior, and spending attitudes by income levels and age ranges. It is evident from the graph that low-income women got lower results in financial knowledge compared to high- and middle-income female groups. As I

mentioned before, there are substantial gender gaps in financial knowledge that become greater as age increases (Table 4). Based on Figure 6, the lack of financial knowledge is more evident among low-income old women, who got -0.363 points on average. However, there is also a significant proportion of low-income young women with low level of financial knowledge at -0.468 on average. With regards to financial behavior, gender gaps occur at a younger age (Table 4). Unhealthy financial behaviors are more likely among low-income adults, who got -0.236 points on average. Finally, spending attitude, which is not correlated with income levels, does not show significant gaps affecting women with different ages.

Figure 6: Women's financial metrics by income level and age range

Source: Author's own elaboration

To finish the descriptive analysis, I explore the relationship between education levels and financial metrics in Table 5. The general trend indicates a positive and relatively strong correlation, with spending attitudes showing the highest correlation at 26%, followed by financial behaviors and financial knowledge at 23% and 18%, respectively. Additionally, the correlations for women

are lower in financial knowledge (14%) and financial behaviors (21%) compared to men (23% and 25%, respectively). However, education levels and spending attitudes exhibit a higher correlation for women (29%) than for men (24%).

Table 5: Correlation between education level and financial metrics

Correlation between education level and financial metrics

Metric	General	Women	Men
Financial Knowledge	0.183	0.144	0.231
Financial Behavior	0.227	0.209	0.247
Spending Attitude	0.261	0.278	0.242

Source: Author's own elaboration

These insights provide a high-level understanding of gender, income, and age differences across financial metrics in Argentina, contributing to a further understanding of the OLS model results discussed in subsequent subsections. In summary, gender gaps in financial knowledge disproportionately affect low-income, older women. Although women with higher education levels show an increase in financial knowledge, it remains lower compared to men. The pattern in financial behavior differs, with the gender gap mainly affecting low-income adult women, whose behavior improves with age. Additionally, women with higher education levels are more likely to exhibit better financial behaviors, though still below that of men. Finally, regarding spending attitudes, educated women perform better compared to men, regardless of income level and age range.

3.2 OLS results

As mentioned in section 2.4.2, this thesis intends to implement OLS models to estimate the relationship between gender and financial knowledge, financial behavior, and spending attitudes in Argentina 2017.

In Table 6, three OLS models are presented with financial knowledge, financial behavior, and spending attitude as dependent variables. The first model, which belongs to financial knowledge, shows an adjusted R-squared of 10%. The second model shows a lower adjusted R-squared at 7%. While in the third model, the adjusted R-squared is also 10%. The adjusted R-squared in all models is relatively weak, reaching 10% in model 1 and 3 as the highest value. This indicates that 10% of the variance in financial knowledge and spending attitude is explained by the predictors included in the model and suggests room for model improvement.

Based on **Ho1**, it is expected to find gender gaps in financial knowledge, financial behavior, and spending altitudes. The OLS models suggest that there are gender gaps in financial knowledge and financial behavior, but no differences are found in spending attitudes. Gender shows a negative coefficient in model 1 (-0.580) and 2 (-0.390). In other words, there is sufficient evidence to affirm that being a woman is associated with -0.580 points decrease in financial knowledge and -0.390 points decrease in financial behavior compared to men. The results are statistically significant and partially support the **Ho1** that establishes the existence of gender gaps negatively affecting financial knowledge and financial behavior. However, as I already presented in the descriptive analysis, the relationship between gender and spending attitudes is weak, positive, and not statistically significant (0.019).

Low-income individuals are more likely to have lower levels of financial knowledge and behavior compared to high- and middle-income respondents. The OLS models show a negative and significant coefficient of -0.397 for financial knowledge and -0.343 for financial behavior. In other words, there is sufficient evidence to affirm that being a low-income respondent is associated with lower financial knowledge and worse behaviors in comparison with high-income individuals. In the case of spending attitudes, the association with income levels is weak and not significant.

The interaction terms between women's financial knowledge and behavior and their income levels do not show a negative gender gap, and the coefficients are not statistically significant. This might be related to the fact that there is a higher contrast in financial knowledge and behavior among women with different income levels than the comparison with men, as shown in Figure 6. Thus, there is not sufficient evidence to support **Ho2**, which establishes that that low-income women are disproportionally affected by gender gaps in financial knowledge, financial behavior, and financial attitude.

Regarding age ranges, the interaction term shows that among women, the effect of being older is -0.344 points decrease in financial knowledge, 0.349 points increase in financial behavior and -0.138 points decrease in spending attitudes. The only statistically significant coefficient is for financial knowledge, supporting the statement that the gender gap in financial knowledge widens with age. Meanwhile, women's financial behavior improves as age increases.

Other relevant insights captured from OLS models include the effects of education level, marriage, children, and financial decision making. Education level is significant in model 1, with a coefficient indicating that one-unit increase in education level leads to 0.234 points increase in financial knowledge. However, as noted in Table 5, the correlation between financial knowledge and education level is less strong for women than for men. Marriage is also significant in model 1, where the coefficient shows -0.197 points decrease in financial knowledge for married respondents. In model 3, respondents with children exhibit 0.155 points increase in spending attitudes compared to those without children. Finally, women who tend to make financial decisions on their own exhibit better financial behaviors (0.250), while those who make financial decisions with their partners have better spending attitudes (0.328).

Table 6: OLS Regression output

	Dependent variable:		
	Financial Knowledge	Financial Behavior	Spending Attitude
	(1)	(2)	(3)
genderFemale	-0.580***	-0.390**	0.019
	(0.186)	(0.196)	(0.197)
age_range2Old	0.094	-0.314**	-0.151
	(0.140)	(0.148)	(0.148)
age_range2Young	-0.544***	0.077	0.168
	(0.117)	(0.124)	(0.124)
education_level	0.234**	-0.001	0.149
	(0.107)	(0.113)	(0.113)
I(education_level2)	-0.013	0.008	-0.0001
	(0.009)	(0.010)	(0.010)
women_dmYes	0.203	0.250*	0.152
	(0.133)	(0.141)	(0.142)
women_dm2Yes	0.144	0.217	0.328**
	(0.145)	(0.154)	(0.155)
marriedYes	-0.197**	0.070	0.054
	(0.080)	(0.085)	(0.085)
childrenYes	-0.078	-0.034	0.155*
	(0.081)	(0.085)	(0.086)
income2Low income	-0.397***	-0.343**	0.190
	(0.129)	(0.136)	(0.137)
income2Middle income	-0.271**	-0.284**	-0.064
	(0.122)	(0.129)	(0.129)
genderFemale:income2Low income	0.228	0.028	-0.013
	(0.186)	(0.197)	(0.197)
genderFemale:income2Middle income	0.268	0.150	0.162
	(0.185)	(0.196)	(0.196)
genderFemale:age_range2Old	-0.344*	0.349	-0.138
	(0.201)	(0.213)	(0.214)
genderFemale:age_range2Young	0.354**	0.116	-0.177
	(0.169)	(0.179)	(0.180)
Constant	-0.126	0.085	-1.007***
	(0.311)	(0.329)	(0.331)
Observations	703	703	703
R2	0.118	0.085	0.119
Adjusted R2	0.099	0.065	0.099
Residual Std. Error (df = 687)	0.915	0.969	0.972
F Statistic (df = 15; 687)	6.138***	4.235***	6.167***
Note:			*p<0.1; **p<0.05; ***p<0.01

Source: Author's own elaboration

3.3 Assessing robustness of the coefficient estimates

In this subsection I run a few robustness checks to explore if the OLS results are consistent and unbiased. The main intention is checking if the models are compliant with OLS assumptions, including outliers, multicollinearity, and heteroscedasticity.

One of the OLS assumptions is that large outliers are unlikely (James et al., 2018). The outlier and leverage diagnostics charts (included in appendix in figure 7, 8 and 9) show that most observations are clustered around 0, meaning that observations are well fitted by the model with moderate leverage and small residuals. There are a few observations outside the horizontal lines (outliers' threshold +2/-2), mostly for model 1 and 2, which represent points with large standardize residuals that are not well fitted by the models. In addition, the three models have high leverage points. These points might have an influence on regression model's predictive performance and the resulting coefficients, and they should be investigated further.

Another robustness check is heteroscedasticity, which measures if the variance of the residuals is not constant across the independent variables (James et al., 2018). In this case, I implemented Breusch Pagan test and got significant results for model 1 (included in appendix in table 7, 8 and 9). Since the p-value (0.02) is less than the significance level of 0.05, I rejected the null hypothesis. This indicates that there is significant evidence of heteroscedasticity in the regression model 1. The variance of the residuals is not constant, and it varies with the levels of the independent variables. This situation might affect the efficiency and reliability of model 1 estimates.

The last robustness check implemented is multicollinearity (included in appendix table 10), which intends to detect predictor variables that are highly correlated and might lead to unreliable

estimates of regression coefficients (James et al., 2018). The variables that are most affected by multicollinearity are education level and gender, indicating that these predictors may cause instability in the models.

3.4 Policy implications

Gender gaps are not equally likely to negatively affect all financial metrics in Argentina. Financial knowledge accounts with the greater gender gap, suggesting that women have lower understanding of financial products, concepts, and risks compared to men. Indeed, the gender gap in financial knowledge becomes higher as the age range increases. These insights describe a problematic situation where Argentine women are affected by a perpetuated knowledge deficit, which is, in part, promoted by the lack of an intergenerational transmission of financial learnings. Thus, passing down financial concepts and experiences to family members overtime is a way of facilitating the development of women's financial capabilities and competences at an early age and reducing the magnitude of future knowledge gaps.

With regards to income levels, the gap in financial knowledge is mostly seen among women with different socioeconomic backgrounds than compared to men. In addition, marriage is a determinant to decrease individual's analytical comprehension of financial products, while higher education levels are associated with better financial skills. The labor market outcomes are important to understand these insights in the context of Argentina. Low-income women with lower levels of education are more likely to take part in the informal labor market and earn low wages. This critical situation causes women to struggle with economic stability and, consequently, there is lack of incentives to increase their financial knowledge and wellbeing. Furthermore, the feminization of domestic work within households has lead women's financial knowledge to be

strictly limited to minor financial tasks in the family compared to men. This situation claims the importance of targeted interventions such as community-based financial education programs as a way of integrating financial knowledge into daily life, and creating accessible and relatable financial information that addresses women´s specific needs and contexts.

Women in Argentina are less likely to have healthy financial behaviors compared to men. Budgeting, prioritizing needs, and saving a proportion of income are less common behaviors among younger women, particularly in low-income groups. Even though the results for marriage and education level are not conclusive, women who make decisions independently exhibit better financial behaviors than those who make decisions with their partners. Thus, only women who can be independent, earn an income and achieve economic stability tend to have better financial behaviors, which is also more common at older ages. Considering this, financial education programs not only should be targeted on low-income women, but also should be implemented at an early age. If financial education policies manage to share knowledge, experiences, and practical applications to women at an early age, there could be a significant improvement in their future financial outcomes, helping to reduce the existing gaps.

In Argentina, women have low financial knowledge and behaviors, and yet exhibit good spending attitudes. The literature has proven that women tend to have worse financial attitudes than men, including risk aversion, lack of self-confidence, and distrust in financial systems. However, findings on spending attitudes do not follow the same pattern. In Argentina, women exhibit better spending attitudes than men, especially among educated adult women. Additionally, spending attitudes are better among women with children who make financial decisions with their partners compared to those who make financial decisions independently. Considering that women have a dual role in both paid and unpaid labor, the insights confirm the important role of women in

financial decisions within the family context. Even though women have lower levels of financial knowledge and are less likely to implement budget plans, they are promoters of good spending attitudes within the family, such as prioritizing saving over spending and considering future plans.

For policymakers, given the presented evidence of gender differences in financial metrics, and that these disproportionally affect female groups, financial education for women appears to be a straightforward solution. Financial education policies should have a multidimensional approach to ensure that women increase not only their financial knowledge, but also improve their behaviors and keep good spending attitudes. In addition, the policies should consider the contributions of the theory of feminist economics and the important role of women in household financial decisions.

3.5 Research limitations

This thesis uses quantitative methods to measure gender gaps in financial knowledge, behavior and spending attitudes in Argentina. In this regard, I list the following three research limitations to be considered when interpreting the findings.

First, there is a substantial year gap in this analysis considering that the CAF financial capabilities survey was implemented in 2017. Thus, the findings might not reflect strictly the current financial situation of women in Argentina. Conducting this research using panel data and updated observations would have been more beneficial to find more robust and accurate estimations that capture the effects of changing contexts over time. However, considering the lack of data sources in Argentina measuring financial metrics and gender, the survey is a good approximation to a further understanding of the problem. Indeed, the research findings might advocate for the implementation of updated data collection methods.

Second, data heterogeneity is a major challenge in the 2017 CAF Financial Capabilities survey. Respondent's answers show high variability across different financial metrics questions. In other words, it is possible respondents answered contradictory responses during the survey. In addition, there is high variability across regions, which might be addressed by replicating this analysis grouping regions with similar patterns to ensure greater homogeneity.

The third and last research limitation is related to the results in robustness checks. Model 1 shows the presence of large outliers and heteroscedasticity among the observations. This affects the model predictive performance and can lead to biased estimates. In addition, multicollinearity affects education level and gender in all models, which might make it challenging to accurately assess the individual impact of these predictors accurately.

Conclusions

This thesis aims to answer the research question: "How do gender gaps influence financial knowledge, behavior, and financial attitudes in Argentina?" from a multidimensional approach and through the lens of feminist economics theory. In order to answer this question, I used a quantitative methodological strategy by implementing factor analysis, descriptive statistics, OLS models and robustness checks.

Argentina faces several challenges in terms of gender equity. Women and men do not have equal opportunities in the labor market, including equal salary and job opportunities. In this context, the theory of feminist economics reveals the importance of domestic work, which is unpaid and mostly occupied by women. These disadvantages have minimized the contribution of women to economic development. Thus, it is imperative to study women's performance in financial metrics to recognize their important role in financial decisions and encourage them to become decision-makers in the family context and in the economy.

The evidence has shown that even though women exhibit lower levels of financial knowledge and behavior than men, they play a significant role in financial decision making within the family context. First, there is a perpetuated knowledge deficit among women that disproportionally affects low-income female groups and limits their skills to minor financial tasks. The lack of intergenerational transmission of knowledge, as well as the high participation rate of women in the informal labor market, are major contributors to creating the deficit. Second, women who exhibit worse financial behaviors do not make economic decisions on their own and tend to earn low wages. This is most likely to occur at early ages when women are less likely to engage in budgeting and saving. However, this situation tends to improve over time. The most relevant

contributors to gaps in financial behavior are associated with negative labor market outcomes and low economic stability. Lastly, women's educational background is a significant factor in improving spending attitudes. Educated adult women are most likely to work as promoters of good spending attitudes within the family context, while the situation is the opposite for uneducated women.

There are several policy implications as a result of the findings. Indeed, there is an urgent need for targeted financial education programs that employ a multidimensional approach and integrate insights from feminist economics to better address the specific needs of women. Women's role within the family context should not be ignored, as they are better promoters of good spending attitudes than men. Even though women have an important role in the family, that does not mean they are considered as legit financial decision makers. Their low levels of financial knowledge and lack of healthy financial practices represents a disadvantage compared to men, and threats women economic empowerment and independence. In addition, the household is not an environment that contribute the most to increasing women's financial knowledge and promoting good behaviors. Women who make financial decisions with their partners show lower levels of knowledge and worse behaviors than making decisions on their own. Following this, public education policies should not only include strategies to support women in increasing their financial knowledge and improving daily behaviors, but also encourage them to become financial decision makers in daily life. This is a further step in supporting women's financial literacy that considers the importance of equal partnership in making financial decisions and it could be a motivation to achieve better financial outcomes in the future.

The research limitations in this analysis are related to the robustness of the estimates. In order to make future investigations more robust, it is important to incorporate more years into the

analysis. This will facilitate a more detailed analysis of how financial metrics and gender gaps have evolved over time, allowing to get a more recent picture of the research problem. Additionally, considering the levels of data heterogeneity, I would recommend replicating this analysis disaggregating by region to better capture the particularities of each location.

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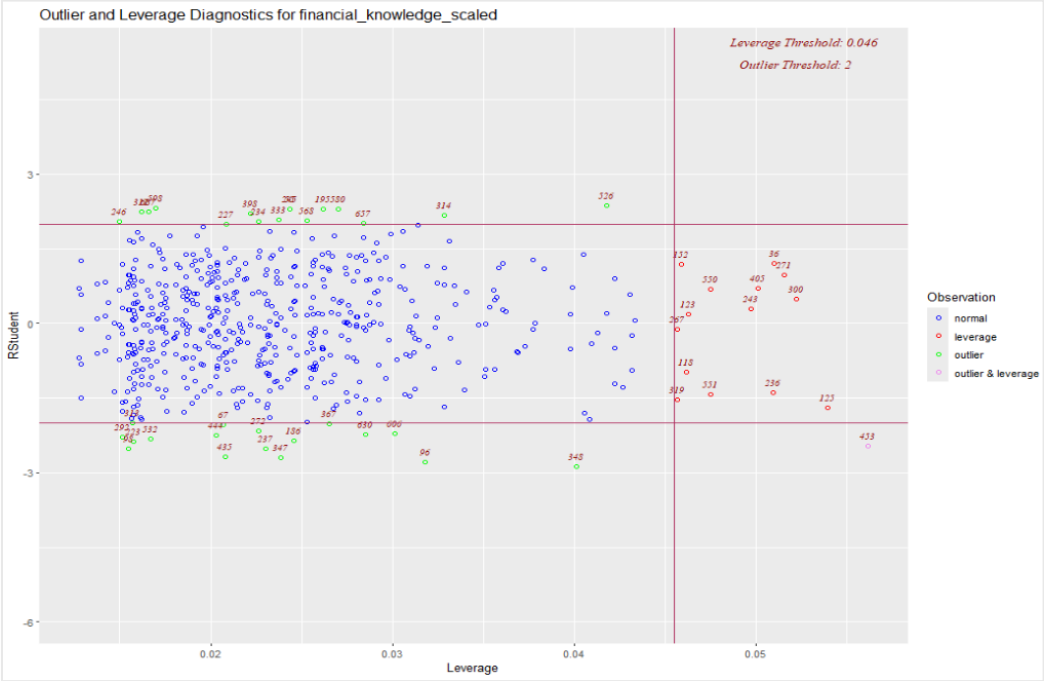
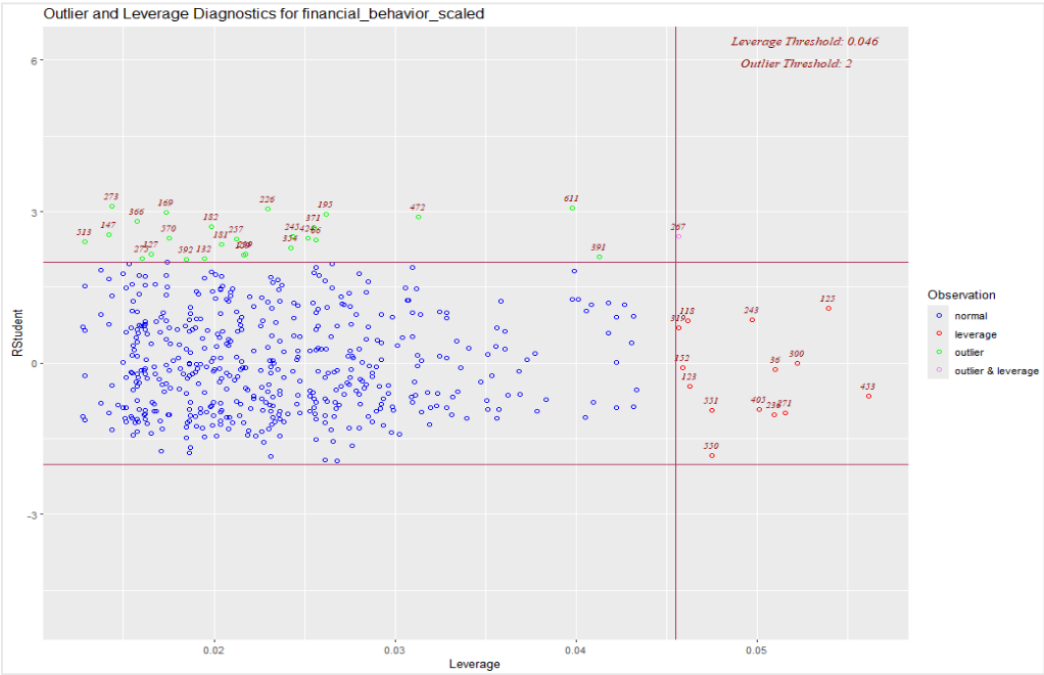
Appendix

Figure 7: Model 1 outlier and leverage diagnostic



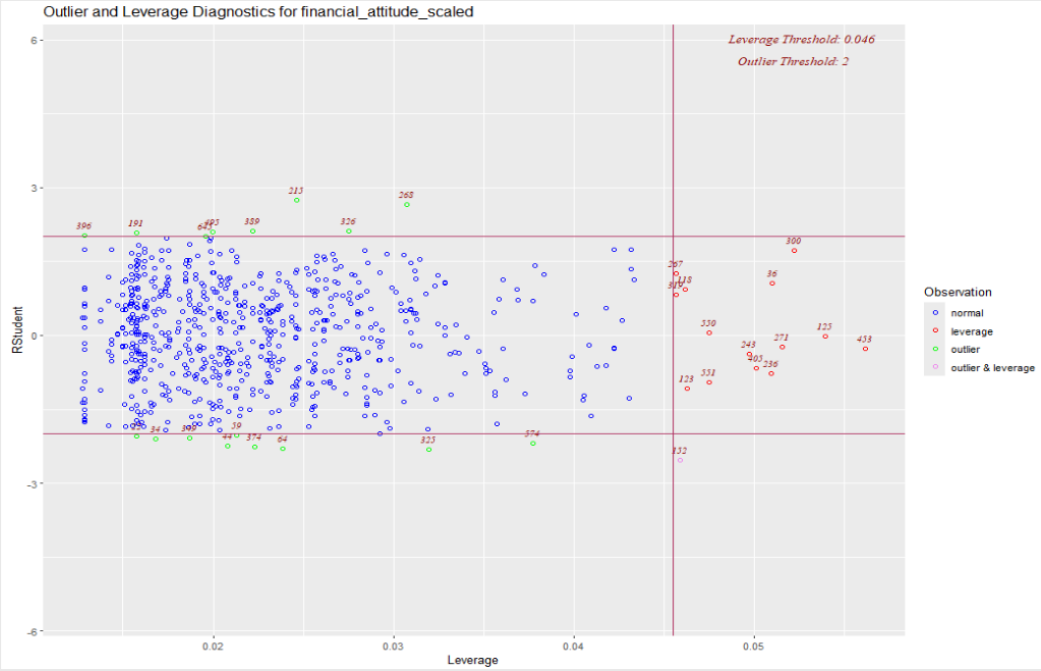
Source: Author's own elaboration

Figure 8: Model 2 outlier and leverage diagnostic



Source: Author's own elaboration

Figure 9: Model 3 outlier and leverage diagnostic



Source: Author's own elaboration

Table 7: Breusch Pagan test for heteroskedasticity - Model 1

```
Breusch Pagan Test for Heteroskedasticity
-----------------------------------------
Ho: the variance is constant
Ha: the variance is not constant

                        Data
-----------------------------------------------------
Response : financial_knowledge_scaled
Variables: fitted values of financial_knowledge_scaled

       Test Summary
-----------------------------
DF            =    1
Chi2          =    5.197164
Prob > Chi2   =    0.02262377
```

Source: Author's own elaboration

Table 8: Breusch Pagan test for heteroskedasticity - Model 2

```
Breusch Pagan Test for Heteroskedasticity
-----------------------------------------
Ho: the variance is constant
Ha: the variance is not constant

                        Data
-----------------------------------------------------
Response : financial_behavior_scaled
Variables: fitted values of financial_behavior_scaled

       Test Summary
----------------------------
DF            =    1
Chi2          =    2.851717
Prob > Chi2   =    0.0912764
```

Source: Author's own elaboration

Table 9: Breusch Pagan test for heteroskedasticity - Model 3

```
Breusch Pagan Test for Heteroskedasticity
-----------------------------------------
Ho: the variance is constant
Ha: the variance is not constant

                        Data
-----------------------------------------------------
Response : financial_attitude_scaled
Variables: fitted values of financial_attitude_scaled

       Test Summary
----------------------------
DF            =    1
Chi2          =    0.4083131
Prob > Chi2   =    0.5228269
```

Source: Author's own elaboration

Table 10: Multicollinearity test - Model 1, 2 and 3

Variables <chr>	Tolerance <dbl>	VIF <dbl>
genderFemale	0.13844938	7.222857
age_range2Old	0.45000177	2.222213
age_range2Young	0.41819398	2.391235
education_level	0.03054836	32.734978
I(education_level^2)	0.03122157	32.029141
women_dmYes	0.39682197	2.520022
women_dm2Yes	0.44325962	2.256014
marriedYes	0.74924796	1.334672
childrenYes	0.74340187	1.345167
income2Low income	0.30375432	3.292134
income2Middle income	0.34559304	2.893577
genderFemale:income2Low income	0.20079288	4.980256
genderFemale:income2Middle income	0.23574555	4.241862
genderFemale:age_range2Old	0.46228581	2.163164
genderFemale:age_range2Young	0.33739110	2.963919

Source: Author's own elaboration