THE IMPACT OF FINANCIAL LITERACY ON HOUSEHOLD WEALTH IN THE KINGDOM OF SAUDI ARABIA

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ABSTRACT

This thesis aims to measure the level of financial literacy among Saudi workers. It also focuses on the impact of financial literacy and demographic factors including age, gender, level of education, work experience, marital status, number of children, sector of work and level of income, on household wealth of Saudi workers. These objectives were measured in an empirical study using a survey method. The data collected underwent several steps of analysis including univariate, bivariate and multivariate (multiple regression) analyses.

Since Saudi Arabia is a key country in the Middle East and is part of the Middle East and North Africa (MENA) regional economic community this study focuses on one of the most important studies in the region. The study is especially important for Saudi Arabia itself for several reasons. First, financial literacy and household wealth are an important area of investigation because financial crises have affected many individuals in the country. For example, in mid-2015 international oil prices dropped and the Saudi economy was greatly affected and in response the Saudi Arabian government reduced its budget, including salaries. Moreover, the government introduced a new taxation system in 2018 in addition to a significant increase in the basic costs of daily life requirements such as electricity, water and petroleum, which increased by more than 200%. Thus, people in Saudi Arabia were forced to change their spending patterns to accommodate their new income levels and higher daily expenses. Second, in 2013, the Saudi government revealed its intention to enhance the economic situation of the country through *Saudi Vision 2030*, which aims to reduce the country's dependence on oil as its main source of income. This goal can be achieved only through effective collaboration between the government and financially literate people who have the skills required to create wealth for both themselves and their country through wise financial decision-making. This study provides practical recommendations to policymakers and key individuals in Saudi Arabia and the MENA by shedding light on the most affected segment; the financially illiterate. The study confirms that demographic issues have a significant relationship with household wealth. It also transpired that financial literacy is instrumental in many of the practical aspects of people's day-to-day financial behaviour.

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DECLARATION

I, Abdullatef Saber, declare that the DBA thesis entitled, The Impact of Financial Literacy on Household Wealth in the Kingdom of Saudi Arabia is no more than 65,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signature 

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Chapter 1: INTRODUCTION

1.1 Research Background

The concept of financial literacy has become one of the important financial topics in recent years. Continual increase in the level of financial awareness has been observed among various age groups worldwide because of rapid improvements in financial services and various financial crises throughout the world (Boora & Agarwal 2018; Hastings & Mitchell 2020; Huston 2010; Lusardi et al. 2009). Financial literacy as a concept includes two essential aspects: financial literacy itself, and its application. These aspects are complicated, and it is difficult to bring both together in real life (Gale & Levine 2010). This means that, besides understanding financial planning concepts, people must also be skilled in applying these concepts in day-to-day transactions (Boora & Agarwal 2018). Financial literacy of individuals involves numerous parameters such as money, saving, financial investment, financial planning and budgeting. Thus, people require adequate knowledge, proficiency and attitude regarding financial issues to be able to survive daily financial struggles (Boora & Agarwal 2018; Mian 2014).

Financial and investment plans have become a real issue for people, especially in the Kingdom of Saudi Arabia (KSA) (Mian 2014). The country's economic position depends mostly on oil prices as it receives almost 95% of its total revenues from oil exports (Alshahrani & Alsadiq 2014; Elachola & Memish 2016; Noël 2016). However, following the significant decrease in oil prices of mid-2015, the fiscal position of the kingdom deteriorated significantly, which forced the government to reduce its expenditure through a series of remarkable financial decisions including reducing the government work force and cutting government employee salaries (Elachola & Memish 2016). Moreover, the Saudi government introduced a new taxation system in 2018 (Raimi et al. 2018) and the prices of basic essential services including electricity, water and petroleum increased (Groissböck & Pickl 2018). All these factors put people living in Saudi Arabia under high pressure in regard to managing their financial expenses in line with new income levels. They have had to reconsider their budgets and adapt to a lower level of income by employing adequate financial literacy (Almalki & Ganong 2018).

This new reality in Saudi Arabia makes financial education an essential requirement for meeting the goals of *Saudi Vision 2030*,[1] which aims to increase the level of diversification and reduce dependence on oil as the major source of income (Mahmood & Alkahtani 2018).

In fact, the Saudi government has made significant efforts to improve the country's education system and this includes raising the level of financial literacy among Saudis (Al Rajhi et al. 2012; Mahmood & Alkahtani 2018). Even with these efforts, the overall literacy rate of Saudi people is lower than expected compared with other rich countries (Bosbait & Wilson 2005). Mahmood & Alkahtani (2018) stated that formal education is considered a useful tool to improve the cognitive abilities of individuals, enhance their productivity and enhance their ability to make better financial decisions, which, in turn, will accelerate the economic growth of the kingdom. They confirmed that good financial decisions will play a crucial role in enhancing Saudi Arabia's economic growth. Thus, if the Saudi government aims to increase economic diversification, it must concentrate on occupational education regarding finances. Moreover, financial products and services have recently become easily accessible to a broad range of the population, adding to the complexity of their financial decisions (Klapper et al. 2015).

As is evident in the literature, there is a growing awareness of the importance of education for the labour force since this has a positive correlation with a country's economic growth (Barro 2001; Ogundari & Awokuse 2018). The existence of a good education system contributes effectively to increasing abilities such as logical thinking, value judgments, effective decision-making and effective financial management (Mahmood & Alkahtani 2018). Hence, to enhance the economic situation of Saudi Arabia, Saudi citizens must be financially literate so that they can make accurate financial decisions that accelerate the economic growth of the kingdom (Eades et al. 2011).

The education system in a country often plays a vital role in how financially literate people can become (Sahlberg 2007). However, the existing education systems in MENA countries are different from those in other parts of the world. Aspects of their religion, financial markets,

[1] *Saudi Vision 2030* is:

> a plan to reduce Saudi Arabia's dependence on oil, diversify its economy and develop public service sectors such as health, education, infrastructure, recreation and tourism. Goals include reinforcing economic and investment activities, increasing non-oil industry trade between countries through goods and consumer products, and increasing government spending on the military, manufacturing equipment and ammunition (Mahmood & Alkahtani 2018).

financial behaviour and financial capabilities also differ from those of other countries, such as Western economies (Mian 2014; Shafik 1996). Therefore, managing personal expenses in Saudi Arabia has become more complex and long-term loan repayments may even be impossible in some cases (Mahmood & Alkahtani 2018). As a result, the level of household wealth in Saudi Arabia is subject to change depending on people's level of financial literacy.

1.2 Study context

Saudi Arabia is one of the richest and fastest growing countries in the MENA region. It is also the largest producer and exporter of oil globally, and oil is the primary income of the nation's revenue (Almalki et al. 2011). Saudi Arabia acquires about 18% of its international oil reserves, which give the country considerable power and influence on the international stage and especially for the MENA region and its Islamic countries (Naceur & Ghazouani 2007). The Kingdom of Saudi Arabia is the homeland for two of Islam's most sacred cities: Mecca and Medina. Every year, millions of Muslims from all over the world visit Mecca to perform the *Hajj*. Muslims also visit Mecca during other times of the year to perform the voluntary *Umrah* pilgrimage (Al-Rasheed 2008).

The political system in Saudi Arabia is linked strongly to the local interpretation of Islamic doctrine. Islamic religion and political decisions are fully integrated in the Kingdom, and the ultra-conservative nature of the community in Saudi Arabia is often used to explain the absence of significant political reform (Okruhlik 2009). To illustrate this point, even though the new vision (Vision 2030) issued by the Saudi government seeks to create some political reforms, the political system is controlled by the royal family. In the meantime the ideology of Mohammed Ibn Abdulwahhab - otherwise known as Wahhabism - holds sway throughout the country's religious establishment (Bradley 2015). These two factors influence the type of economic and social activities in the Kingdom (Al-Rasheed 2008; Bradley 2015).

The most recent official report of the General Authority for Statistics in Saudi Arabia states that the total population of the country in 2019 was 34.81 million (STATS 2020c). Gender-wise, there are 19.7 million (59% of the total population) males and 14.5 million (41% of the total population) females. Employees aged from 15 to 65 make up approximately 40% of the total population, with 68.6% males working compared to only 31.4% females (STATS 2020a, 2020d). The average income level was 9,970 Saudi Riyals for Saudis and 4,136 Saudi Riyals for non-Saudis (STATS 2020a). In recent times, however, the unemployment rate has risen

from 11.8% in the first quarter of 2020 to 15.4% in the second quarter of 2020, primarily due to the economic devastation caused by COVID-19 (STATS 2020a). Despite being considered a rich country based on the abundance of crude oil, Saudi Arabia, like many countries in the MENA region, is facing a number of serious economic and social challenges resulting from a rapid increase in population and the problem of unemployment (Farhan et al. 2016). According to UN projections, it is estimated that the population will reach 39.8 million by 2025 and 54.7 million by 2050 (Almalki et al. 2011). This significant increase will require great changes in the Saudi government budget, given the rising demand for services, human resources and more being spent on healthcare (Elachola & Memish 2016). Further, the absence of a good work ethic has led to Saudi citizens holding less than half the jobs in the Kingdom (Farhan et al. 2016; STATS 2020a). This emphasises the importance of seeking to understand the demographic factors influencing the level of financial literacy and wealth creation among employees in order to solve economic or social crises that will emerge in the future if such problems are not solved.

According to a recent report by Statista (2020), in 2019, approximately 24.87% of Saudi Arabia's population were aged between 0 and 14 years, about 71.72% were aged between 15 and 64, and only about 3.41% were in the 65 and older age cohort. The last report of this kind revealed that in 2016, over 50% of the total population lived in the Riyadh and Western regions, while 15% were from the Eastern part of the country. The rest abided elsewhere (STATS 2016). According to the same report for Saudi people aged over 20, more than 68% were married, 24% were unmarried, 2% were widowed, while less than 5% were divorced. According to another report revealed by the General Authority for Statistics in 2020, 0.6% of employees in Saudi Arabia were illiterate, 0.9% could read and write, 3% had completed primary school, 9% completed intermediate school, 23% completed secondary school, 52% had a Bachelor degree , 4.5% had a Masters degree qualification, 3% completed a doctorate degree, and lastly, 4% were not specified (STATS 2020b). Referring to the sector in which people in Saudi Arabia worked, 12% were in the public sector, 61% worked in the private sector, while 26 were either self-employed or domestic workers (STATS 2020d).

On 25 April 2016, the Saudi government released its Vision 2030 economic statement leading with: ‘Saudi Arabia, the heart of the Arab and Islamic worlds, the investment powerhouse, and the hub connecting three continents’. The main goals of Vision 2030 are to ensure that the economy of Saudi Arabia is no longer reliant on oil as its chief source of income, to reduce

public expenditure and promote the private sector (Violi 2017). Saudi Arabia aims to create new opportunities for investors through a unique education system that aligns with the society's current needs. It also aims to remove existing obstacles and encourage the development of new businesses and a more entrepreneurial culture. The Saudi government is striving to build a dynamic, transparent, accountable, responsible and high-performance government. Moreover, it aims to empower citizens, private sector and non-profit organisations to make decisions so that Saudi society benefits (Violi 2017). These goals can be achieved only through wise financial decisions from both policymakers and financially literate citizens.

1.3 Statement of the Problem

Financial burden has been created by the newly introduced government fiscal (such as cutting salaries, reducing subsidiaries and limiting budget deficits) and monetary (restricted personnel loans) policies designed to address declining government revenue (Noël 2016; Raimi et al. 2018). As a consequence of these new policy initiatives, people struggle to keep their expenses in line with the change in their level of income (Rashad et al. 2016). Further, managing personal expenses has become more complex. In some cases, people are subject to financial distress because they cannot meet long-term loan repayments. In a financial distress situation, a financially literate individual may cope better with circumstances than financially illiterate individuals. This may change the level of household wealth, depending on the person's level of financial literacy. Therefore, financially literate people are likely to be more equipped to sustain their wealth level when their income is affected. These facts emphasise the importance of financial literacy for making sound financial decisions that lead to personal financial wellbeing. Derhally (2012) stated that, generally speaking, most financial decisions made by people in MENA countries are suboptimal. This includes Saudi Arabia, which is considered one of the main economic players in the MENA region (Alnefaee 2019). Unwise financial decisions typically result in expenditure loans, unsuccessful debt repayments and overuse of credit cards (Assad 2008).

In fact, a great number of studies have highlighted the importance of financial literacy, especially in terms of developing financial stability (Sucuahi 2013). Previous studies have investigated the level of financial literacy among different groups of people. For example, some studies focused on measuring financial literacy among students (Borodich et al. 2010); others on stock market investors (Mian 2014; Rooij et al. 2011a). Another study focused on

employees in Italy (Fornero & Monticone 2011) and the general population in Bosnia (Plakalović 2012).

In this study, the researcher measures the level of financial literacy among Saudi employees in both the public and private sector. The study also examines whether the level of financial literacy has a significant impact on wealth creation and—if there is a relationship between the both variables—what other demographic factors influence household wealth accumulation. Although a great number of studies have examined the impact of demographic factors on financial literacy throughout the world (Agarwal et al. 2007; Beal & Delpachitra 2003; Chen & Volpe 1998; Hastings & Mitchell 2020; Janor et al. 2017; Lopus et al. 2019; Lusardi & Mitchell 2006; Lusardi & Mitchell 2011a; Lusardi et al. 2010; Lusardi & Mitchelli 2007; Mandell 2008; Obago 2014; Rooij et al. 2012), only relatively few investigated the impact of demographic factors on household wealth in developed and developing countries (Bover 2008; Fries et al. 1998; Hoynes & McFadden 1994).This study investigates the impact of some socioeconomic factors on household wealth accumulation in Saudi Arabia. The findings of this study can also be generalised to other MENA countries, as these countries have similar characteristics.

1.4 Aims of the Project

Based on the research problem as explained above, financially literate people are likely to be more capable of sustaining their level of financial wellbeing when their income fluctuates in comparison to less financially literate people. The overarching aim of this thesis is to systematically investigate the level of financial literacy and its effects on household wealth in Saudi Arabia. In this study, the researcher examines the financial literacy situation in the KSA, which is a country with a unique culture, where Islam does not specifically promote wealth generation in its edicts. The study aims to provide a better understanding about the level of financial literacy in the region, and thus enhance financial education programmes to improve the financial capabilities of Saudi citizens. The study also explores the impact of financial literacy on household wealth, and what other demographic factors affecting Saudi workers net household wealth.

This study is based on the following three objectives to achieve its main aim of measuring the level of financial literacy among Saudi workers and its influence on their personal wealth creation:

RO1: measure the level of financial literacy in Saudi Arabia

RO2: determine the effect of financial literacy on household wealth

RO3: determine the effect of demographic variables on household wealth.

1.5 Research Questions

The following research questions are addressed in this study:

1. What is the level of financial literacy among Saudi Arabian workers?

2. What is the impact of financial literacy (high, medium and low) on household wealth?

3. Are there any significant differences between demographic variables (age, gender, education level, work experience, marital status, number of children, private or public, and income level) in their effect on household wealth?

A set of hypotheses was developed to answer these research questions (see Chapter 2).

1.6 An Overview of the Study Method

Many researchers have examined the effects of both personal financial literacy and demographic variables (age, gender, income level, education level) on personal financial decisions. Previous researchers used regression models and correlations to test the relationships between variables (Lusardi et al. 2009). Following previous studies (Chen & Volpe 2002; Lusardi et al. 2009), this research also uses regression models, as well as descriptive statistics as methods of analysis. This study is conducted in two stages as described below.

1.6.1 First Stage: The Survey

The primary data required for the study were collected using a survey. The survey instrument was composed of five main sections. The survey aims to answer the research questions and to achieve the research objectives. 40 questionnaire items were developed based on previous studies related to financial literacy and household wealth. To measure the level of personal financial literacy, three questions following Lusardi et al. (2009) were used by focusing on the following areas:

- understanding the concept of interest rates and the ability to calculate them

- understanding the concept of inflation and deflation
- an awareness of financial diversification.

To test the validity and reliability of the survey instrument, the researcher used two stages. In the first stage, the survey was reviewed by experienced academics and revised according to their feedback (Chen & Volpe 2002). The second stage involved a pilot study to test the validity and reliability of the survey instrument (Chen & Volpe 2002). The outcomes were used to modify the survey instrument, which was then used to collect data for analysis.

The survey was targeted towards individual respondents over the age of 18 years. The majority of previous studies focused on a particular age of participants (Beal & Delpachitra 2003; Chen & Volpe 1998, 2002), which may lead to self-selection bias and thus biased results. Therefore, this survey involved respondents from all age groups (18 years and above). Further, the survey targeted both genders and various education and income levels. All respondents were employed Saudi citizens. The survey instrument covered the main geographic regions and both public and private sectors in Saudi Arabia. The survey was administered to a sample of 500 randomly selected individuals. It was conducted after obtaining the necessary ethics approval from the University Low Risk Ethics Committee (0000025061).

1.6.2 Second Stage: Data Analysis

First, based on descriptive statistics, the financial literacy was measured among Saudi workers. Second, chi-square test was applied to identify the relationship between financial literacy and household wealth. It is also used to examine the relationships between some demographic factors and household wealth applying a significance level of .10. If the relationship proved to be significant, the researcher used a Spearman's correlation coefficient to confirm the relationship and to understand the direction of the relationship between independent variables and household wealth. Third, a multiple linear regression analysis was used to test the equation formulated for this study. The researcher used multiple linear regression analysis mainly to predict the value of household wealth based on the values of other variables (financial literacy, age, gender, level of education, work experience, sector, marital status, number of children and income level). The multiple linear regression also used to confirm the results obtained from bivariate analysis. It aims to test the influence of demographic variables including age, gender, level of education, work experience, marital status, number of children, income level and work sector on household wealth, as well as their relationships with one another. Moreover, the

possible interactional influence of both financial literacy and controlled variables was analysed in addition to descriptive statistics considered useful to obtain an idea regarding the central tendency and variability of the data collected.

1.7 Contribution to Knowledge (Academic Contribution)

Since most previous studies about the level of financial literacy and its effects have been undertaken in developed countries such as the United States (US), United Kingdom (UK), Australia and some developed regions of Europe, it is imperative from the researcher's point of view to conduct similar studies in the Saudi context, especially following the announcement of new policies under *Saudi Vision 2030* (Noël 2016). To implement these new policies successfully it is important for policymakers to have an understanding of the level of financial literacy of Saudi people and how it may enhance the wealth of the country. Thus, studies to support policymakers in adjusting their plans are important. This study addresses a gap in knowledge regarding financial literacy and its impact on wealth creation. Moreover, the study examines how Saudi Arabia's unique culture and socioeconomic environment could affect financial literacy in the country (Tisdell et al. 2013). The study will provide a reference point for the financial literacy level among Saudi Arabian people as well as its impact on household wealth. The knowledge expected to be accumulated by this study will be useful for researchers in the MENA region to improve knowledge of financial literacy and maximise household wealth in the region.

1.8 Statement of Significance (Practical Contribution)

According to Eades et al. (2011, p.187), 'financial literacy has been elevated to a national priority in the US, as the impact of the financial crisis of 2008 became apparent'. This crucial linkage between financial literacy and the 2008 Global Financial Crisis (the GFC) is important as the findings of this research will explain personal financial behaviour towards certain financial product assets and savings that provide a comfort zone for retirees. Importantly, the results of this research will be important for increasing people's ability to enhance their expenditure management in the current era of ongoing decreases in oil prices. The findings of this research will provide a background understanding of the extent of citizens' financial literacy, which is important in formulating government policies on financial literacy. The outcomes of this study will also be useful for financial practitioners in identifying financial products and services suitable for Saudi Arabia. The outcomes will be useful for practitioners

in additional ways. First, the evidence gathered in the study will be useful for financial product marketers to target the appropriate market segment for their financial products. Second, the findings will help investment advisers to assist their clients in allocating their investments to maximise their wealth. Individuals can also use the findings of this research to improve their personal financial decisions. In addition, the findings will provide people with the required financial knowledge or support to reach a better financial understanding, which may enhance the local economy.

1.9 Summary of Findings

First, the study found that the level of financial literacy among Saudi workers was generally high, with almost 42% of respondents having a high level of financial literacy, 35% an average level and only around 23% of respondents having a low level of financial literacy. It was concluded that the level of financial literacy among Saudi workers was raised in response to significant factors forcing them to improve their financial knowledge to adapt to their new financial situation. For example, the remarkable decrease in the oil price in 2015 forced the Saudi government to implement financial changes such as cutting wages and announcing a new taxing system (Elachola & Memish 2016; Raimi et al. 2018).

The study identified a positive relationship between financial literacy and household wealth. If individuals had a high level of financial literacy, their personal household wealth was high. In contrast, if they had a low level of financial literacy, the actual level of their personal household wealth was low. This result was not affected by the level of education. Individuals with a post-graduate degree and above had the highest average household wealth, while those with a high school degree or less had the lowest average household wealth.

The study showed that men had more household wealth than women and concluded that men had two times more wealth than women. The results also showed that marital status affected household wealth positively as married couples had higher average household wealth than did single people and divorced couples. The study also found that respondents with more than six children had higher average household wealth than those with fewer children or no children at all. Similarly, level of work experience had a positive impact on household wealth: workers with more than 10 years' experience had the highest average household wealth.

Regarding the relationship between work sector and household wealth, a chi-square analysis revealed that there was no significant relationship between these variables. However, using a cross-tabulation analysis, the study found that respondents who were self-employed had the highest household wealth, followed by public sector and private sector workers, respectively. Finally, the study found that older people (over 60 years) had the highest household wealth, while the youngest people had the lowest household wealth.

1.10 Thesis Outline

This thesis consists of six chapters. **Chapter 2** presents a review of the relevant literature, covering major theories related to financial literacy, household wealth and the role of Islam in finance in Saudi Arabia. It also provides various definitions for both financial literacy and household wealth from different perspectives and shed light on some empirical and theatrical evidence provided by previous studies. Finally, the literature reviewed in this chapter are used to develop the hypotheses to be tested in this study.

Chapter 3 presents the methodological approach employed in this study to address the research objectives and examine the hypotheses identified in the study. Initially the research flow and overall study outline are outlined to establish step by step how the approach was implemented. The researcher provides a comprehensive outline of the study's research design as a whole. The research instrument, pilot study and sampling strategy are described also in more detail. The techniques for data collection and data analysis are also discussed. This includes ethical considerations. Last, the conceptual framework for the study is developed and explained in detail in this chapter to provide an overall plan for the study.

For the second half of the thesis, **Chapter 4** presents the data analysis and findings generated by the stipulated types of statistical analysis. This is achieved with the help of tables, charts, diagrams and graphs that visually present the data.

Chapter 5 presents an overall discussion of the findings of the study. It also examines how well the research questions were addressed to meet the aims and objectives. The research hypotheses are also discussed and justified. Recommendations and conclusions from the study are also included.

Finally, **Chapter 6** presents the conclusions of the study that includes the connection between the findings if this study and current literature. And the connection between the study findings

and the current situation of Saudi Arabia. The chapter also identifies the limitations of the study and makes recommendations for future research.

1.11 Chapter Summary

The aim of this study is to examine the role of financial literacy in household wealth in Saudi Arabia, one of the major economies of the MENA region. The study is expected to fill a knowledge gap regarding financial literacy and its impact on household wealth creation in this increasingly important part of the world. The study is also expected to have theoretical, practical, methodological and academic implications for policymakers and researchers, while delivering sound knowledge for financial practitioners and personal financial management to people in Saudi Arabia and the MENA region. This chapter has stated the case for researching this topic and how the detailed study was undertaken. The next chapter presents a literature review on this topic.

Chapter 2: LITERATURE REVIEW

2.1 Introduction

Financial literacy, planning and decisions have become crucial factors for personal financial wellbeing as well as for the success of a society at large (Lusardi & Mitchell 2014). It has been suggested that financial literacy is the required tool for establishing a strong financial strategy in one's personal life (Arora 2016). Generally, financial literacy can be defined as knowledge of nomenclature and basic financial matters (Lusardi 2008b). It provides the ability to read, resolve, understand financial options, design a retirement plan and react fairly to incidents that may influence everyday financial decisions (Lusardi & Mitchell 2017). Factors such as new financial products, the complications of financial markets, significant changes in the political system, demographics and dynamics of economic change are increasingly significant in financial literacy (Mian 2014). Further, advances in information technology, management of information systems and the influence of globalisation have driven continuous development of new financial products and services. Individuals also have easy access to such new financial products and services, especially through online platforms. However, such easy access may result in rash and unwise financial decision-making such as increased expenditure and increased borrowing, and may impose a great burden on household wealth, which can cause real struggles in dealing with daily expenditures (Demirguc-Kunt et al. 2007; Lusardi & Mitchell 2017). A low level of financial literacy has caused people living in MENA region countries to make poor, un-informed financial decisions (Derhally 2012). Such financial decisions can result in unaffordable loans and excessive use of credit (Assad 2008).

This chapter presents an extensive literature review that analyses previous research on financial literacy and household wealth to gain a detailed insight into previous research work on financial literacy. A comprehensive discussion is provided on some theoretical frameworks related to financial literacy and household wealth. The chapter also discusses some definitions of crucial terms and identifies the relevant terms of reference. This is followed by a discussion on household wealth, Islamic principles and financial decision-making in Saudi Arabia as well as the level of financial literacy and household wealth creation in the country. Finally, the chapter highlights gaps in the literature related to this study.

2.2 Financial Literacy

2.2.1 Definition of Financial Literacy

As noted by Huston (2010) in his comprehensive literature survey, the majority of previous studies do not identify a clear definition of financial literacy. Moreover, there is no universal agreement on what financial literacy means. In fact, researchers have used different definitions based on their research expectations (Remund 2010). Some definitions used by well-known researchers in the field of financial literacy are outlined below.

Lusardi and Mitchell, in their early work, defined financial literacy as 'the most basic economic concepts needed to make sensible saving and investment decisions' (Lusardi & Mitchell 2007, p. 36). In 2008, expanding their definition by including the type of knowledge one should have to make effective financial decisions, Lusardi (2008b, p. 2) defined financial literacy as 'knowledge of basic financial concepts, such as the working of compounding interest, the difference between nominal and real values, and the basics of risk diversification'. Servon & Kaestner (2008) used a similar definition, which explained financial literacy as the ability to understand and make decisions on different financial issues and administer finances.

Following Lusardi and Mitchell (2007a), Schwab et al. (2009) defined financial literacy as a person's ability to use their own financial knowledge and skills to manage their financial resources effectively for a lifetime of financial wellbeing. One of the main distinguishing features of this definition is that Schwab et al. (2008) recognised financial wellbeing as a feature of the definition of financial literacy. Mandell (2008, pp. 163-4) stated that the concept could be defined as 'the ability to evaluate the new and complex financial instruments and make informed judgments in both choice of instruments and extent of use that would be in their own best long-run interests'. Some researchers have defined financial literacy as a skill that helps people to make financial decisions effectively (Huston 2010; Remund 2010). In 2014, Lusardi & Mitchell (2014, p. 2) emphasised the need for effective use of economic information and defined financial literacy as 'the ability to process economic information and make informed decisions about financial planning, wealth accumulation, pensions, and debt'. It has also been defined as a given set of variables including financial knowledge, financial ability and financial behaviours (Fernandes et al. 2014).

According to the Financial Consumer Agency of Canada, 'financial literacy is having the knowledge, skills and confidence to make responsible financial decisions'. The agency defines knowledge as 'an understanding of personal and broader financial matters'; skills as 'the ability to apply that financial knowledge in everyday life'; confidence as 'having the self-assurance to make important decisions' and responsible financial decisions as 'the ability of individuals to use the knowledge, skills and confidence they have gained to make choices appropriate to their own circumstances' (Stewart 2010, p. 10). Of the many definitions in the literature, Stewart (2010) has identified most clearly what is financial literacy and how it is useful for individuals. Its definition emphasises the impact of financial literacy on personal financial decisions.

However, it has been noted that financial literacy means different things to different people, and this is reflected most clearly in the many definitions used in the literature (Worthington 2016). For some it is quite a broad concept, encompassing an understanding of economics and how household decisions are influenced by economic conditions and circumstances. For others, it focuses quite narrowly on basic money management: budgeting, saving, investing and insurance matters. It has been stated that financial literacy and its curriculum are equally important and beneficial for people (Priyadharshini 2017).

The working definition adopted for this study of financial literacy is that it is based on four main elements: knowledge, ability or skills to apply that knowledge, good behaviour related to financial decision-making and financial experience (Remund 2010). Further, Remund (2010) identified five key areas that have been covered by definitions of financial literacy: knowledge, communication ability, attitude in managing personal finance, financial decision-making skills and confidence in planning future financial needs. Although the previous definition is Westernised-based, it can nonetheless be applied in the world's Islamic regions. The reason for this is that financial knowledge in Islam is – much like that in the West - an individual's ability to understand the concepts of saving, and spending. What differentiates the Islamic version are the concepts of *Sadaqa, Zakat, Shariah* commitments and *Shariah* exhortations against gambling, financial corruption and uncertainty (Biplob & Abdullah 2019).

However, research has sometimes failed to differentiate the concept of financial literacy from other related concepts (Hung et al. 2009). For instance, *numeracy* shares some features with financial literacy. Although financial literacy obviously benefits from comfort with numbers, it involves skills rather than just knowledge. These skills rely heavily on a person's ability to deal with numbers. However, numeracy applies to broader concepts than just financial issues

(Hung et al. 2009). Moreover, other concepts such as *financial education* can be referred to as financial literacy. Financial education is a subject that teaches financial knowledge and skills, but its not financial knowledge or financial literacy skills themselves. Thus, financial education is a concept that enhances financial literacy (Hung et al. 2009; Schwab et al. 2009). Financial knowledge also defers from financial literacy. *Financial knowledge* is individuals' financial awareness about some financial concepts, while financial literacy is the ability to effectively apply financial knowledge and various financial skills (Gustman et al. 2010b). Another concept sometimes referred to as financial literacy also is *financial attitude*, which can be defined as a personal preference towards particular financial decisions regardless of level of financial literacy (Hung et al. 2009).

Finally, it has been stated that, 'financial literacy helps individuals make more assertive and efficient decisions in the monetary context of their lives' (Potrich et al. 2015). Thus, after developing a basic understanding of the concepts, one must have enough confidence to manage their personal finances through long-range financial planning and short-term financial decision-making in highly changing economic conditions (Hung et al. 2009; Lusardi 2008b; Lusardi & Mitchell 2014).

It can be concluded that although there is no standardised definition of financial literacy, the concept can be defined based on the literature as the basic financial skills needed to understand and evaluate the new complex financial tools; manage financial resources; process economic information; and make responsible financial decisions regarding financial planning, wealth accumulation, pensions and debt to achieve better financial wellbeing (Huston 2010; Lusardi 2008b; Lusardi & Mitchelli 2007; Mandell 2008; Remund 2010; Schwab et al. 2009; Stewart 2010). According to this definition, the researcher aims to measure people's abilities in Saudi Arabia to make sensible financial decisions by measuring their basic financial skills and the extent to which financial literacy is related to net household wealth.

2.2.2 Some Theoretical Frameworks Related to Financial Literacy

2.2.2.1 The Conventional Economic Approach

The conventional economic approach to making financial decisions assumes that completely rational and well-educated people will spend less than what they gain, especially in the case of high earnings. The underlying driver for this is the need to support their spending when their income collapses, particularly after retirement (Lusardi & Mitchell 2014). According to this

assumption and based on Modigliani & Brumberg (1954) and Friedman (1957), people are posited to organise their optimal saving and reduce their expenditure to facilitate a marginal income during their life cycle. Several studies have illustrated that saving behaviour over the lifetime can be in different forms based on a number of factors such as personal preference, the economic environment and social safety net benefits (Attanasio & Weber 2010; Browning & Lusardi 1996; Chai et al. 2013).

The conventional economic approach assumes that people have the ability to manage their income, make good financial decisions and save money for their future needs through sufficient experience in financial markets, adequate financial knowledge and the capability to undertake complex financial calculations (Lusardi & Mitchell 2014). However, based on the literature, these theories are yet to be reached as the level of financial literacy among people in most countries around the world is very low (Lusardi & Mitchell 2007). Thus, researchers and decision-makers have highlighted the importance of further research to identify the gaps between theory and reality to understand how these theories can be used and how policymakers' efforts can be supported (Lusardi & Mitchell 2014).

The Islamic religious influence is the main driver for financial behaviour of people living in MENA region. The conventional economic theory might be not compatible with some of the teachings of Islamic doctrine (Algaoud & Lewis 2007). The conventional economic theory propagates that individuals are generally driven by self-interest behaviours which is explicated originally through the demand for financial return (Infante et al. 2016). This ideological assumption confirms that individuals are naturally motivated by selfishness and this can lead to serious socially unwanted outcomes (Zaman 2012). According to Islamic finance, individuals must be financially cooperative, generous and they have to avoid being greedy, competitive, and acquisitive. Thus, when required to save lives, redistribution of wealth is essential by Islam through *Zakat*, *Sadaqa*, and other Islamic financial obligations. Furthermore, Islamic philosophy emphasised that there are abundant resources for everyone. Acquisitiveness behaviour left great numbers of people saving immensely beyond their needs without considering others' needs (Algaoud & Lewis 2007; Khan 1984; Zaman 2012). Islamic doctrine plays a great role in every single aspect of Muslim lives including their financial literacy. Based on the previous discussion, it is expected that financial literacy, financial decisions, and saving behaviour of individuals in MENA region are totally affected by Islamic culture. Therefore,

any attempt which lead to understand the financial behaviours of an Islamic society should pay sufficient consideration to the Islamic philosophy.

2.2.2.2 Social Exchange Theory

According to social exchange theory, social interaction can influence individuals, especially in terms of making financial decisions. Individuals rely on others and seek advice from friends or relatives before making financial decisions because they do not have the ability to analyse the advantages and disadvantages of a particular financial plan due to their lack of financial literacy (Gallery et al. 2011). This theory suggests that any social behaviour can be resulted from an exchange action (Cook et al. 2013). In the case of financial decisions, the main purpose of exchange behaviour is to maximise profits and minimise loss.

Social exchange theory proposes that people usually tend to compare the benefits of any financial decision with the disadvantages, in order to determine the soundness of their actions (Gallery et al. 2011). Thus, people with a low level of financial literacy seek financial advice from others regardless of their financial knowledge which might negatively affect their financial decisions (Capuano & Ramsay 2011). According to Hilgert et al. (2003) media, family and friends are the key influencing factors of personal financial decisions. However, these financial knowledge sources may result in poor financial decisions especially when some of these sources are used to promote some financial products.

According to social exchange theory, actions resulted from social interactions depend heavily on the strength of the relationship between both advisor and client. they also tend to be open ended and require a great amount of trust and flexibility between them. However, it is hard to predict the behavioural intention of the advisers. Furthermore, the client reactions may vary depend on his/her personal feeling and emotions related to certain relationship which can lead to undesirables results (Cropanzano et al. 2017). Hence, the level of financial literacy can determine to what extent financial exchange process can affect people when they tend to make any financial decisions (Bucher-Koenen & Lusardi 2011; Setyawati & Suroso 2016; Worthington 2006).

2.2.2.3 Prospect Theory

Prospect theory states that people do not always make rational financial decisions. Especially, when they are under pressure, their financial decisions could be subject psychological

factors(Tversky & Kahneman 1981). However, Ricciardi (2004) stated that people tend to avoid the possible losses more than the possible gains. As they explained, in particular situations, emotive and cognitive factors together can influence financial decisions. This may significantly affect people living in Saudi Arabia, especially given the financial burden (which they never experienced before) with the introduction of the newly introduced government fiscal policies to address the decline in oil prices (Noël 2016).

In fact, the prospect theory espouses the idea of avoiding loss or risk. It can be observed that people react in a different way to evaluate possible losses and possible gains. Thereafter, people usually make their financial decisions based on the possible gain or loss regrading to their current situation. This theory also assumes that people usually give extra weight to the low percentage of possible losses when compared to higher percentage of possible gains (Kahneman & Tversky 2013).

According to Monticone (2010), people with low level of financial literacy tend to avoid risks and prefer low but secure income for their future. On contrary, Lusardi & Mitchell (2011a) reported that people with adequate financial literacy are more likely to efficiently invest in risky assets.

2.2.3 An Introduction to the Empirical Literature on Financial Literacy

There is a vast literature on the level of financial literacy and its role in, and impact on, many factors such as retirement planning, wealth creation and decision-making. For example, Lusardi & Mitchelli (2007) claimed that the causes and consequences of financial illiteracy are very important, especially when arriving at the retirement stage. Their study revealed that, irrespective of age, many people in US are affected from being financially illiterate. They also stated that financial illiteracy was widespread and may have serious impacts on saving behaviour, retirement planning and other financial decisions. This situation has encouraged governments and some non-profit organisations to develop significant initiatives to improve the level of financial literacy and understanding of basic economics concepts among people (Amidjono et al. 2016; Arora 2016). Lusardi & Mitchell (2007) in their study also revealed that lack of financial literacy is widespread among some population subgroups, such as people with lower incomes, less education and women. Those people are more likely to face more difficulties when close to retirement. Another study by Lusardi & Mitchell (2011a) found that

people with a high level of financial literacy are more likely to have successful financial strategies when planning for their retirement.

Atkinson & Messy (2012) provided support for the previous results; they conducted a pilot study to explore the level of financial literacy in 14 countries. Their study focused on several concepts related to financial literacy: financial knowledge, financial behaviour and financial attitude across and within countries and the relationships between these variables and some sociodemographic factors. The study confirmed that most people have some basic financial knowledge; however, they generally have a lack understanding of financial concepts such as inflation, compound interest and diversification. The study also identified a positive association between financial knowledge and behaviour, and between financial behaviour and financial attitude. The authors claimed that people with higher knowledge exhibit better financial behaviour, and people with a positive financial attitude towards long-term planning tend to have better financial behaviour than people who undertake short-term planning. In addition, the study showed that people with low incomes and women are more likely to be financially illiterate.

Another study was conducted on 924 college students in the US to explore the level of their financial literacy and the relationships between their literacy and their characteristics (Chen & Volpe 1998). The study also examined the impact of their financial literacy on their opinions and decisions. Overall, students in the study answered around 53% of questions in the survey correctly. However, those majoring in subjects other than business, women, students with weak study scores, students under 30 years of age and students with no work experience were more likely to have less financial literacy. Students with a lower level of financial literacy tend to make poor financial decisions (Chen & Volpe 1998).

Behrman et al. (2010) conducted a study in the US to measure the effect of financial literacy on household wealth accumulation. They found that although a number of factors play an important role in household wealth accumulation, including ability, financial intelligence and personal motivation, both financial literacy and financial education had a strong positive impact on wealth creation in multiple regression models. They claimed that investing in financial education may have a great positive influence on household wealth accumulation.

2.2.4 Determinants of Financial Literacy

Previous studies have examined how socioeconomic characteristics such as age, gender, education level, work experience and level of income can influence the financial knowledge used by people when they make important financial decisions (Binswanger & Carman 2012; Cull & Whitton 2011; Garcia 2013; Howlett et al. 2008; Lusardi & Mitchell 2017). This section summarises some of those study findings.

Age: Many studies in the field of financial literacy have shown that a person's age has some impact on their financial decisions (Volpe et al. 2002). Volpe et al. (2002) found that older women make better financial decisions than younger women. Beal & Delpachitra (2003) found that the level of financial literacy among young students in Australian universities is generally low. Confirming this claim, Lusardi & Mitchell (2006) found that financial literacy among youth in the US is lower than that for older people. They stated that young people have less knowledge about some finance concepts such as interest rates, inflation and risk diversification than do older adults. Further, Lusardi et al. (2010) reported that the lower rate of financial literacy among young adults is strongly influenced by family background. Likewise, Agarwal et al. (2009) confirmed that younger and older people tend to make more financial mistakes than people who are middle aged. He found that the level of financial literacy takes a U-shaped form over the life cycle. Similar to the above studies, Bucher-Koenen & Lusardi (2011) found that the pattern of level of financial literacy differs among age groups in Germany. They found that while younger people were better able to answer questions related to interest rates, older people in the study had a better understanding about inflation. Moreover, they found that around 55% of younger participants correctly responded to all questions. This indicates that the impact of age on level of financial literacy can differ substantially among countries.

Further, a number of studies have shown that young people give a higher priority to immediate spending than their personal spending over a longer period (Alhabeeb 1996; Erskine et al. 2006; Greenberger & Steinberg 1986). It was claimed that students often show a lack of interest in their personal finances and in obtaining financial knowledge (Mandell & Klein 2007). Most people, especially young adults, are likely to face debt problems because of their low financial literacy (Lusardi et al. 2010). Agarwal et al. (2010) stated that lower cognitive abilities and financial knowledge could lead to uninformed financial decisions. Further, Navickas et al. (2014) confirmed that making uninformed financial decisions at a young age could diminish people's capacity to accumulate wealth.

Yates & Ward (2011) reported that 56% of young adults in their study had no personal budget and 30% had no savings plan. Further, 33% of young mortgage customers were unable to understand all the terms and conditions in their mortgage contracts. According to their study, unlike the older middle age group, around 50% of young adult respondents in the survey were facing financial hardship in the management of their monthly expenditure. The main reason for this was the lack of a contingent financial plan for managing their cash in an unpredictable situation or emergency. This indicates that financial behaviour can vary depending on age.

Gender: The literature shows that gender can affect financial literacy and thus financial decisions (Chen & Volpe 2002; Lusardi & Mitchell 2008). According to previous studies conducted in USA, women may have less financial literacy than men (Chen & Volpe 2002; Lusardi & Mitchell 2008; Volpe et al. 2002) and Rooij et al. (2011b) suggested this may be due to women being less involved than men in financing decisions. For example, many studies have confirmed a lower participation rate for women in stock market transactions (Chen & Volpe 2002; Lusardi 2008b; Rooij et al. 2011b). Rooij et al. (2011b) added that the gender gap could be minimised by controlling some factors such as increasing the level of financial literacy and encouraging saving behaviour.

Chen and Volpe (2002) also found that females in their study had less financial knowledge. Lusardi et al. (2009) reported statistically significant evidence that men in their study were more financially literate than women. Similarly, Bucher-Koenen & Lusardi (2011) found that financial knowledge in less developed regions in Germany is lower among women, while there are no such differences in financial literacy level between woman and men in wealthier areas in the same country. Similarly, Birkenmaier et al. (2013) confirmed that females lack the basic financial literacy required to make sound financial decisions. Almenberg & Dreber (2015) suggested that improving women's basic financial literacy may increase their participation in stock market transactions.

Lusardi & Mitchell (2008) reported that women in their US study had extremely low levels of financial literacy and most had not undertaken any savings planning calculations for their retirement. Thus, women may be more prone to face financial difficulties in the future (Mottola 2013). Allgood & Walstad (2011) claimed that women tend to engage in more expensive credit card activity than men, such as carrying a balance on their credit cards and tolerating late payment fees. However, Lusardi & Mitchelli (2007) indicated that females are better at comparing prices on items than are males when shopping. Additionally, women have more

awareness about spending money than men. Another study showed that women, especially in emerging markets, are highly dependent on the male member of their family to make financial decisions for the family (Arora 2016).

Although the studies described above were conducted in developed countries such as the US, UK and Europe, a study conducted in Australia—also a developed country—showed that females are more financially literate than men (Wagland & Taylor 2009). The authors claimed that while the results of their study illustrated a general lack of financial literacy among Australian students, females were slightly more financially literate than males. Similarly, in a study in Indonesia, women were more financially literate than men (Setyawati & Suroso 2016).

Level of education: Level of education is one of the most important factors determining the level of understanding of any subject. Finance-related decisions often involve the ability to reason, retrieve information and perform complex calculations (Bharadwaj 2000). A number of previous studies have pointed out a significant relationship between level of education, financial literacy and financial planning decisions (Bucher-Koenen & Lusardi 2011; Setyawati & Suroso 2016; Worthington 2006). This also involves ability to make informed judgments on the better management and usage of money. Thus, financial education helps people better understand financial services, products and concepts. This may enable them to make calculated choices and avoid pitfalls, which ultimately assists them. Education programmes related to financial knowledge should incorporate financial awareness and help people implement better financial decisions (Cohen & Nelson 2011). Similarly, a study conducted by Al-Tamimi (2009) in United Arab Emirates found that financial literacy is heavily related to the quality of financial education.

Thus, education institutions all over the world have made remarkable efforts to increase financial literacy in the community (Arora 2016). It is also evident that financially knowledgeable people are more able to plan their finances (Lusardi & Mitchell 2011b). Researchers such as Eades et al. (2011), Fowler (2013) and Wilson (2012) have also highlighted that many non-profit organisations aim to inspire people and empower them in financial decision-making. For example, the US government established a counsel in 2008 to advertise financial education and increase awareness of financial services (Cole & Fernando 2008). Similarly, the Reserve Bank of India launched an initiative in 2007 to enhance the level of financial literacy among India's youth (Fowler 2013). This initiative includes counselling centres to promote financial knowledge and education and provide consultations to urban and

rural populations throughout the country (Arora 2016). Indonesia has also introduced several initiatives, such as the Financial Service Authority (OJK), which aims to develop national financial literacy strategy programmes for the Indonesian population, to reduce poverty (Amidjono et al. 2016). Moreover, in cooperation with the Ministry of Education and Culture, the OJK initiated a programme aiming to introduce financial education into the public school curriculum (Amidjono et al. 2016; Setyawati & Suroso 2016). Moon et al. (2014) also recognised the importance of efforts to establish an early and structured financial education system for elementary and high schools in China. In addition, Korea has become one of the most dominant countries in financial literacy research, including on the income level of the Korean population, saving behaviour and financial planning, and decisions related to expenditure, debt and money administrating (Arora 2016).

Huddleston-Casas et al. (1999) tested the influence of financial programmes in a US high school and Huddleston and Danes (1999) examined the impact of a high school financial planning programme on a sample of students. They found that teaching personal finance in US high schools might raise financial literacy, with positive results for teenagers' financial decisions and subsequent behaviour as adults.

Chen and Volpe (1998) conducted a study among college students in the US, claiming that a low level of financial literacy is an expected outcome of the current education curriculum, in which only 5% of courses include personal finance for non-business students; only 10% of students take financial courses in business colleges. According to Wagner (2015), the benefits of a financial education depend on the time horizon required to change people's financial behaviour. Their findings suggested that long-term financial education has a strong effect on financial literacy and financial behaviour. Moreover, it was suggested that one can reap the real benefits of a financial education on the basis of an overall time horizon designed to change the financial behaviour of people through a proper financial education (Callender & Kemp 2000). Drawing on this analogy, the longer the period of learning in financial education, the stronger one's financial literacy and behaviour.

In fact, the importance of increasing awareness and raising the level of financial literacy was highlighted by (Lusardi 2008a), who showed that many people do not think about retirement, even when they plan to retire within 5–10 years. Besides such a lack of planning, 50% of workers in the study knew little about the rules of social security and pensions. Additionally, most had insufficient knowledge about financial concepts such risk diversification, nominal

verses real value and compound interest. Surprisingly, Mandell & Klein (2007) found that students have no interest in financial knowledge, and do not care about their personal finances. As a result, they lack the knowledge required to make good financial decisions. Thus, as argued by Gale et al. (2012), the private sector can also be considered a key player in enhancing people's financial literacy.

However, Capuano & Ramsay (2011) highlighted that financial advisers and financial institutions might encourage their clients to use financial products in which they have a vested interest. In the same way, people usually seek financial advice from non-professionals to make financial decisions. Consequently, media, family and friends are considered major sources of personal financial (Hilgert et al. 2003). The possible conflict of interest of these financial knowledge sources could result in uninformed financial decisions since these sources can be used as advertising or promotion methods of financial products (Hilgert et al. 2003).

Yates & Ward (2011) found also that lack of financial knowledge is common among students in USA: almost 25% of their respondents were unable to answer questions related to financial literacy. For example, (Chen & Volpe 1998) claimed that a large number of US college students lack relevant knowledge of financial literacy, which means they are unable to make wise financial decisions. Additionally, the value of financial literacy was revealed by examining data on 3,932 respondents studying in 12 public and private sector universities (Mireku 2015). The study reported a lack of financial knowledge among university students: while they had a moderate level of knowledge about how to save and borrow, they had less understanding of other financial issues.

Yates and Ward (2011) found that their study participants gained 41% of required financial knowledge from parenting and home advice. Likewise, in other studies, financial literacy has proven to be dependent on a parent's level of education, subject of study, employment and gender. Research findings are particularly interesting in this regard: for example, a mother's level of education has a significant negative impact on pupils' financial literacy (Yadav 2018). In another study, financial knowledge was significantly positively related to handling financial issues and making smart decisions when given financial alternatives (Rooij et al. 2011a). Moreover, financial literacy had a positive relationship with good personal finance practices.

Based on above relationships evident in the literature, several authors have recommended constructing a general policy for the financial literacy of individuals (Yadav 2018). It has been

stated that based on financial literacy, people can make more self-assured and resourceful decisions (Bandura 2000). The latter study presented a financial literacy model based on socioeconomic and demographic predictors. Another confirmed that having a population with strong financial literacy helps a country to increase local savings levels, reducing its dependence on foreign capital and enhancing economic growth (Naoyuki & Flore-anne 2016).

Work experience: Since learning by doing is one of the most effective ways of gaining knowledge and skills, prior experience with financial activities might help people improve their level of financial literacy. Studies have examined how people accumulate the relevant financial knowledge they use when they make financial decisions. For example, Yates and Ward (2011) argued that people could gain financial knowledge through experience, especially during their university life, via tuition fee loans and other financial responsibilities. Birkenmaier et al. (2013) suggested that previous personal financial opportunities shape individuals' understanding of financial concepts and applications.

Beal & Delpachitra (2003) found that people tend to gain their financial knowledge through previous experience. Erskine et al. (2006) found that young people with more extensive work experience are more likely to make responsible financial decisions and tend to have better saving behaviour than young people with less work experience. Other studies have found that young workers tend to save money for future expenditure rather than spending their money immediately. However, many researchers have confirmed the effect of a low level of financial literacy on the outcomes from personal financial decisions (Lusardi 2008b; Rooij et al. 2011b). Eades et al. (2011) identified personal financial literacy as an element in the GFC.

Marital status: When a new family unit is created, for example, through marriage, one partner must take the responsibility of managing the financial activities in that family unit. This may force them to develop the relevant financial skills. Therefore, socioeconomic characteristics such as marital status may have a significant impact on financial literacy and financial behaviour (Bucher-Koenen & Lusardi 2011; Setyawati & Suroso 2016). Several researchers have investigated the relationship between marital status and financial literacy. Potrich et al. (2015) and Nayebzadeh et al. (2013) found that unmarried individuals are more likely to be less financially educated than married or engaged people. Similarly, a study in Indonesia reported that married university lecturers had a higher level of financial literacy than unmarried ones (Setyawati & Suroso 2016). Arora (2016) claimed that married women have more financial literacy, on average, than single women; marital status had a remarkable effect on

women's financial behaviour and financial decisions. The cited literature confirms that there may be an effect of changing marital status on a person's financial literacy.

Number of children: Comparisons between married and unmarried people have suggested that married people, especially those with more children, have stronger financial literacy, which grows further as they age (Arora 2016; Shusha 2017; Zissimopoulos et al. 2015). A US study by Zissimopoulos et al. (2015) found that the primary reason for getting married is to have children. He concluded that married couples with number of children exhibit financial literacy by accumulating wealth to leave bequests for their children. Further, expenditure on child-related commodities tends to increase with the number of children, forcing parents to increase their financial resources to cater for increased expense, thus improving their financial literacy.

Public and private sectors: The financial services sector has witnessed significant growth with a large number of reforms in both the public and private sectors (Mohan & Prasad 2016). Mohan & Prasad (2016) investigated the level of basic and sophisticated financial literacy among employees in both sectors in India. They found no significant difference between sectors in terms of basic financial literacy; however, in terms of sophisticated financial literacy, private sector employees tend to be more financially literate about functions of the stock market, and relationships between bond prices and interest rates; stocks, savings accounts and bonds; shares and stock mutual funds; and risk diversification of shares and bond.

Urban *v.* rural: As might be expected, since the availability of financial services in rural areas of any country is generally limited compared with urban areas, many studies have confirmed that people in rural regions have lower financial literacy than urban dwellers (Gaurav & Singh 2012; Klapper & Panos 2011). Gaisina (2018) examined the relationship between the level of financial literacy of people living in rural areas in Kazakhstan and their financial experience, sociodemographic characteristics and the existence of financial institutions. A substantial proportion of the rural population in Kazakhstan depends heavily on the income from their small subsidiary households, but they experienced significant financial issues such as difficulty in accessing formal financial services and banks, and a low level of financial literacy. Although Kazakhstan's government had taken several steps to address this situation, the lack of financial institutions, inadequate educational programmes and financial experience remained evident. Further, people in the country were generally on very low incomes and could not afford financial knowledge services. This in turn affected their financial literacy and all financial decisions they made.

Moreover, Bucher-Koenen & Lusardi (2011) found that women living in less developed regions of Germany had relatively low financial knowledge. However, no differences in financial literacy level were found between men and woman living in wealthier areas in the same country. Studies have confirmed that younger and older people tend to have less financial literacy compared with middle-aged people (Lusardi 2008b; Volpe et al. 2002), and Agarwal et al. (2007) showed that financial mistakes are most prevalent among young and the elderly people living in poor and rural regions and both display less financial knowledge and cognitive ability than middle-aged people. However, evidence for financial literacy inadequacy is rampant across different countries compared with the same-aged people living in urban areas. Lusardi & Mitchell (2011a) discovered that various governments have responded to this situation by establishing financial education programmes. According to Smith & Stewart (2009), the level of efficiency in the design and operation of financial education programmes is insufficient.

Income level: A person's income level can dictate their consumption and investment habits as well as interest in financial matters. Therefore, income level may be a major determinant of one's degree of financial literacy. Studies have generally shown that people with low incomes tend to be less financially sophisticated (Abreu & Mendes 2010; Bucher-Koenen & Lusardi 2011; Demirguc-Kunt et al. 2013). (Homan 2015) showed that people with low incomes are more prone to financial difficulties, mismanagement and poor financial planning. Rooij et al. (2011a) deployed questions designed for a module on financial literacy for the Dutch *DNB Household Survey* to show that financially sophisticated households are more likely to participate in share or stock markets. They examined whether participation in the stock market or success in investing is influenced by financial knowledge when relying on previous experience. They found that financially literate young people with high incomes are more likely to invest in the stock market. Lusardi & Mitchell (2011a) similarly reported that people with superior financial literacy are more likely to more efficiently invest in risky assets. Beal & Delpachitra (2003) highlighted that competition between banks and credit card providers has encouraged people to spend more but increase their debt, which might not be repaid. Further, individuals with a low level of income, such as college students, are observed to make hasty financial decisions by, for example, purchasing expensive goods such as cars or mobile phones.

Only a few studies have specifically examined the role of socioeconomic status in financial decisions in Saudi Arabia, finding that higher socioeconomic status promotes sharing of

money-related decisions (Konana & Balasubramanian 2005). The survey revealed that the positive changes in gender structure including employing and empowering women currently in Saudi Arabia might contribute to greater gender equality in financial decision-making, more involvement of males in household responsibilities and an increase in mutual decision-making and family planning. In other words, the higher the income in Saudi Arabian households, the more equality regarding financial and household decisions, and the higher the level of financial literacy for both males and females (Demirguc-Kunt et al. 2013). Such studies highlight factors involving financial literacy and its influence on people's lives. Although relevant research has been undertaken in many nations, the absence of MENA countries from such research is evident.

In conclusion, financial illiteracy among individuals is generally common in the global context, but is particularly acute in particular groups such as females, rural dwellers, younger and older people, and people with low incomes and little education (Lusardi & Mitchell 2014). It is a fact that despite such low levels of financial literacy, very few people seek help from experts for their investment decisions (Lusardi & Mitchell 2011a). A plethora of research has been undertaken on the impact of financial literacy on personal financial decisions, and has identified that lack of personal financial literacy may lead to financial crisis (Lusardi & Mitchell 2014). Hence, measuring financial literacy becomes more important in the modern world with rapid development of financial services; especially for MENA countries including Saudi Arabia, which has been affected significantly by changes in oil prices.

2.3 Household Wealth

2.3.1 Definition of Household Wealth

Researchers have provided a number of definitions for household wealth. Household net wealth has been defined as the total value of (real and financial) assets minus the amount of debt (Bostic et al. 2009). Some assets acquired for limited time of use, such as vehicles and computers, are not considered components of household assets (Bostic et al. 2009; Bover 2008). Briesacher et al. (2010, p.505) defined household wealth as income and assets and household income as both earned and unearned income. Household assets include non-housing equity such as stock and mutual funds.

Browning et al. (2013, p. 13) defined household net wealth as ‘assets minus liabilities’. They identified share capital, bank deposits, bonds and securities (market value) as assets (Lane & Milesi-Ferretti 2007). Enderle (2009) explained that added value is often a ‘black box’, which can be filled with any type of value. He also pointed out that a wealth creation process should consider both financial and ethical values and that cultural and social values influence people when they are making financial decisions.

Importantly, Yamokoski & Keister (2006) confirmed that wealth can increase political impact, pedagogical and vocational opportunities and social benefits for both the present and future generations of those who have it. Against this background, the wealth creation perceptions of people living in the MENA region may differ from those of those in other countries through the influence of Islamic principles.

2.3.2 Some Theoretical Frameworks Related to Household Wealth

2.3.2.1 The Life Cycle Hypothesis of Saving

At the beginning of the 1950s, Modigliani and Brumberg developed a theory they termed the life cycle hypothesis of saving. This theory was developed based on the observation that people make decisions related to their spending according to two factors: the financial resources available to them over their life, and their current age (Ando & Modigliani 1963). They observed that people usually aggregate their assets in the early stages of their working lives and later, when they reach retirement, they tend to use their total assets and dis-save (see Figure 2.1) (Ando & Modigliani 1963; Modigliani 1966). The theory emphasises that people tend to smooth their consumption and saving behaviour over their lifetime, in a way that allows them to manage their expenses most fruitfully over their entire life cycle. It assumes that people save during periods of high income and borrow during periods of low income(Jappelli & Modigliani 1998).

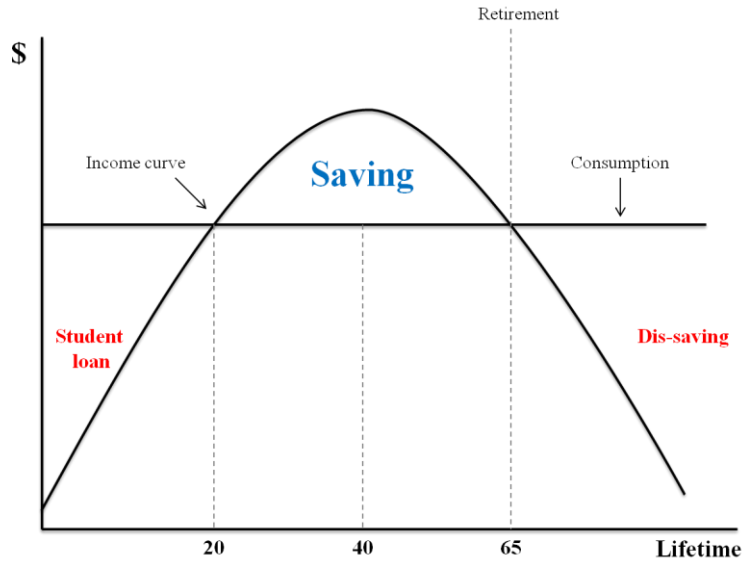

Figure 2.1: Saving behaviour over the stages of life (adopted from (Jappelli & Modigliani 1998; Wakita et al. 2000)

The life hypothesis theory is important to predict to what extent age can affect the household wealth. Number of studies have proved that household wealth vary during the life cycle (Becker 2009; Lee et al. 2000; Sierminska & Takhtamanova 2007). Previous studies show that household wealth rise throughout life until a peak is reached at around 45–54 years of age, and decline again in older age. In this study, the aim is to explore the impact of age on household wealth of Saudi workers. Obviously, the most practical implication of the life cycle theory for private saving requires empirical testing, particularly in the context of an emerging market economy such as Saudi Arabia (Yasin 2008). Saudi Arabia has grown relatively fast in the past decade especially due to increased oil export revenues (Almalki & Ganong 2018). The economic growth of the Kingdom has been accompanied by a great increase in population throughout the region (Almalki et al. 2011). For this reason, it is essential to design an effective public policy to: firstly, examine the possible impact of saving patterns on economic growth; and secondly, understand the social-economic problems that are causing less-than-satisfactory saving patterns. For example, a study by Yasin (2008) aims to test the validity of the life cycle theory in 14 emerging countries including Saudi Arabia reveals on a negative relationship between the aging group of population and the save rating. While the results of the study were consistent with the implications of the life cycle theory, especially for the working and young population groups. The results suggest that the larger the working ratio in the population, the higher the national saving ratio will be.

However, it is important to note that all countries in the previous study (Algeria, Bahrain, Egypt, Iran, Israel, Jordan, Kuwait, Libya, Morocco, Oman, Saudi Arabia, Syria, Tunisia, and the United Arab Emirates) are characterised as having relatively large numbers of children in their populations, ranging from 25% to 50% compared to only 1% to 13% for older people (Yasin 2008).

2.3.2.2 The Economic Theory of Self-control

The economic theory of self-control assumes that people at some point in their lives can be likened to organisations. Individuals can play two important roles similar to those in organisations—as the far-seeing planner or short-sighted actor. These conflicting roles are highly similar to the conflict between shareholders and managers and between employers and employees in any organisation. Individuals and organisations use the same strategies to eliminate issues arising from this conflict. This theory implies that people seek to balance their expenses to make the right choice regarding consumption and saving behaviour, and to mitigate conflict in decision-making resulting from the effects of pensions on savings, periods of high income and discount rates (Canova et al. 2005; Thaler & Shefrin 1981). For example, marital status and number of children can affect individuals' behaviour of saving. Married people tend to allocate an adequate amount of income for emergency cases four times more compared with single people (Lusardi & Mitchell 2006; Wakita et al. 2000). While married people with children spend less on complementary and unnecessary goods in order to build a better life for their children (Lee et al. 2000).

2.3.3 An Introduction to the Empirical Literature on Household Wealth

Lusardi & Mitchell (2006) highlighted that more than one-third of baby boomers' wealth in the US is held in the form of home equity. Thus, baby boomers' net wealth is affected strongly by real estate prices. Further, 60% of baby boomers have no plans to sell their properties. Lusardi & Mitchell (2006) found a strong link between financial planning and wealth maximisation. Surprisingly, they noted that financial planning is weakly associated with housing equity. These findings highlight a connection between the low level of financial literacy and real estate value. Indeed, market booms and the increasing availability of mutual funds in the 1980s and early 1990s made stock ownership more feasible for more people; by the mid-1990s, stocks surpassed housing wealth as the largest component of US portfolios (Sloane 1995).

Campbell (2006) found that when interest rates fall most investors are unable to refinance their mortgages. These findings were similar to those for people who failed to refinance because of their lack of financial literacy and education. Those are individuals who typically do not understand the terms of their interest rates and mortgages (Bucks & Pence 2006). Moreover, positive relationship between financial knowledge and financial behaviour was identified by Hilgert et al. (2003). According to Moore (2003), borrowers with lower financial literacy may take out high-cost mortgages with no understanding of the implications of such a decision. Gustman et al. (2010b) reported that pension wealth and pension knowledge are interrelated. Similarly, it is impossible to untangle the impacts of financial literacy and proxy variables from financial literacy (Vissing-Jorgensen 2004). The same is true of education when it is taken as a determinant of financial literacy. Thus, the impacts of financial knowledge and level of education cannot be differentiated.

Gustman et al. (2010a) argued that it is easier to move from pension wealth to pension knowledge, than from pension knowledge to pension wealth. Vissing-Jorgensen (2004) pointed out that it is impossible to disentangle the effects of financial literacy from those of proxies for financial literacy. For example, when they used education as a measure of financial literacy, they failed to separate the effect of financial knowledge from that of education. However, the sheer number of financial mistakes may be unsurprising because of the inadequate financial knowledge in many households. For example, Agarwal et al. (2009) identified a high prevalence of financial mistakes in the loans market. Most households pay very high interest rates on mortgages, credit card debts and loans (Moore 2003). In addition, researchers have consistently argued that financial literacy has a positive impact on wealth accumulation in many countries (Monticone 2010).

Studies in Sweden have documented that many families under-diversify their portfolios, while some do not invest in financial markets at all (Calvet et al. 2007). People who are unable to calculate interest rates for their total payments usually have to borrow more money, which ultimately reduces their accumulated wealth (Stango & Zinman 2007). Likewise, it was found that those who lack an understanding of compound interest usually face more difficulties with repayment of debt (Lusardi et al. 2011).

A study on financial literacy and household wealth in the Netherlands by Rooij et al. (2011c) concluded that financial knowledge is associated positively with wealth accumulation. However, the authors highlighted the need to separate the impact of financial education and

experience from other channels, on financial ability. Similarly, Bos & Kool (2006) collected data from 1,000 Dutch citizens to investigate their pension preferences, their level of independence and related investments. It is general practice that responsibilities as well as risk are transferred from owners to employees. The results revealed that pensions are highly related to risk-averse behaviour. Many people were strong proponents of pensions and believed that 70% of the workforce should be provided with one. Most respondents were financially illiterate and tended to avoid having control over their investments, retirement savings and so on. In another study, most participants did not take risks because they preferred a small but secure income for their future (Monticone 2010).

2.3.4 Determinants of Household Wealth

Previous studies have considered various factors that influence wealth creation, including: precautionary motives; speculation (materialising future economic opportunities); longevity and bequests; and self-control problems. These factors may explain the high level of credit/loan borrowing too often is the consequence of a low level of financial literacy (Fehr 2002; Gathergood 2012). Compounding this situation are unexpected events and personal financial literacy (Hurd 1989; Laibson 1997; Rosen & Wu 2004). Other studies also emphasise the importance of demographic factors in determining personal household wealth where gender, age, level of education, level of income, etc., are important (Bover 2008; Cull & Whitton 2011). In this study, the researcher focuses in detail on the influence wielded by demographic factors on household wealth. Fewer than half of the US employees participating in relevant research attempted to estimate the amount of money they may need for retirement (Lusardi & Mitchelli 2007). Moreover, a great number of elderly people in the US encounter apparent retirement savings shortfalls (Lusardi & Mitchelli 2007; Mitchell & Moore 1998; Scholz et al. 2006). Several socioeconomic explanations for this situation have been advanced, involving factors such as financial knowledge, age, marital status, gender and inheritance (Behrman et al. 2010). Geetha & Ramesh (2012) examined how demographic factors such as age, gender, education, income, occupation, family size and savings might dictate various aspects of an individual ‘s financial decisions such as financial planning, determinants of investment priorities, sources of financial information and frequency of investment. Likewise, demographic variables may have a significant impact on various aspects of an investment decision. In the same vein, Bernheim et al. (2001) reported that demographic factors such as marital status and gender are

significantly correlated with household income, wage income and net worth; however, the correlation was stronger for age and education.

Age: Becker (2009) claimed that incomes during early labour force participation tend to be low; they rise throughout life until a peak is reached at around 45–54 years of age, and decline again in older age. Another study showed that people in childhood and old age tend to consume more than they earn, but in their middle age consume less than what they earn (Lee et al. 2000). Similarly, Sierminska & Takhtamanova (2007) claimed that older household wealth tends to lower than for other age groups.

Gender: Gender has a significant influence on wealth accumulation (Yamokoski & Keister 2006). Importantly, as mentioned earlier in section 2.2.4 in this chapter, women have less financial literacy than men because of the traditional inclination for women to commit to family-related roles rather than increasing their knowledge. This traditional tendency affects women's wealth in a negative way (Becker & Becker 2009). Yamokoski & Keister (2006) stated that family responsibilities indirectly influence women's educational and occupational success, which affects their earnings and wealth accumulation.

Generally, single women in the US are caring for their children following divorce or a broken de-facto relationship (Buehler & Gerard 1995). This fact has encouraged researchers to investigate the role of motherhood as a key factor reducing women's abilities in terms of savings and wealth accumulation (Folbre 1984; McLanahan & Kelly 2006). Waldfogel (1997) claimed that there is a clear income difference between women with and without children, reflecting an important gap in economic wellbeing. Thus, Yamokoski & Keister (2006) suggested that researchers should take gender-specific patterns into consideration when studying the correlation between gender and economic wellbeing. They added that wealth accumulation might also vary according to gender, which might significantly influence overall wealth inequality; thus, in the case of wealth, the impact of gender in combination with marital status must be considered.

Level of education: At all income levels, people with a high level of education tend to exhibit saving behaviour, take on less debt and make wiser investment decisions that lead to larger overall portfolios (Yamokoski & Keister 2006). Moreover, educated people are more likely to start saving early in their life, which allows them to accumulate assets faster than less educated or uneducated people during their careers and until retirement (Keister 2000). Education also

provides a key social contact that can offer essential information, support and referrals (Yamokoski & Keister 2006).

Studies have shown that wealth accumulation, retirement planning, debt management and budgeting have strong relationships with financial education (Campbell 2006; Hilgert et al. 2003; Lusardi & Mitchelli 2007). Individuals who understand financial concepts enjoy much higher economic wellbeing. One study showed that people who received 3 years of training in credit counselling were successful in reducing their debt and improving management of their credit cards (Mandell 2008). Similarly, Braunstein & Welch (2002) claimed that a higher level of financial education is associated with more personal savings and enhances economic and financial security in retirement. Their study showed that, in terms of saving rates, respondents with a high school education were 1.5% better off than people who had never attended any school. Warschauer & Sciglimpaglia (2012) claimed that when a household completes financial management tasks based on financial literacy, the eventual economic benefits can be divided into three categories: preventing loss, increasing wealth and removing consumption.

Hilgert et al. (2003) stated that financially literate people are more likely to be involved in a great diversity of financial practices. Lusardi & Mitchelli (2007) found that people with a high level of financial literacy have a strong ability to succeed in financial planning and contribute to complex assets. In a study conducted in India and Indonesia, Cole et al. (2009) found that financially literate people were more likely to have bank accounts than financially illiterate people. As mentioned earlier, Gale and Levine (2011) indicated that financial education helps people with their saving and wealth distribution decisions, and that saving behaviour is affected by retirement seminars. People who had taken part in financial education classes raised their financial wealth by 25%.

However, Behrman et al. (2010) stated that although a great number of studies have confirmed that financial literacy has a positive impact on financial behaviour and wealth accumulation, few have examined unobserved factors such as risk reluctance, self-esteem, inherent ability, intelligence and self-motivation, which might influence the correlation between financial literacy and financial behaviour.

Work experience: A study conducted on college students in the US examined the impact of work experience on their credit card debt, revealing that work experience was among the most important influences on the students' credit card debt (Wang 2011). The college students with

little work experience tended to have more credit card debt than students with a high level of work experience. Wang (2011) suggested that financial education and wealth advisers may enhance students' financially responsible behaviour through effective educational programmes regarding the use of credit cards. Experience in different work activities provides people with valuable skills and a great opportunity to balance their expenses. It is evident also that there is a positive relationship between earning and work experience, and between work experience and future income (Etokeren 2014; Rosen 1972).

Marital status: Another factor that influences household wealth is marital status (Yamokoski & Keister 2006). Lusardi & Mitchell (2006) noted that married people have more than four times the net wealth of unmarried people, and are more likely to invest in the stock market and real estate. Further, they noted that male respondents have much higher net wealth than female respondents. Another study showed that couples are more likely to minimise their expenses, especially in terms of housing and food expenditure and they tend to allocate an adequate amount of income for emergency cases, compared with single people (Wakita et al. 2000). Lupton (2003) claimed that marriage enhances net worth and that saving behaviour and wealth accumulation would be superior for married compared with unmarried people.

Number of children: Lee et al. (2000) claimed that household wealth is influenced by the number of children. They claimed that adults with a larger number of children spend less on themselves than do single adults and that number of children is a strong factor motivating saving behaviour. Moreover, Zissimopoulos et al. (2015) US-based study showed that more married couples with children practise financial literacy by accumulating wealth to bequest to their children. Further, expenditure on child-related commodities tends to increase as the number of children increases, thus forcing parents to increase their financial resources to cater for the increase in expenses.

Stampfl (1978) stated that a family's life cycle stage can be measured by age and number of children, and these factors determine the needs of the family and their consumption. Lupton (2003) claimed that more children in a family could decrease or even eliminate the ability of a household to increase its personal wealth. However, Hefferan (1982) stated that people with at least one child are more likely to accumulate wealth than are people with no children. Similarly, Douthitt & Fedyk (1989) confirmed that the number of children in the family is expected to have a positive influence on household net worth.

Private and public sectors: Quinn (1982) claimed that employees in the public sector are paid more in term of wages and salaries than those in the private sector. In general, this fact assumes that pensions are more attractive in the public than the private sector. In contrast, studies in the Netherlands have shown that although public sector employees are more financially stable than private sector employees, some public sector employees earn less than private sector employees with the same qualifications (Hartog & Oosterbeek 1993; Van Ophem 1993). Moreover, in Van Ophem (1993) study, employees in the private sector who were highly qualified typically earned 4.1% more than employees in the public sector.

Income level: A number of studies have reported a positive relationship between household income level and saving behaviour (Chang 1994; Heckman & Hanna 2015; Solmon 1975). Another study found a significant positive relationship between household income and net worth (King & Dicks-Mireaux 1982). Wakita et al. (2000) suggested that any increase in labour income is expected to positively influence saving behaviour and housing net worth.

Inheritance: The tradition of inheritance also plays a crucial role in household wealth accumulation (Yamokoski & Keister 2006). The literature shows that inheritances account for at least 50% of the net wealth of US families (Gale & Scholz 1994; Kotlikoff & Summers 1981). In terms of household wealth, direct transfer of wealth from parents to their children via an inheritance may determine the type of assets and debts held by people, and this may determine the long-term manner of their wealth accumulation (Yamokoski & Keister 2006). Further, inheritance also indirectly enhances people's capacity to accumulate household wealth as it can contribute to costs such as rental expenses (Miller & McNamee 1998). Another study showed that home equity is the most popular investment in the US and that homeowners have a stronger ability to own stocks, mutual funds, and bonds than do non-homeowners (Keister 2000). Thus, inheritances might establish a strong foundation for saving during the life cycle (Yamokoski & Keister 2006).

Financial intelligence: Financial intelligence is the ability to monitor, understand current and future financial trends, and use financial resources more effectively to achieve better wellbeing (Berman & Knight 2013). Financial intelligence provides non-financial managers with useful knowledge and confidence in their everyday work (Berman et al. 2006). Further, Bergström et al. (2011) suggested that financial intelligence can solve many problems related to money matters. He identified five essential financial intelligence parameters: protecting money, making money, budgeting, improving one's financial information, and leveraging money. All

these components have proven necessary for individuals who want to create wealth. However, financial intelligence does not encourage saving behaviour; rather, it helps people to generate money from their assets to create wealth. Financially intelligent managers generally have a clear understanding of financial measurement issues (Petty & Guthrie 2000). Financial intelligence also helps information technology and human resources managers to evaluate the financial aspects of a company (Nemati et al. 2002). Although people from a non-financial background may consider financial decisions too complex and vague, financial intelligence can provide the capacity required for non-financial workers to make good financial decisions (Lamba & Mace 2010). Thus, financial intelligence may be strongly related to household wealth because it provides people with the skills to enhance their household wealth (Chatterjee et al. 2011).

2.3.5 Household Wealth and Financial Literacy

The findings of a study conducted by Valiente et al. (2012) indicated that personal wealth significantly depends on degree of financial literacy. Lack of relevant financial knowledge can lead to uninformed personal financial decisions and thereby it can affected the personnel wealth accumulated (Behrman et al. 2010). This was confirmed by Behrman et al. (2012), who found that the level of financial literacy to some extent influences wealth accumulation behaviour.

Lack of financial knowledge was well illustrated by the belief of 20% of people in one US study that they could enjoy maximum benefits in retirement by winning the lottery (Gale et al. 2012). Further, it was claimed that lower financial literacy leads to people making only the minimum required payment to balance their credit card debt, which means they pay a higher interest rate (Gale et al. 2012). Likewise, another US study identified that 75% of participants considered owning their own home as a kind of saving. This percentage is very high compared with that in developing countries where few people own their own home (Hilgert et al. 2003).

Interestingly, some studies have highlighted factors that guide people to make unwise financial decisions, which directly affect their net wealth (Behrman et al. 2010). It was reported that finance education builds people's savings as well as wealth distribution. Moreover, in one study people who attended a retirement seminar and classes related to financial education exhibited stronger saving behaviour than others (Gale & Levine 2010). Gaudecker (2015) claimed that financial literacy is related to positive investment outcomes and that people with less financial knowledge and those not receiving external advice experience financial losses.

One study considered various factors affecting wealth creation in different groups, including precautionary savings motivation such as economic opportunities, longevity and bequests, unanticipated events, self-control issues and health (Rosen & Wu 2004). The study did not find a relationship between financial literacy and accumulation of wealth. Further, people who are financially literate may face fewer challenges when they gather and analyse information; thus they are better positioned for both accumulating and managing savings (Rosen & Wu 2004). Drexler et al. (2014) noted that simplistic financial training could jeopardise people's ability to accumulate wealth. Likewise, in their study, Lusardi et al. (2010) found that married people accumulated around four times the net wealth of unmarried people. They also found that married individuals were more inclined to invest assets in real estate and the stock market and males had more net wealth than females (Lusardi et al. 2010).

It is important to note that composition of net wealth differs from generation to generation; Lusardi & Mitchell (2017) highlighted that in their US study the wealth of baby boomers was tied up in home equity, which strongly affected real estate prices. Additionally, 60% of the baby boomers had no intention of selling their properties. In the same vein, Lusardi (2008a) found that financial planning is related to wealth maximisation. Surprisingly, financial planning is weakly associated with housing equity. These findings establish a clear link between lower financial literacy and real estate value (Agarwal et al. 2015).

2.4 Financial Literacy in Saudi Arabia

It is evident in the literature that there is a growing awareness of the importance of education for the labour force and its positive correlation with a country's economic growth (Barro 2001; Ogundari & Awokuse 2018). The existence of a quality education system contributes effectively by increasing abilities in logical thinking, value judgments, effective decision-making and effective financial management (Mahmood & Alkahtani 2018). As mentioned in Chapter 1, especially in Saudi Arabia, improving the education system, including by adding financial education, is crucial if the government want to achieve success with its *Saudi Vision 2030*, which primarily aims to enhance the level of diversification and reduce dependence on oil as the major source of income (Mahmood & Alkahtani 2018). Significant efforts have already been made to improve the education system in Saudi Arabia, especially since the announcement of *Saudi Vision 2030*. Despite these efforts, the literacy rate of Saudi people remains lower than that in other rich countries (Bosbait & Wilson 2005). Mahmood & Alkahtani (2018) stated that formal education and financial literacy are considered a useful tool

to improve the cognitive abilities of individuals, enhance their productivity and enhance their ability to make better financial decisions; this, in turn, will accelerate the economic growth of the kingdom. Given that the Saudi government aims to increase diversification of the Saudi economy, they must therefore concentrate on occupational education regarding finances. Further, financial literacy has become particularly essential for Saudi Arabia since the significant decrease in oil prices of December 2015, which resulted in a remarkable drop in government expenditure through job losses and wage cuts (Elachola & Memish 2016). Moreover, as mentioned in Chapter 1, the new taxation system and the significant increase in the cost of daily requirements has resulted in a real need to reconsider the budget and adapt to the lower level of income through adequate financial literacy. Recently, financial products and services have become more easily accessible to a broad range of the population, which has made financial decisions overly complex for many people (Klapper et al. 2015).

The scarcity of literature about financial literacy and wealth creation in MENA countries, especially Saudi Arabia, is noteworthy. Only a few studies have been conducted on financial literacy in the kingdom. One such analysis was that done by Boora & Agarwal (2018), who investigated the relationship between financial literacy and level of education among Saudi working and non-working women. The study found no relationship between financial literacy and level of education for the women and reported no difference between working and non-working women regarding their financial literacy. The second study, conducted by Mian (2014), examined the impact of some demographic factors on financial literacy in Saudi Arabia, including age, gender, education and employment. The study found that males were more financially literate than females and that middle-aged individuals were more literate than younger and older individuals. The study also found that financial literacy had no apparent relationship with level of education and work status. Moreover, the study showed that financially literate people were more likely to make retirement plans. Finally, the author claimed that financially educated people rarely seek advice from experts as they believe that they can handle financial matters by themselves (Mian 2014). Another study conducted by Sulphey & Faisal (2017) examined the relationship between orientation towards finance and some demographic factors. The research found that age has no significant impact on orientation towards finances in Saudi Arabia. While the study reveals a positive relationship between the level of income and orientation towards finance, the authors suggest this could be because, as personal income increases, people have a tendency to read news items and gain the required skills to keep themselves updated with the overall economic trends. This is probably lacking

among people on lower incomes. The study also observed that more highly educated people are more likely to have a positive orientation toward finances and get into the habit of looking for relevant financial information to improve their circumstances. They claim that better qualified people usually have the required skills to understand complex material about financial affairs. No studies have been undertaken regarding the relationship between financial literacy and household wealth and the impact of demographic factors on wealth creation in the MENA region.

The financial law associated with the Islamic religion is the key engine for financial decisions in the region. De Bel-Air (2014) stated that 'With Islam, the Kingdom has an ideological and political influence over 1.6 billion Muslims or 23 percent of the world's population'. Thus, the researcher will examine the role of Islam in shaping the financial literacy of individuals in Saudi Arabia.

2.5 The Role of Islam in Financial Literacy

It expected that Islam plays a crucial role of Muslims' financial literacy and their financial decisions. Financial knowledge in Islam is an individual's ability to understand the concepts of saving, spending, commitments to *Sadaqa, Zakat*, and avoidance of gambling, financial corruption and uncertainty (Biplob & Abdullah 2019). Moreover, according to Islamic doctrine, it is necessary for all Muslims to seek knowledge as this is considered an act of worship. Seeking knowledge in Islam is essential; it is not limited to religious aspects, but also for other aspects of a Muslim's life including financial understanding (Al-Zuhaili 1996). Thus, this section deems important for MENA regions in general and for Saudi Arabia in particular as Islamic driven country. This section also deemed important to describe the level of financial literacy of Saudi workers as Muslim people (objective one of this study).

Although Islamic finance is a relatively new area of research, it has attracted more research in recent years (Hamid & Nordin 2001). Most of the literature on finance and financial literacy involves conventional finance strategies without any consideration of Islamic finance approaches (Iqbal & Mirakhor 2011). Nevertheless, Kayed (2008) noted that a few studies had made some effort to identify the real level of financial literacy in Islamic countries. However, according to a study by Richardson (2006), Islamic finance is an emerging force in the financial marketplace. Previous studies also emphasise that Islamic banking is rapidly growing and is

expected to become a commanding growth motive in finance and banking in the current era (El-Gamal 2001; Merdad et al. 2010).

Financial literacy in Islamic doctrine can be defined as the ability to understand the concepts of saving, spending, *Sadaqa*, *Zakat*, complying with *Shariah* practices and avoiding gambling, financial corruption and uncertainty (Biplob & Abdullah 2019). Every Muslim, according to Islam, must seek knowledge as this is considered an act of worship. Seeking knowledge in Islam is essential; it is not limited to religious knowledge, but covers all aspects of a Muslim's life including financial knowledge (Al-Zuhaili 1996). Merdad et al. (2010) stated that Saudi Arabia's economy and stock market are the strongest in the MENA region and when it comes to execution of Islamic finance regulations, Saudi Arabia ranks top among Islamic countries. The authors confirmed that most of these regulations, such as banning gambling are enforced by the Saudi government. This study explores the financial literacy of people with reference to Islamic banking.

2.5.1 Islamic Finance

In Saudi Arabia, as in many Muslim countries, Islamic principles play a crucial role in formulating financial products and services (Samad 2004). Islamic jurisprudence (*Shariah*) promotes profit sharing, co-partnership and hiring programmes. Further, it supports responsible investment and does not allow fixed interest rates (Merdad et al. 2010). According to Wiechman et al. (1996), Islamic jurisprudence provides a pathway for Muslims to follow Allah's law. It is holistic or eclectic in its approach to guiding believers in their daily lives. It controls, rules and regulates all public and private behaviour. It includes regulations for personal hygiene, diet, personal wealth, sexual conduct and elements of child rearing.

Shariah has two main sources considered references in terms of laws and regulations for every Muslim: the *Quran* and *Sunnah* (Samad 2004). Rehman (2007) stated that according to Muslim belief, the *Quran* represents the accumulation of edicts revealed by God to the Prophet Mohammed (PBUH). According to the Islamic faith, every word of the Holy *Quran* is divine and cannot be challenged or changed. Neither the Prophet Mohammed (PBUH) nor any other human being had any influence over the divine book, except for its structuring and the names of the *Surahs* (chapters). The *Sunnah* is a composite of the teachings of the Prophet Mohammed (PBUH) and his works; it contains stories and anecdotes, known as the *Hadith*, to illustrate concepts and ideas (Duderija 2007). The *Quran* may not contain detailed information about a

particular behaviour or a human interaction, but this can be found in the Sunnah (Murtaza et al. 2016).

The rulings mentioned in the *Quran* and *Sunnah* do not cover all situations and their circumstances in contemporary life in a specific way (Al-Jabri 2008). Therefore, government sin Muslim countries and official decision-makers must establish rational laws to deal with contemporary events and developments, and those laws must not betray the principles of Islamic *Shariah*. These decisions can be made by a group of people, known as *Fuqaha*, with an adequate amount of knowledge of Islamic jurisprudence (Mutahharî 1986). Thus, *Fuqaha* is a name given to Muslim jurisprudents or scholars of the *Quran* and *Sunnah* teachings, who are usually supported by the government and official decision-makers when establishing the law (Kadivar 2018). Simply put, Islamic *Shariah* or law based on the *Quran* and *Sunnah* provides rulings or general principles to organise one's personal, secular and spiritual life, and to organise society (Al-Jabri 2008). These rules govern marriage law, finance law and punishment of offences committed by adults. However, there are situations or events for which the *Quran* and *Sunnah* do not provide specific rules, for example regarding young people who commit offences. Thus, the authorities have the right to establish laws for such situations and the circumstances surrounding them, in light of Islamic *Shariah* principles (Mutahharî 1986).

The principles of Islamic *Shariah* are based on protecting five indispensable components: religion, life, intellect, offspring and property (Fournier 2016). It has been pointed out that the Saudi government has two approaches to the protection of these five elements, one being constructing and raising people's awareness through moral education focusing on religious consciousness in the human soul. The second approach is implementing punishment as a deterrent, according to the conceptions of the Islamic justice system (Al-Rasheed 2008). Islamic laws in many Muslim countries, and Saudi Arabian in particular, have a strong impact on Muslim people's financial decisions and shape the form of their financial literacy. The principles of Islamic finance in Saudi Arabia can be considered mainly as key rules explained in more detail below.

2.5.2 The Principles of Islamic Finance

There are two categories of Islamic finance guidelines: financial and operational (El-Gamal 2000; Ibrahim et al. 2009). Financial guidelines relate to the means of income, source of capital and insurance. In this regard, Islamic jurisprudence prohibits fixed interest income (*Riba*)

including bonds, corporate bonds, treasury bills, certificates of deposit, preferred stocks and conventional insurance such as life insurance (Merdad et al. 2010). *Riba* in Islam technically refers to the 'premium' that must be paid by the borrower to the lender along with the principal amount as a condition for the loan or for an extension of its maturity (Ahmad & Hassan 2007). Ahmad & Hassan (2007) claimed that *Riba* also refers to an increase in one of two homogeneous equivalents being exchanged without this increase being accompanied by a return. Similarly, some Muslim scholars have attempted to define *Riba* in a way that seems closer to the sense implied in the verses of the *Quran* and *Sunnah* on this issue (Gilani 2015; Ismail et al. 2018). They define *Riba* as an increase or excess that, in an exchange or sale of a commodity, accrues to the owner (lender) without giving in return any equivalent counter-value or recompense to the other party.

Riba is a predetermined interest whereby the borrower repays to the lender more than previously taken from them (Ahmad & Hassan 2007). Any predetermined payment over and above the actual amount of principal is prohibited in Islam. *Riba* is a comprehensive concept that literally means increase, addition, expansion or growth; importantly, it is not related to trade and increasing profitability such as borrowing money from someone (Ismail et al. 2018). The basic principle of Islamic banking is the prohibition of *Riba* or interest, which has seldom been recognised as applicable beyond the Islamic world; however, many of its guiding principles have, consciously or unconsciously, been accepted (Lewis 2007).

The second category of Islamic finance guidelines is the operational level. Islamic doctrine emphasises that trading between a seller and a purchaser must be clear and free of opacity. Islamic principles prohibit selling a product that is not owned by the seller or that cannot be described in precise detail. including its type, size and amount (El-Gamal 2000). For this reason, selling futures, warrants or options, as well as short-selling and selling anything that is not real and does not exist at the current time is prohibited (Merdad et al. 2010). These practices, called *Gharar* in Islam, can briefly be defined as uncertainty that can lead to unknown risk (Saleh & Ajaj 1992). According to Ercanbrack (2011), an uncertain contract—for example, where there is uncertainty in terms of ownership, existence, availability and deliverability—can result in unexpected losses or unfair fortification for one party, which is basically unlawful in Islam. It is stated in the *Sunnah* that *Gharar* is prohibited because it is akin to the sale of such things as 'the birds in the sky or the fish in the water', 'the catch of the diver' and 'the unborn calf in its mother's womb' (El-Gamal 2001). Behind the prohibition is

a lack of knowledge about the specification of goods and services entered into in Islamic commercial contracts, and the type of risk being beyond people's reach or control (Ercanbrack 2011).

Islam principles also encourage partnership (Bhatti & Bhatti 2010). In this case, profits must be divided by partners based on a pre-agreed ratio. However, losses are distributed according to the capital involvement and its risk (El-Gamal 2000). It was reported by Iqbal & Greuning (2008) that a partnership serves for the financing of fixed assets and working capital of medium and long-term duration. Further, investing in non-productive or unwholesome activities, or investing in a service or product that is non-permissible, such as prostitution, alcohol, tobacco, pork, pornography and weaponry is prohibited in Islam (Hassan 2002). However, Islamic jurisprudence in some cases allows investors to invest in prohibited financial activities with restricted terms (Elfakhani et al. 2005; Elfakhani et al. 2007). For example, it is permissible to invest in securities of firms with total interest-bearing loans totalling less than 33% of the total estate. Likewise, it is permissible to invest in securities of firms with total interest income of less than 5% (Ibrahim et al. 2009).

Although both Islamic and conventional banks are strong competitors and offer similar products and services to the public in MENA regions, banks and financial institutions offer modified financial products that are based on Islamic principles (Ariss 2010). One important example of these financial products and services is Islamic loans, where assets are bought from banks and the interest on the loan is added to the asset value (Samad 2004).

Girard & Hassan (2008) classified the law of Islamic finance according to three essential rules that control Islamic mutual fund creation; asset allocation; investment and trading practices; and income distribution. First, for asset allocation, Islamic fund administrators are not able to invest in money markets as this risks free investment, but they are able to invest in the Islamic bond market *(Sukuk).* According to one scholar (Siddiqi 2006) *Sukuk* are financial securities and can be based on different contractual instruments. They can be structured to provide returns that closely replicate the payment profile of interest-bearing bonds (these are fixed income *Sukuk*), to share the profit and losses incurred by the issuer (equity-type *Sukuk*) or as a revenue-sharing instrument where yields on a project (such as a mining operation) are shared among investors and entrepreneurs. The main part of the asset belongs to the *Sukuk* holder (Tariq & Dar 2007; Ulus 2013). At the same time, investing in securities from financial foundations (banks) that depend strongly on interest as a major source of income is not allowed (Abdullah

et al. 2007). Moreover, administrators of Islamic mutual funds cannot purchase stocks of firms that undertake non-permissible activities. Second, investments and trading practices prohibit Islamic fund administrators from undue speculating, which includes trading on profit such as using interest-paying loans to manage their investments (Abdullah et al. 2007; Merdad et al. 2010). Last, income distribution requirements are a form of purification. As illustrated earlier, Islamic doctrine allows, in particular cases, investing in non-permissible practices; thus, earnings must be purified by donating to charity. For example, if 10% of income came from interest, 10% of every income payment must be used in philanthropy (Elfakhani et al. 2007).

2.5.3 Conventional *v.* Islamic Finance

Research has assessed the role of Islamic principles of finance and decision-making in Saudi Arabia (Alam & Al-Sakran 2001; Mallin et al. 2014). A comparison was made of conventional banks and Islamic banks in Saudi Arabia in terms of how they performed during a financial crisis (Zaher & Kabir Hassan 2001). That study's major concern was to determine which type of bank is better able to bear major financial shocks. It used efficiency, profitability and risk accounting ratios as the main performance measures. Data were collected from the financial statements of four Islamic banks and seven conventional banks from 2005 to 2014. Data were analysed using panel logic regression, which revealed that the Islamic financial system was more resistant to financial crisis than conventional banks. This is because Islamic financial institutions must be prepared for innovation and ready to face obstacles (Romozyan 2016).

Kolk (2016) claimed that corporate social responsibility (CSR) is now a characteristic universally demanded of corporations; for example, it is one of the most important aspects in the banking sector. CSR aims to produce equality, economic justice, human wellbeing and social development in Western societies. The phenomenon has created significant debate among scientists, activists, individuals and corporations. How is CSR perceived in Saudi Arabia by Islamic banks? What is the role of the *Shariah* Board in formulating CSR policies? Kolk examined four Islamic banks as case studies and the findings were mixed. CSR is a Western concept that refers to corporate ethics for the improvement of the wider society; yet CSR is evident in the teachings deep within [2]Maqasid Al-Shariah. In fact, it is a prerequisite, as seen in the *Quran*, and in the great teachings of the Prophet Mohammed (PBUH).

[2] Maqasid Al-Shariah is a beginner's guide for Islamic law (Hanzaee & Ramezani 2011).

Kammer et al. (2015) suggested three dimensions in which Islamic finance could be further explored. First, there is the move to increased financial assistance for the (mostly) under-served Muslim population throughout the world. Second, it may support small and medium-sized organisations and public sector infrastructure through its prominent risk-sharing features and asset-backed financing. Third, it has less systemic risk than conventional finance because of its risk-sharing features and prohibition of speculation. This thesis asserts that the Capital Market Authority of Saudi Arabia should ensure that the investments and securities system offers greater socioeconomic yields for people and the wider society.

2.6 Research Gap

This section summaries the major gaps in the literature gaps identified in this chapter 'literature review'. It shows that most previous studies have concentrated mainly on developed countries (Beal & Delpachitra 2003; Bover 2008; Braunstein & Welch 2002; Chen & Volpe 2002; Hilgert et al. 2003; Lusardi & Mitchell 2006; Lusardi & Mitchell 2014; Lusardi et al. 2010). Some of those studies have focused mainly on issues such as the impact of financial literacy on the financial capabilities of individuals and the level of personal financial behaviour when financial decisions must be made (Capuano & Ramsay 2011; Vissing-Jorgensen 2004).

Some studies have investigated the differences in financial literacy among different races/ethnic groups (Al-Bahrani et al. 2019), age groups (Xue et al. 2019) and genders (Bucher-Koenen et al. 2017). One stream of research has examined cross-cultural differences in financial literacy and its impact on societies in general. For instance, Janor et al. (2017) compared the influence of financial literacy on financial decision-making between Malaysia and the UK.

Previous studies have identified the level of education, as a major factor which determine the level of financial literacy. However, education systems in MENA countries are different to those in other parts of the world. Moreover, MENA countries' religion, financial markets, financial behaviours and financial capabilities differ from those of other countries. In general, MENA countries have a cultural system which is entirely different to the other developed countries. Moreover, as discussed, the reduction of the government expenditure due to the recent down-word trend in oil prices have affected in eliminating jobs, cutting salaries and setting up a new taxation system (Raimi et al. 2018). Those decisions have forced peoples living in Saudi Arabiya to reconsider their expenditure and to adapt to new realities. This can

be achieved only through good financial practices. However, despite the now-vast literature being on the issue, there are still gaps in knowledge.

First, most studies have investigated the correlation between financial literacy and wealth accumulation in Western countries and increasingly in Asia. Not much research has been undertaken in the MENA context.

Second, little work has been done on financial literacy in terms of the influence of demographic variables (age, gender, education level, employment, income level) in determining household wealth creation in the MENA context. This study attempts to fill this gap by investigating the impact of demographics (gender, age, marital status and number of children, region, level of education, income level) on financial literacy and household wealth creation in Saudi Arabia.

Third, no previous study has considered the role of Islam in enhancing people's financial literacy. It is expected that Muslims in MENA countries have some level of Islamic financial literacy, particularly in Saudi Arabia as Islamic law is the main reference for financial decisions made at both the government and personal level.

2.7 Conceptual Framework

The conceptual framework of this study is explained in figure 2.2 below. Firstly, the researcher measures the level of financial literacy among Saudi workers based on a scale including high, medium, and low level of financial literacy (RO1). Second, the researcher examines the relationship between the level of financial literacy of workers and their personal household wealth (RO2). Finally, the researcher explores the impact of selected demographic factors including: (gender, age, marital status, number of children, work experience, income level, sector of work and education level) on personal household wealth (RO3).

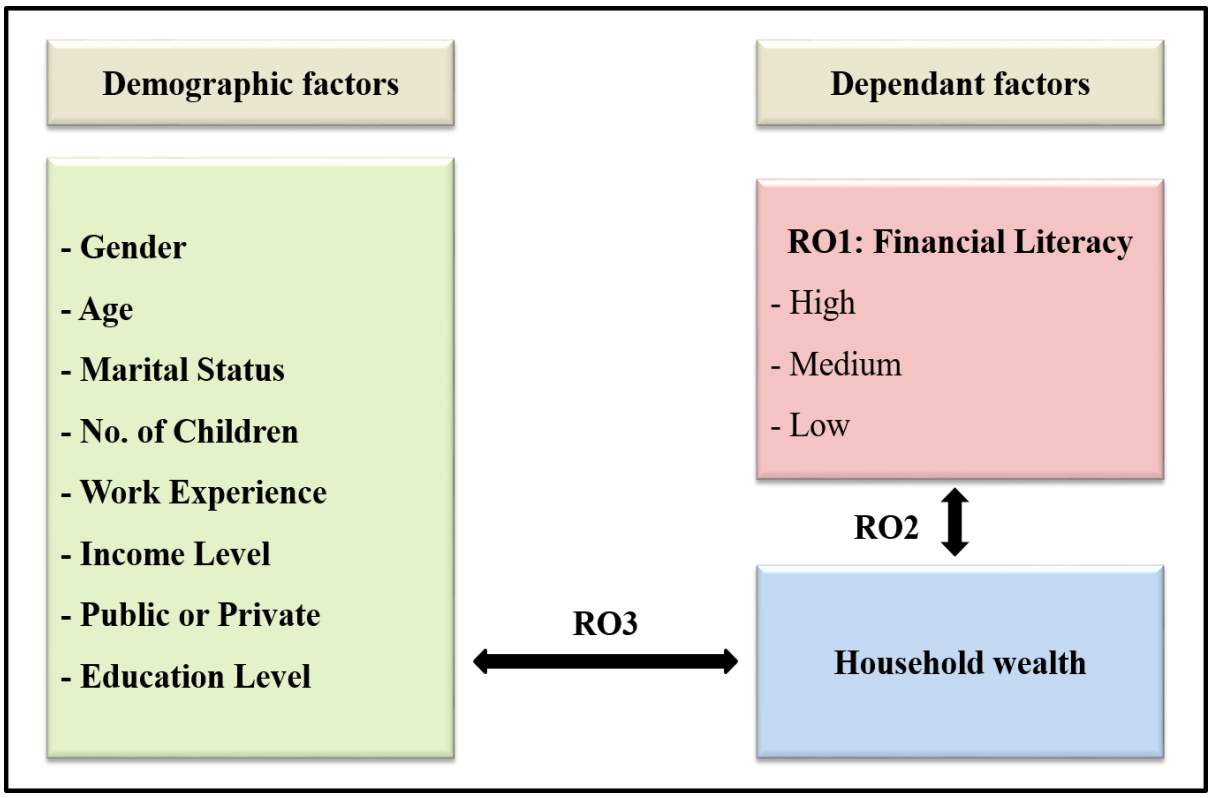

Figure 2. 2: The conceptual framework of the study

2.8 Scope of the Study

The aim of this study is to investigate the level of financial literacy among different age groups of Saudi workers. It also aims to identify the impact of both financial literacy and demographic factors on household wealth. The focus of this study is Saudi workers above the age of 18 years (non-workers, non-Saudis, workers under 18 and students are excluded). As a country in the global arena, The KSA is well-known for two factors: the Kingdome is ruled according to Islamic law and its abundance of crude oil (Farhan et al. 2016; Mandurah et al. 2012). The link between the kingdom and the Islamic world is strong, especially for the western region of the country. Saudi Arabia is often called the 'home of Islam', in which Mecca and Al-Medina are located and where Prophet Mohammed (PBUH)—the messenger of the Islamic religion—was born, lived and died (Bradley 2015). The kingdom is considered the world's largest oil exporter, with the second-largest proven reserves, and is currently the largest economy in the Arab world (Cordesman 2019). Saudi Arabia plays an important role worldwide, and especially among MENA countries.

This study aims to produce findings that are essential for the MENA region. MENA countries are predominantly Islamic and share other similar characteristics such as culture: for example,

Arabic is the main language spoken in MENA countries albeit with different accents, idioms and dialects. Thus, the results of this study may be useful for other predominantly Islamic countries.

2.9 Hypothesis Development

In this section, two study hypotheses related to the research questions are presented and developed. The overall hypothesis development for this study is summarised in Figure 2.3.

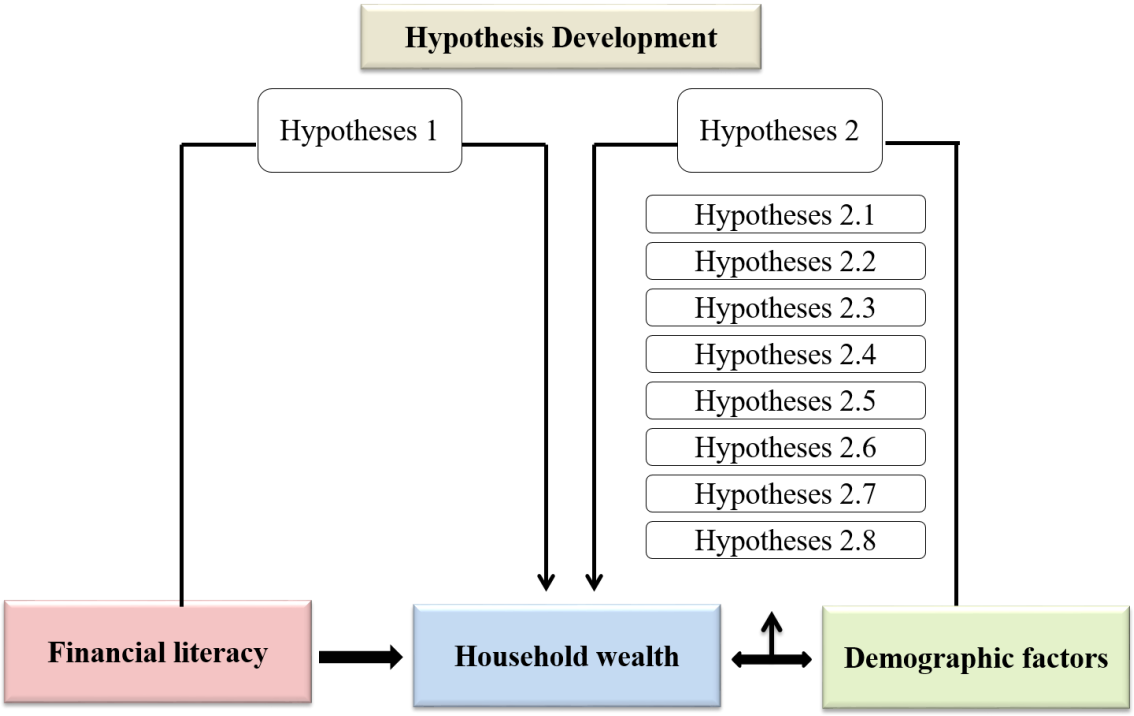

Figure 2. 3: Overall hypothesis development for the study

2.9.1 Financial Literacy and Household Wealth

A person's financial knowledge is related to the strategies they use to accumulate their wealth. Consequently, in Western contexts, Behrman et al. (2012) identified a positive relationship between financial literacy and household wealth. Drexler et al. (2014) showed that the wealth creation process and financial behaviour are related to financial knowledge. Gale & Levine (2010) and Chen & Volpe (2002) also reported a significant correlation between financial literacy and wealth accumulation. Mayoral & Vallelado (2017) stated that in Italy, a number of banks have formulated and implemented policies to increase transparency and simplify procedures. These policies are fruitful in enhancing people's financial literacy with few time and resources required. Further, the authors claimed that these policies enhance

household wealth. Other researchers have reported that financial literacy is a key factor that can provide better outcomes (Warschauer & Sciglimpaglia 2012).

The findings of a study conducted by Valiente et al. (2012) indicated that wealth from illiquid assets is significantly dependent on financial literacy conscientiousness. Moreover, personal wealth is strongly linked to personal financial decisions, which is why many researchers have concluded that poor financial decisions and practices in people's lives are due to their lack of relevant financial knowledge (Behrman et al. 2010). Further, it has been claimed that low financial literacy promotes minimal payments towards credit card debt, which leads people to pay a higher interest rate. Based on these studies, the following hypothesis is formulated for the relationship between household wealth and financial literacy:

H1: There is a statistically significant relationship between financial literacy and household wealth in Saudi Arabia.

2.9.2 Demographic Variables Influence Household Wealth

As shown in the literature, demographic factors such as marital status and gender are significantly correlated with household income, wage income and net worth. However, the correlation coefficient is higher for age and education (Bernheim et al. 2001). Studies have reported strong positive correlations between education, wealth accumulation, retirement planning, debt management and budgeting (Campbell 2006; Hilgert et al. 2003; Lusardi & Mitchelli 2007). People who understand finance are better at saving and acquire much better economic security (Lusardi & Mitchelli 2007). Lusardi & Mitchell (2006) reported that people with a low level of education have less net wealth than do those with a college degree. Vissing-Jorgensen (2004) and Calvet et al. (2007) concluded that education is an independent factor that affects lifetime income. Similarly, financial intelligence can provide non-financial workers with a strong ability to make good financial decisions (Lamba & Mace 2010). It was observed that financial intelligence involves the ability to monitor, understand current and future financial trends, and use financial resources more effectively to achieve better wellbeing (Berman & Knight 2013).

Lusardi & Mitchell (2006) noted that married people have over four times the net wealth of non-married ones, and are more likely to invest in the stock market and real estate. Further, Chen and Volpe (2002) found that women are more likely to be risk avoiders than are men and to have lower pension-based wealth. Yamokoski & Keister (2006) stated that family

responsibilities indirectly influence women's educational and occupational success and as a result, affect their earnings and wealth accumulation. Last, inheritance play an essential role in household wealth accumulation and its role cannot be ignored (Yamokoski & Keister 2006). The literature indeed confirms that inheritance may account for at least 50% of the net wealth of families in the US (Gale & Scholz 1994; Kotlikoff & Summers 1981).

Based on previous theoretical evaluations and in light of the above discussion, the present study formulates the following hypothesis in relation to the relationship between demographic variables and household wealth:

H2.0: There is a significant impact of demographic variables (age, gender, level of education, work experience, marital status, number of children, private or public, and income level) on household wealth in Saudi Arabia.

Stemming from the previous main hypotheses are the following sub-hypotheses:

H2.1: There is a significant relationship between age and household wealth.

H2.2: There is a significant difference in household wealth between males and females.

H2.3: There is a significant relationship between level of education and household wealth.

H2.4: There is a significant relationship between years of work experience and household wealth.

H2.5: There is a significant relationship between marital status and household wealth.

H2.6: There is a significant relationship between number of children and household wealth.

H2.7: There is a significant association between sector of work and household wealth.

H2.8: There is a significant relationship between average monthly income and household wealth.

The statistical analysis performed for testing the above hypotheses are explained in detail in the methodology chapter (see section 3.11). All these hypotheses are tested at bivariate level using Chi-square test and Spearman's correlation which aim to understand the relationship between household wealth and each other variables identified in the hypotheses. In addition to

those tests, to get further insight of the impact of those variables on household-wealth, a multiple linear regression has been conducted.

2.10 Chapter Summary

This chapter has presented an extensive literature review that served to identify and establish the groundwork for the study. The study considers several important demographic factors covered by various analyses, and all relevant terms and principles were explained in detail in the chapter. Research in Western countries was included in the review to establish the differences between findings for Western economies compared with those for MENA nations in general and Saudi Arabia specifically. Certain Islamic principles implemented in Islamic banking were also explained. The research gaps and issues to be explored further in the thesis were identified. Further, the hypotheses to be tested in the study were systematically presented and discussed. The next chapter presents and discusses the research approach and methodology employed in this thesis.

Chapter 3: METHODOLOGY AND DATA

3.1 Introduction

Chapter 1 provided a brief background about the research topic, shedding light on the research problem and the main objectives to be addressed in this study. Based on the research objectives, three research questions were formulated for the study. Chapter 2 reviewed the literature on financial literacy and household wealth. The literature review also aimed to identify testable relationships between financial literacy, household wealth and demographic factors such as age, education, gender, level of income and marital status. Moreover, it outlined some Islamic principles related to financial transactions. Three main research hypotheses and eight sub-hypotheses were derived based on the research questions in Chapter 1 of the study and the literature review.

This chapter introduces the research process and methodology employed in this study to test the study hypotheses and address the research questions. The chapter also identifies the research approach used to analyse the data and discusses the development of the research instrument and methods employed to ensure the validity and reliability of the survey instruments. This chapter also introduces the study sample and the statistical methods used in this study.

3.2 Research Paradigm

This study relies on a positivist approch as the appropriate research philosophy for conducting the research. Collis & Hussey (2013) stated that a positivist approch can be used when the researcher wants to describe a phenomenon that depends on scientific data—or example, experiments and statistics—to explore an actual fact relating to how a particular society operates. A postivist approach aims to examine, evaluate and investigate specific phenomena by providing convincing and rational explanations. This explanation can identify a rational relationship between different factors or variables relating to phenomena to connect the result to a specific theory (Denscombe 2008). It advocates that people respond to regulations, rules or norms when they describe or discover phenomena using casual, rational and systematic procedures (Collis & Hussey 2013). This philosophy was considered as well suited to this study because quantitative research is appropriate for the positivist paradigm, in which reality is

single and measurable. In positivist research, the researcher usually aims to examine relationships, or 'correlations' between two or more variables, applying what is known as the comparative method. The positivist approach is also based on some principles that make it suitable for this study: first, the researcher aims to explain and predict the true nature of a phenomenon; second, the researcher aims to use inductive reasoning to develop hypotheses to be examined through the study process; and finally, the researcher believes that science should be values free and can be tested only by logic, which will prevent bias in the research findings.

3.3 Research Approach

To develop the appropriate research approach for this study, it was important to understand different research approaches. According to Denscombe (2008), research can be distinguished based on various research approaches giving consideration to four main aspects: (1) the purpose of the research, (2) the process, (3) the logic, and (4) the outcome. First, the purpose of any research can originate from four different motives: exploratory, descriptive, explanatory and predictive (Denscombe 2008). Exploratory research is adopted when the researcher cannot find sufficient information or if there is a scarcity in the literature about certain phenomena. In this type of study, the researcher searches for models and ideas rather than examining or confirming hypotheses (Collis & Hussey 2013). This research approach seeks to collect a large amount of information, although it mostly cannot provide definitive answers to research problems. However, it provides a clear vision of future research potential (Denscombe 2008). Descriptive research describes a research problem as it exists in reality (Denscombe 2008). This kind of research can be implemented on a specific problem using either qualitative or quantitative techniques. Explanatory studies aim to explain how or why a matter arises in certain circumstances. In this case, the researcher aims to understand the situation by measuring rational relationships among people (Collis & Hussey 2013). Predictive research aims to predict the probability of a specific issue emerging under certain circumstances. Predictive research is similar to quantitative research as it involves identifying quantifiable variables that can be manipulated in a way that has quantifiable impact. It provides answers to how, why, and where to recent issue and similar issues in the future (Denscombe 2008).

With regard to the second approach related to the process aspect, studies can be grouped into three clusters based on three research methodologies: quantitative, qualitative, and mixed (Teddlie & Tashakkori 2009). Business management and leadership researchers have been involved in lengthy debate regarding various characteristics of quantitative and qualitative

methodologies, including the points of strength and weakness of one over the other. The the quantitative orientation is reflected in the lion's share of research in various fields over a long period (Onwuegbuzie & Leech 2005; Rossman & Wilson 1985; Tashakkori et al. 1998). However, qualitative studies have recently become an important component of the research literature, and this contribution is still growing (Onwuegbuzie & Leech 2005; Rossman & Wilson 1985; Yilmaz 2013).

Third, the approach related to the logic aspect refers to whether research is deductive or conductive. Deductive research is usually quantitative in nature and allows the researcher to examine and develop hypotheses via empirical perceptions and evaluation of common deduction. The deductive approach is about moving from the general to the particular (Denscombe 2008). Inductive research is the opposite: the researcher seeks to draw general deductions from particular cases (Denscombe 2008).

Finally, in terms of the outcome aspect, Denscombe (2008) claimed that applied research is research conducted to apply its results to address a specific, substantive issue. Conversely, basic research is research that seeks to illustrate a research problem to contribute to knowledge about a particular issue and is considered more 'academic' than applied research.

Having defined various approaches to research, it is now important to select the appropriate research approach for this study based on the identified aspects to achieve the objectives of the study. First, in terms of the purpose of this study, the researcher suggests that RO1 of the research is addressed via a descriptive approach, with a predictive approach being suitable for RO2 and RO3. In terms of the research process, the study uses a quantitative approach, and its logic is deductive. Finally, the study is considered as applied research because it aims to apply descriptive and quantitative methods to provide knowledge about financial literacy and household wealth in the KSA. Table 3.1 summarises the research approach used in this study.

Table 3. 1: Research approach used in this study

Process	Purpose	Logic	Outcome
Quantitative	RO1: Descriptive RO2, and RO3: Predictive	Deductive	Applied research

3.4 Research Process

The main aim of this study is approached through three objectives, as outlined in Chapter 1. These objectives can be achieved via a systematic approach of data collection and analysis in a quantitative approach. A quantitative research approach was chosen because it can be used to predict the influence of demographic variables (age, gender, education level, employment, and income level) on household wealth. It was considered a useful approach to measure the correlation between financial literacy and household wealth in Saudi Arabia. Creswell (2013, p. 4) stated that the 'quantitative method involves the process of collecting, analysing, interpreting and writing the results of the study'. He added that quantitative research methods deal with numerical data that can be analysed to help answer research questions. Based on the scope and complexity of the research problem, together with the aims and objectives of the study, quantitative methods were selected for this study.

3.5 Research Instrument

The quantitative data required for this study were collected through a questionnaire using a survey method. A questionnaire can be different things to different researchers. In this research, the questionnaire consisted of a set of question items predesigned to meet the aims and objectives of the study and expected to provide a useful dataset that addresses the questions and tests the research hypotheses (De Vaus 2002). The questionnaire survey was based on the findings of other established authorities in the field, for example (Lusardi et al. 2009; Rooij et al. 2011b) on measuring financial literacy and (Bover 2008) on measuring household wealth.

However, this study focuses on Saudi workers over the age of 18 years (non-working, non-Saudis, students and workers under 18 were excluded). Thus, the researcher used the online survey software Qualtrics to deliver the questionnaires. The questionnaire started with a conditional question to be answered before commencing the main questionnaire, to confirm that the participant was Saudi, working and over 18. The collected data took the form of

answers to a questionnaire survey designed to measure the impact of financial literacy as the main independent variable related to the creation of household wealth in Saudi Arabia. There were some difficulties for participants related to the nature of the questionnaire. First, some questions were quite difficult to understand for non-financially literate participants. Thus, some participants did not complete all parts of the survey. Second, some questions sought private financial information including personal wealth and financial liabilities and thus participants chose not to complete those sections. The online questionnaire was distributed via email and Short Message Service (SMS). An iPad was also used to collect data in a number of shopping centres in the main cities of Saudi Arabia. The actual completion rate was less than the expected completion rate.

3.6 Questionnaire Design

Wilkinson & Birmingham (2003, p. 19) stated that when designing questionnaires, it is easy to overlook mistakes and ambiguities in question layout and construction. The design of a questionnaire affects the response rate and the reliability and validity of the data collected. Response rates, validity and reliability of a questionnaire can be maximised and better managed by: 1) careful design of individual questions; 2) clear layout of the questionnaire form; 3) lucid explanations of the purpose of the questionnaire; and 4) pilot testing. Hence, careful attention was paid to these principles while devising the questionnaire for this study.

The questionnaire was designed to be completed anonymously by those participating in the survey. As mentioned earlier, the content of the questionnaire was based on the literature review and the theoretical framework, to achieve the research objectives. The specific questionnaire items invited responses about general information on participants and their opinions about financial literacy and household wealth in Saudi Arabia.

The theoretical foundation and the framework served as parameters for the questionnaire. Its format was developed to include a professional appearance with a clear, neat and easy-to-follow layout, together with clear and precise instructions. Particular and thorough attention was given to formulating the questions. Moreover, based on the definition of financial literacy—as individuals' knowledge of financial concepts, their ability to make appropriate financial decisions, their attitude in managing personal finances and their ability to plan effectively for future financial needs (Lusardi & Mitchelli 2007; Shen & Khalifa 2010; Stewart 2010)—the questions were grouped into five categories to facilitate the flow of ideas to

participants: demographic information; financial knowledge; financial decisions; personal financial attitude; and financial planning and wealth accumulation.

A cover letter seeking informed consent from respondents accompanied each questionnaire. The letter explained the purpose of the research and contained important information regarding questionnaire completion. The informed consent letter was approved by the Victoria University Human Research Ethics Committee (see Appendix 1).

3.7 Development of the Questionnaire

As mentioned earlier, the relevant sections of the questionnaire were organised to evaluate demographic aspects and measure people's financial literacy, to understand the impact of financial literacy on household wealth, and to understand the impact of other demographic factors on household wealth based on the literature on financial literacy (Behrman et al. 2010; Bucher-Koenen & Lusardi 2011; Mireku 2015; Yates & Ward 2011). The process of developing the study questionnaire is outlined in the following sections.

3.7.1 Questionnaire Outline

The questionnaire was designed to allow exploration of the following: (A) the level of financial literacy among Saudi workers in Saudi Arabia; (B) the relationship between financial literacy and household wealth in Saudi Arabia; and (C) the impact of demographic variables (age, gender, education level, work experience and marital status, number of children, employment, income level) on household wealth.

The questionnaire contained 40 questionnaire items distributed overall among five sections as summarised in Table 3.2.

Table 3. 2: Questionnaire with sections and items

Section	Heading	Question	No. items	Responses
1	Demographic and General Information	1–11	11	Multiple choice
2	Financial Knowledge	12–22	11	Multiple choice
3	Financial Decisions	23–27	5	Multiple choice; five-point Likert scale
4	Personal Financial Attitude	28–34	7	Multiple choice
5	Financial Planning and Wealth Accumulation	35–40	6	Multiple choice

These 40 questions items were obtained from number of studies related to financial literacy and household wealth and were modified to suit to Saudi context (Agarwal et al. 2010; ANZ 2008; ASICS 2018; Bucher-Koenen & Lusardi 2011b; Chen & Volpe 2002; Horioka & Watanabe 1997; INFE 2011; Lalonde & Schmidt 2011; Lusardi & Mitchell 2006; Lusardi et al. 2009; Lusardi et al. 2010; Mohan & Prasad 2016; Rooij et al. 2011; Volpe et al. 2002; Wang 2011; Yamokoski & Keister 2006; Yates & Ward 2011a). For more details, see Appendix 3.

3.7.1.1 Section 1: Demographics and General Information

The questions in this section sought to obtain demographic information from respondents to describe the study population. In this section, the questionnaire items requested information on the following demographic variables: age, gender, education level, work experience, marital status, number of children, employment, income level.

3.7.1.2 Section 2: Financial Knowledge

In the second section of the instrument, the questionnaire items measured respondents' financial knowledge related to some financial concepts. This section was essential for measuring the financial literacy of respondents. This section includes 11 questions related to personal financial knowledge. However, three questions among these questions were used mainly to measure personal financial literacy following Lusardi et al. (2009), as follows:

1. understanding of the concept of interest rates and the ability to calculate them (Q14)
2. understanding of the concept of inflation and deflation (Q17)
3. awareness of financial diversification (Q20)

The items indicated financial literacy as high, medium or low.

3.7.1.3 Section 3: Financial Decisions

The ability to make appropriate financial decisions is a very important element in an investigation of financial literacy. Thus, many important questions were developed to collect information about individuals' financial decisions. Questionnaire item 27 of section 3 contained a five-point Likert scale item about the financial attitudes of respondents. Answers to these questionnaire items were analysed to identify any major attitudes linked to each category of financial literacy.

3.7.1.4 Section 4: Personal Financial Attitude

Personal financial attitude is one of the key elements for measuring the level of financial literacy. Many important questions were asked in this section to collect information about individuals' financial attitudes and contribute to the discussion of the relationship of this characteristic with financial literacy and wealth accumulation. These questions were based on those asked in previous studies to identify any important behavioural traits linked to categories of financial literacy.

3.7.1.5 Section 5: Financial Planning and Wealth Accumulation

People's confidence in planning effectively for retirement or future financial needs is one of the financial literacy categories (Mandell & Hanson 2009; Sabri et al. 2010) relevant to household wealth creation in Saudi Arabia. The questions in this section we designed to gather information on the influence of family background on respondents' abilities in financial planning and their own net wealth.

3.7.2 Likert Scale

A Likert rating scale measures the extent of respondents' agreement (or otherwise) with a particular question item on a given continuum. Scholars and researchers are unanimous in their

view that the Likert rating scale is particularly useful for evaluating data collected as part of a research survey. In this study, a five-point Likert scale provided scores for low or high values to represent the extent of the knowledge, opinion, judgment and experience of respondents concerning the relationship between financial literacy and household wealth in Saudi Arabia (Kerkmann et al. 2000). The rationale for using a five-point scale is that it captures participants' responses in a measurable way. In this study, a Likert scale (Table 3.3) was used to measure or explore participants' personal financial attitudes in section 3 of the questionnaire.

Table 3. 3: Five-point Likert scale used to explore participants' personal finance attitudes

Scale	Description
1	Very true of me
2	True of me
3	Indifference
4	Not true of me
5	Not at all true of me

3.7.3 Multiple Choice Questions

The multiple-choice questions provided different numbers of choices. Some questionnaire items had only two choices (e.g. item nos. 1 and 40). Others such as item no. 37 had nine possible responses (see Appendix 2).

3.8 Validity and Reliability

To test the validity and reliability of the survey instrument, two stages were employed. In the first stage, the survey was reviewed by experienced academics and revised according to their feedback. The second stage involved a pilot study to evaluate the validity and reliability of the survey instrument. The outcomes were useful for modifying the survey instrument for subsequent data collection and analysis.

3.8.1 Validity

Validity is the most important aspect of a measured dependent variable. This is because validity refers to the extent to which an empirical measure accurately reflects the focal concept, yielding

scores that reflect the true variables being measured (Kotrlik & Higgins 2001). A constructed concept or a theoretical construction aims at organising and making sense of people's environments (Zohrabi 2013). The main purpose is to use observed variables to describe a construct or concept, which is an observable variable; for example, financial literacy and household wealth in Saudi Arabia. Construct validity is the extent to which a questionnaire or test measures a theoretical concept or trait. Confirmatory factor analysis determines the construct validity for each subsection of a questionnaire (Kotrlik & Higgins 2001; Zohrabi 2013). Kraska & Neuman (2011, p. 211) described measurement validity as 'how well an empirical indicator and the conceptual definition of the construct that the indicator is supposed to measure fit together'. Although there are many types of validity, scholars generally agree on several preferable techniques for assessing the validity of a measurement instrument—internal validity, face validity, logical validity and factorial validity—the latter three of which are types of content validity.

Internal validity is critical to experimental research designs and may be obtained by using at least two groups that are equal in respect to both the dependent variable(s) and any nuisance variables (Ghauri et al. 2020). Cozby & Bates (2009) believed that the internal validity of a study is the extent to which its design allows the researcher to draw accurate conclusions about cause-and-effect relationships. To ensure internal validity, any other possible explanations for the observed results must be justifiably eliminated.

As one type of content validity, face validity refers to the relationship between the researcher's description of concepts and their description of the categories measured. In this thesis, face validity determines if, upon superficial assessment, the items in the questionnaire appear valid to the respondent being asked to complete it. That is, face validity does not refer to what the items really measure, but to what the researcher wants them to measure at first glance. In other words, each question or item on the measurement instrument should have a logical link with an objective (Kumar 2019).

The sample (logical) validity of a measurement instrument refers to whether a questionnaire is grounded in a representative sample of the content about which information is obtained. In this regard, Guion & Gottier (1965, p. 124) stated, content validity is the degree to which the total variance of the sample (the actual questionnaire) is related to the variance in the total possible population of tasks or items.

Finally, the factorial validity of a measurement instrument (questionnaire) refers to the loading of the questionnaire with a general factor—in other words, the relationship that exists between the questionnaire and a common factor (as measured in the questionnaire) that implicitly purports that there is a relationship (correlation) between the questionnaire and a common factor. In other words, validity refers to the soundness of the interpretation of scores derived from a test, which is the most important consideration in measurement.

In this study, internal and content validity were assessed to examine the validity of the questionnaire. To test the overall validity of the study, the questionnaire was presented to a group of five experts to gather their comments and suggestions on the content of the questionnaire. The aim of this step was to ensure that the questionnaire was sufficiently valid to achieve the study objectives. The experts, all university academics, were asked for their opinions about the actual questions and their relevance to the topic. Some questions were deleted as inappropriate statements according to the experts. The expert panel that reviewed the questionnaire items comprised five experts whose details are provided in Table 3.4.

Table 3. 4: University academics on the expert panel for questionnaire items

Panel member no.	Country	Qualification	Expertise
1	Saudi Arabia	PhD	Finance
2	Saudi Arabia	PhD	Accounting
3	Saudi Arabia	PhD	Communication
4	Australia	PhD	Business management
5	Australia	PhD	Information technology

The feedback provided by the expert panel members was used to improve the research instrument. A number of changes were made until the final version was approved via email communications with the experts. A summary of the overall changes is provided in Table 3.5.

Table 3. 5: Changes made to questionnaire items based on experts' feedback

Question No.	Changes made
1–2	None
3	'(d): Separated' was added as a choice in this question
4–5	None
6	The question was rephrased
7	The question was rephrased and 'self-employed' was added
8–9	None
10	The question was rephrased
11	The question was removed and replaced
12	The question and options were rephrased
13–15	The question was rephrased
16	The question was corrected to refer to Saudi currency
17	The question was rephrased
18	None
19	Interest was replaced with profit and the question rephrased
20–21	Removed and replaced
22	None
23	Removed and replaced
24–25	None
26	A question mark was added
27–28	The question was rephrased
29	'Financial' was removed from the question
30	The question was rephrased
31–32	None
33	The options were rephrased
34–38	None
39	The question mark was removed
40	None

3.8.2 Reliability

Salkind (2006, p. 106) referred to the terms dependable, consistent, stable, trustworthy, predictable and faithful as synonyms for reliable. Reliability deals with what is being measured. Salkind stated that whenever researchers want to measure something, there is some element of error, which is what he calls measurement error. Reliability then refers to the extent to which test scores are free of measurement error. Salkind (2006, p. 10) suggested procedures to increase the reliability of measures. These can be summarised as follows: increase the number of items or observations; eliminate items that are unclear; increase the level of measurement; standardise the conditions under which the test is taken; moderate the degree of difficulty of the instrument; minimise the effects of external events; standardise instructions; maintain consistent scoring procedures; and use pre-tests, pilot studies and replications. Further, several procedures exist for establishing the reliability of an instrument, such as the test–retest and alternate-form methods, and the split-half technique. For the purposes of the current study, a pilot study was conducted and the Cronbach's alpha coefficient used to measure the measurement instrument's reliability.

3.8.3 Internal Consistency

Internal consistency refers to the degree of correlation between the items of a measurement construct. Cronbach's alpha is widely used as a reliable indicator of the correlation between various items (Hayes & Hayes 1998). Cronbach's alpha is based on inter-item correlations. If items are strongly correlated to one another, their internal consistency is high, and alpha will be close to 1. Conversely, if items are poorly formulated and not strongly correlated, alpha will be close to 0. Standard practice among researchers is to treat Cronbach's alpha values of .7 and higher as good indicators of the reliability of an instrument (Pallant 2001). Guidelines for the interpretation of Cronbach's alpha have been suggested and the values shown in Table 3.6 seem widely and generally accepted by researchers.

Table 3. 6: Cronbach's alpha value interpretation guideline used in this study

Cronbach's alpha	Description
.70	Low reliability
.90	High reliability
.80	Moderate reliability

However, Cronbach's alpha reliability test can be used when all items in the questionnaire aim in measuring the same construct of interest or idea (Cronbach 1951; Grau 2007; Hatcher & Stepanski 1994; Santos 1999). In this study, Cronbach's alpha coefficient was calculated for each group of items that have the same construct of interest to measure the internal consistency of each subsection.

3.8.4 Pilot Testing of Questionnaire

According to Wilkinson & Birmingham (2003, p. 52), a pilot study should be conducted prior to the actual data collection to ensure the methodology, sampling, instruments and analysis are all appropriate and functioning well. A pilot test is considered a useful tool to overcome any potential imperfections by seeking feedback from a selected respondent group. Piloting further assists in eliminating ambiguous or irrelevant questions, as well as generating useful feedback on the structure and flow of the intended questionnaire. Welman & Kruger (2009, p. 148) summarised the purpose of a pilot study as follows:

- to detect possible flaws in the measurement process (such as ambiguous instructions, and inadequate time limits)
- to identify unclear or ambiguously formulated items; in a pilot study the actual questions are put to the participants and they are asked to indicate how they have interpreted the formulated questions
- to provide an opportunity for researchers and assistants to notice non-verbal behaviour (on the part of participants) that may possibly signify discomfort or wording of the questions.

A pilot study was conducted here using a group of 10 participants to assess the instrument's reliability. The details of the pilot test are provided in Table 3.7.

Table 3. 7: Pilot test details

Activity	Description
Pilot test respondents	10 people
Place	Saudi Arabia Australia
Date	1–20 March 2016

Establishment	King Abdul-Aziz University Victoria University

The questionnaire's reliability was determined via test–retest and Cronbach's alpha coefficient calculations to evaluate all of the items. The Cronbach's alpha values listed in Table 3.8 show that all questionnaire items had a Cronbach's alpha coefficient of at least .787. This high score indicates the questionnaire is suitable for use as the study instrument to collect reliable data. Ensuring the validity and reliability of the questionnaire in its final form meant that the instrument was ready for use.

Table 3. 8: Cronbach's alpha coefficients for questionnaire statements

Section 1: Demographic and General Information		**Section 2: Financial Knowledge**		**Section 3: Financial Decisions**		**Section 4: Personal Financial Attitude**	
Question No.	**Alpha**	**Question No.**	**Alpha**	**Question No.**	**Alpha**	**Question No.**	**Alpha**
1	.803	12	.798	23	.804	28	.804
2	.801	13	.805	24	.805	29	.796
3	.804	14	.804	25	.800	30	.802
4	.802	15	.805	26	.798	31	.801
5	.803	16	.804	27	.805	32	.809
6	.805	17	.805			33	.793
7	.804	18	.800			34	.798
8	.805	19	.798				
9	.804	20	.798				
10	.805	21	.809				
11	.800	22	.805				

Section 5: Financial Planning and Wealth Accumulation	
Question No.	**Alpha**
35	.796
36	.802
37	.801
38	.809
39	.793
40	.798

3.9 Sampling Strategy

Sampling refers to the process of selecting a sample as a small portion or subset of a defined population, with the intention that the sample will be representative of that particular population (Bernard & Bernard 2013). Although the purpose of this study was to measure the level of financial literacy among Saudi workers, explore the impact of some demographic factors on household wealth and examine the relationship between financial literacy and household wealth in Saudi Arabia, its findings can be generalised to other MENA countries because they have similar characteristics, especially regarding religion and culture.

3.9.1 Population

The theoretical population for this study consisted of work-age adults in Saudi Arabia. The term study population refers to the members of a group of people defined as 'respondents who supply the reported results, findings and inferences' Babbie & Rubin (2010, p. 139). The current study was undertaken in the KSA, which is ruled by an absolute monarchy with no officially recognised political parties. The constitution of the country is based on Islamic law. No modern constitution has been written and no national elections have taken place throughout the country's history.

3.9.2 Sample Frame

The survey targeted Saudi workers over the age of 18 years from the private and public sectors, the self-employed and investors. Most previous studies focused on participants of particular age cohorts (Beal & Delpachitra 2003; Chen & Volpe 1998, 2002), and this focus on a specific group of respondents may lead to self-selection bias, and thus biased results. Therefore, this survey included respondents from all age groups (18 years and above), both genders and a range of education qualification and income levels. Non-working people, non-Saudis, students and workers under 18 were excluded. The study aimed to focus on workers who made independent financial decisions and had independent incomes. A total of 1,450 copies of the designed questionnaire were distributed to randomly chosen men and women, and they can be called 'a random sample'. A random sampling technique was used to avoid any possible bias attributed to a specific group of workers and any unwanted effects. In this study, a simple random sampling strategy was used to reach the desired population to conduct the study. Using this technique helped in the selection of the desired sample size in a way that both workers in

the private sector, public sector and investors were chosen randomly and totally by chance, and all had an equal chance to be chosen.

3.9.3 Sample Size Calculation

A statistical description of the study sample should be provided according to personal traits and characteristics. Researchers should be prepared to put their research to the test outside the academic field in which participants do not have financial education background. This enabled the researcher in the current study to determine if there were potential gaps in financial management competencies in various socioeconomic contexts and to decide what competencies they should have (possible) and currently have (actual). For this reason, it was imperative that the researcher was certain about which approach or method would provide the required information. The research design included use of the following equation:

An online calculator (www.surveysystey.com) was used to identify the suitable sample size by entering the desired confidence level, confidence interval or margin of error, and the size of the target population (CRS 2012). A confidence level of 95% and value of 4 for the confidence interval were chosen, and the KSA population size of Saudi workers specified as 20,700,058 (Statista 2018). The automatic calculator returned a sample size for this study of 600 responses from male and female worker citizens of Saudi Arabia (see Figure 3.1).

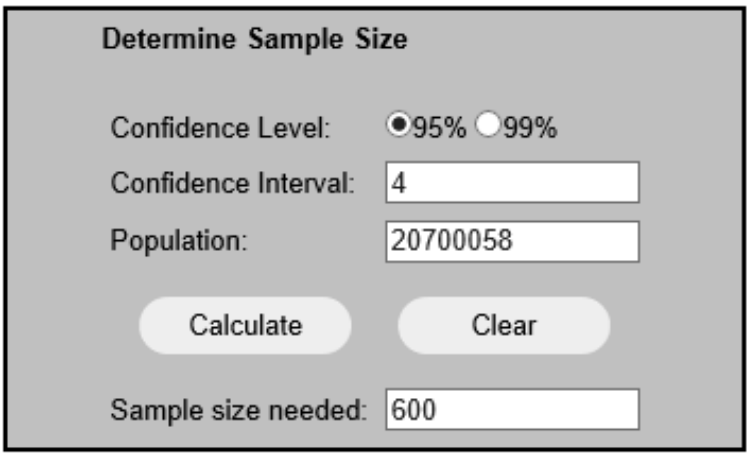

Figure 3. 1: Calculation of the sample size required for the study (www.surveysystem.com)

The survey instrument was targeted to the main geographic regions and both the public and private sector to achieve representative responses for the nation as a whole. The survey was

administered to a potential sample of randomly selected 1,450 individuals in the hope of obtaining a useable sample of 600 or above to meet the required calculated sample size.

3.9.4 Sampling Technique

Sampling techniques can be divided into probability and non-probability techniques. As highlighted by (Sekaran & Bougie 2016), probability sampling is defined and interpreted as identifying a single sample unit of people with equal possibility of being chosen in a random act of selection to participate in the survey. The current study did not use probability sampling as it aimed for a larger number of participants that could feasibly be obtained using this complicated and time consuming method (Schillewaert et al. 1998). Non-probability sampling refers to identification of a single sample unit of people not having any possible opportunity to be chosen in a random act of selection to participate in the survey, as stated by (Sekaran & Bougie 2016).

3.10 Data Collection

As mentioned, this study used a survey method based on a questionnaire in a structured and systematic approach. The questionnaire was delivered to participants via email, SMS, social media platforms and personal distribution in the main shopping centres in Saudi Arabia. The distribution of the questionnaires was based on a sampling technique called snowball sampling or chain-referral sampling (Etikan et al. 2016; Naderifar et al. 2017). The researcher distributes the questionnaire to participants who exist in the phone contacts. While each participant is asked to recruit or to send the questionnaire for other participants if possible. In the end of the questionnaire, participants were asked to add suggested contacts numbers who would like to participate in the questionnaire and also re-send the questionnaire to other participants.

A purposive sample of around 1,450 potential respondents were provided a questionnaire with the aim of collecting the required number of completed questionnaires. The following statement was included at the start of the questionnaire: ‘if you are Saudi, worker and your age is above 18, you can participate in the questionnaire’.

3.10.1 Distribution of Questionnaires

A large number of online platforms, including SurveyMonkey, Qualtrics, SmartSurveys and Amazon’s Mechanical TurkH (MTurk) are available to help researchers collect a large number

of data from diverse populations (Rice et al. 2017). In this study, internet-based surveys were delivered via Qualtrics software to collect the quantitative data required for the study. This platform allows researchers to establish and manage questionnaires to target particular participants who meet specific criteria. For example, as the study focuses on Saudi workers over 18 years of age, non-workers, foreign workers and workers under 18 were prevented from participating in the questionnaire. The online questionnaire began with general questions to ensure that each participant met the study criteria while keeping their identity a secret. The platform allows researchers to obtain a large amount of data in a short time with little financial outlay compared with regular survey methods.

Several methods were used to distribute the questionnaires to the targeted population; mostly via email, SMS, the WhatsApp application, Facebook and LinkedIn. At the end of the questionnaire, participants were asked to share the questionnaire with other potential participants. It was reasonable to conclude that the questionnaire link had reached numerous groups of Saudi workers in both public and private organisation, regardless of their size. The researcher had also made an arrangement with and received support from the Saudi Cultural Mission in Australia, which distributed the questionnaire via email to Saudi-sponsored students with scholarships from their employers in Saudi Arabia to participate in the survey. Moreover, to increase the number of participants, the researcher personally visited mega shopping centres in the main cities of Saudi Arabia including Riyadh, Jeddah, and Dammam to collect more data using an iPad.

Using internet-based survey method had a number of advantages in this study, such as easy access to a large number of participants with diverse characteristics from different regions of the kingdom. It also increased the ability to gather a large amount of quality data, compared with that possible with traditional methods, raising confidence in the research findings. Moreover, this method saves time and costs. However, internet-based surveys have some disadvantages, including that there may be no motivation for people to participate at all or to respond fully, especially if the questionnaire is very long; response rates can vary among studies based on the length of the questionnaire.

3.10.2 Response Rate

Although high response rates are important for any study, studies have shown that internet-based methods can provide a lower response rate than paper questionnaires (Cook et al. 2000).

In a comparative analysis by Baruch (1999, p. 429), the average response rate using traditional survey methods was ~55.6%. Dillman (2011) claimed that if a researcher pays careful attention to questionnaire design, the response rate to paper questionnaires can be as high as 70%. However, Kittleson (1997) suggested that a researcher can expect a response rate of only 25–30% to email questionnaires although this number can be doubled if the researcher sends a follow-up reminder. The reason for the low response rate when using electronic questionnaires is that many participants ignore them due to lack of communication from the researcher (Cook et al. 2000). Moreover, a clear limitation of internet-based surveys is that they target specific participants who are clearly internet intelligent. This may affect the quality of data collected in a study, where sampling must be random to avoid bias. Thus, some data has been collected face to face from participants in mega shopping centres located in the main regions of Saudi Arabia. This step was deemed crucial to increase the response rate and to avoid any bias that may have resulted from failure to include in the sample people with no access to internet technology. This allows the low-income earners to participate, who considers an essential group for this study. The importance of communication and a follow-up process to increase the response rate was also considered; thus, participants were reminded to fill in the questionnaire.

Low response rate limits generalisation that can be made based on questionnaire results. As low response rates make the final sample smaller, 'statistical power' to test hypotheses may be insufficient. Thus, a number of steps to maximise response rates are suggested in the literature. To provide an accurate picture of Saudi people's opinions about financial literacy, attitudes to finance, financial behaviour and financial influences, the study aimed to collect data from a sample size of 600 respondents (see Figure 3.1). To obtain useable responses from the statistically calculated minimum sample size of 600, almost twice this number of questionnaires had to be delivered. In view of this, 1,450 questionnaires were distributed in total.

Of the questionnaires returned, 709 were rejected because they were not completed. This step was deemed essential for data cleaning and included checking for incomplete and missing responses. A large number of responses were incomplete or had missing data values. These were all removed and excluded from the data analysis (Diamantopoulos et al. 1994). The remaining 741 questionnaires were accepted as suitable for analysis, and this number exceeded the minimum requirement of 600 responses. The overall response rate was 51.1% (Table 3.9).

This response rate even more than the acceptable rate for returned questionnaires identified as between 20%–40% (Frankfort-Nachmias & Nachmias 2007).

Table 3. 9: Response rates in the questionnaire survey.

Invited	Rejected	Useable	Response rate
1,450	709	741	51.1%

3.10.3 Challenges in Data Collection

Irrespective of the sampling method used, the problem of survey non-responses must be dealt with. Non-responses would not matter if one could be certain that non-respondents were very similar to respondents with respect to all relevant variables. Further, non-responses may occur because participants refuse to be involved in the study for various reasons. Non-responses may thus occur because of inter-related issues such as refusal to respond; ineligibility to respond; inability to locate a participant; and a participant being located but unable to make contact. As a precaution, and to proactively manage the low level of responses, some counter-measures were applied in this study, as follows: (i) the questionnaire was kept as brief and possible and presented in an attractive format; (ii) cost and effort to respondents was minimised; (iii) feedback was promised to all participants and will be provided following publication of the study outcomes; and (iv) follow-up phone calls, emails, Facebook contacts, visits and so on were made. The above counter-measures enabled the researcher systematically and by design to maintain and manage the potentially low response rate typical for data collection of this nature.

3.11 Quantitative Data Analysis Methods and Techniques

Many researchers have examined the relationship between personal financial literacy and demographic variables (age, gender, income level, education level and marital status, number of children, employer, and work experience) and personal financial decisions and wealth accumulation. Such studies have commonly used multiple regression analysis and correlation analysis to investigate the possible relationships between financial literacy and other variables of interest such as household wealth, retirement planning and financial attitude (Lusardi et al. 2009). Following previous studies (Chen & Volpe 2002; Lusardi et al. 2009), this research employed a number of statistical methods to achieve the study objectives, including descriptive

statistics at the univariate level of analysis, chi-square tests with spearman's correlation coefficients at the bivariate level of analysis, and multiple linear regressions at the multivariate level of analysis.

3.12 Measuring the Level of Financial Literacy (RO1)

3.12.1 Univariate Analysis

Univariate analysis is the straightforward type of data analysis. The aim of univariate analysis is to describe and to summarise the results of one variable. Thus, it cannot be used to predict relationships between different variables (Ho 2006). Data can be described with univariate analysis using frequency distribution, bar charts, histograms, and pie charts (Saccenti et al. 2014).

To measure the level of financial literacy among Saudi workers, a descriptive statistical analysis was employed. Descriptive statistical techniques were applied to organise, analyse and interpret the quantitative data. The study used descriptive analysis to describe certain phenomena and diagnose various aspects of the study. In addition, descriptive statistics helped identify dispersion and the central tendency and variability of the data collected.

The distributions of variables were largely measured and quantified using frequencies and percentages. These describe a given variable to interpret the responses of people participating in this study. Descriptive statistics such as means, standard deviations, frequencies and percentages were computed according to the variables and visualised as frequency distributions.

Central tendency measures (e.g. mean, frequencies and ranking) were applied to describe the distribution of responses and identify characteristic values. The spread of a distribution (e.g. standard deviation) was described using numerical variances concerning data values that tended to cluster close together or were widely spread over the range of values. Individual scores that pointed to a relative distribution were also employed to indicate how far an individual score was below or above the midpoint on a five-point Likert scale, namely 2.5.

The preceding description explained the quantitative component of the empirical aspect of this research. Measurements were recorded as scores indicated by a five-point Likert scale with a range from a low to a high level of the variable of interest. Measures of central tendency were

applied to describe the average among selected sets of scores to obtain an indication of typical tendencies and outliers. The data gathered from the questionnaire were statistically recoded using the IBM Statistical Package for Social Sciences (SPSS) v. 23.0 software to obtain related scores for the purpose of quantitative analysis and interpretation.

A two-stage statistical procedure was followed. In the initial stage an exploratory factor analysis was performed on all the items of the questionnaire as a means of data reduction and to ensure construct validity. The factors retained by this factor analysis were named and constructed; the value of a factor was defined by taking the mean of all the items comprising each construct. Thereafter, the Cronbach's alpha coefficient was calculated to ensure and determine the repetition of each new defined construct throughout the questionnaire to determine whether a factor analysis may be appropriate. The measure of sampling adequacy (MSA) was used to identify inter-correlations among variables for each confirmatory factor (Cerny & Kaiser 1977). The second-stage statistical procedures involved the use of descriptive statistics in graphical and numerical ways to present and analyse the gathered data. Two-way frequency tables and cross-tabulations were used to explore the response patterns of different subgroups.

Finally, dispersion was used to measure the range and standard deviation around the central tendency. This study used standard deviations in the statistical data analysis. The findings are also reported using means and standard deviations to present a meaningful interpretation of the data obtained in the study. Descriptive analyses were performed to measure the following: demographics; study instrument; level of financial literacy; and level of household wealth. Although the measurement of the level of household wealth was not in itself one of the research objectives, it was considered essential to achieve RO2, which aims to examine the relationship between financial literacy and household wealth. Thus, the frequency distribution of the household wealth of respondents was examined, similar to the level of financial literacy, to classify household wealth into the following categories: high; medium; and low.

3.13 Testing Hypotheses (RO2+RO3)

This section aims to shed lights on the data analysis methods used to achieve RO2 and RO3 of the study in which to determine the effect of financial literacy on household wealth and to determine the effect of demographic variables on household wealth. These two objectives were achieved through examining a set of hypotheses through different data analysis techniques

including bivariate and multivariate analysis. In order to test the hypotheses, the significance level of hypothesis testing was set at 0.1 level. The significance level of hypothesis testing depends on the context of the study (Luo 2018), for example, in social studies or preliminary studies, the 0.1 level of significance is reasonable, while in medical studies where people's lives can be in danger, it is essential to choose 0.05 level of significance (Meyer et al. 2017). Researcher can modify the procedure to fit the research purposes until this procedure became worthless (Bross 1971). According to Bross (1971) there is no academic reference states that using 0.05 level of significance is must, if there were no 0.05 level of significance firmly founded, then researcher can stretch the level to 0.07 or 0.1 to prove their point of view.

3.13.1 Bivariate Analysis

Similar to univariate analysis, bivariate analysis is also a simple form of statistical data analysis. Bivariate analysis is useful in testing the relationship between two variables (X, Y) in simple hypotheses. It identifies whether the relationship between two variables exists. It also helps to identify the strength and the direction of this relationship (Zhang 2016). The findings from bivariate analysis can be organised in a two-column table. The relationship between two variables in this table can be analysed using several methods such as crosstabulation, scatterplot, and correlation coefficients (Bryman & Cramer 2009).

A bivariate analysis method was used to examine the relationship between financial literacy and household wealth to test H1, that the impact of financial literacy of Saudi workers on household wealth is totally significant in Saudi Arabia.

First, the relationship between financial literacy and household wealth was examined to determine if it was significant. To explore whether there was a relationship between financial literacy and household wealth, the chi-square (χ^2) test for independence was used. The chi-square test is usually applied to evaluate test of independence for a bivariate table. Test of independence determines whether a significant relationship exists between two variables. Chi-square test allows the researcher to determine whether the dependant variable cell numbers are significantly different from the independent variables cell numbers (McHugh 2013).

This test was used by (Chen & Volpe 1998; Hogarth & Hilgert 2002; Ibrahim et al. 2009; Sevim et al. 2012) to examine the relationship between financial literacy and variables including demographic factors, financial attitude and borrowing behaviour.

Second, if the relationship between financial literacy and household wealth proved to be significant, a Spearman's rank-order correlation test was used to confirm the chi-square results and to understand the direction and strength of relationships between two variables, which must be measured on an ordinal, ratio or interval scale. This statistical correlation coefficient is used by number of academicians. For example, it used to measure the determinants of personal financial literacy (Agarwalla et al. 2015; Subha & Priya 2014; Zakaria et al. 2017).

The same bivariate analysis method was used to examine the effects of some demographic factors on household wealth. H2 hypothesised that the impact of demographic factors on household wealth is statistically significant. As with H1, the relationships between demographic factors and household wealth were first examined using the chi-square test for independence. Chi-square tests were applied separately for each of the eight demographic factors (age, gender, level of education, work experience, marital status, number of children, public or private and income level) to identify any significant relationships between these demographic variables and household wealth according to the following eight sub-hypotheses:

H2.1: There is a significant relationship between age and household wealth.

H2.2: There is a significant difference in household wealth between males and females.

H2.3: There is a significant relationship between level of education and household wealth.

H2.4: There is a significant relationship between years of work experience and household wealth.

H2.5: There is a significant relationship between marital status and household wealth.

H2.6: There is a significant relationship between number of children and household wealth.

H2.7: There is a significant association between sector of work and household wealth.

H2.8: There is a significant relationship between average monthly income and household wealth**.**

In this case, chi-square tests provided eight results that were used to explore the relationship between each demographic variable and household wealth.

Second, as with H1, Spearman's correlation tests were used to confirm the results and to examine the strength and direction of any significant relationships between demographic variables and household wealth.

3.13.2 Multivariate Analysis

Multivariate analysis refers to the quantitative statistical analysis of a set of variables at the same time. In fact, large number of problems in the analysis of social studies and life science are multivariate in nature (Digby & Kempton 2012; Tatsuoka & Lohnes 1988). The concept of multivariate analysis is conceptualised traditionally as the quantitative study of hypotheses in which more than two measurements are used to test the relationship among variables. The structure of a multivariate analysis considers essential to the researcher understanding for any phenomenon (Digby & Kempton 2012). There are a great number of approaches to apply multivariate analysis depending on the nature of the collected data and purpose of the study (Bernstein 2012). The multivariate analysis technique used in this study is a multiple regression analysis.

Multiple regressions are often used to predict the value of a dependent variable based on the values of two or more other variables (Green et al. 1978; Mason & Perreault Jr 1991). The main purpose of the multiple regression analysis in this study was to understand to what extent independent variables in H1 an H2 (financial literacy, age, gender, level of education, work experience, sector, marital status, number of children and income level) can predict dependent variable (personal household wealth of Saudi workers). It was also important to confirm the results obtained from the bivariate analysis using both chi-square and Spearman's correlation coefficient. However, the first step of regression analysis is to choose the right model of regression that best suits for the collected data of the study (Sen & Srivastava 2012).

There are several types of regressions analysis techniques that researcher can use to achieve the goal of the study. The choice of the best regression method depends usually on the sort of data available for the dependent variable. The types of regression analysis usually organised by the different forms of dependent variable including continuous, categorical, and count data. For instance, multiple linear regression, also known as ordinary least squares (OLS), is suitable for continuous dependant variables, while logistic regressions and discriminant analysis are suitable for categorical dependent variables. Lastly, Poisson regression is best suits the count or discrete dependent variables (Kiros 2017). Continuous variables refer to numeric variables

that can take on any countless value on a number line. While categorical variables refer to a limited number of categories that may have or not have a logical order. Finally, count or discrete variables refer to numeric variables that have a countable number of amounts between two values (Ghauri et al. 2020).

Since the main data obtained for household wealth is a continuous data, the best suitable regression analysis technique was the multiple linear regression (Dagum 2006). However, before multiple linear regression modelling was employed the data were tested to ensure they met the necessary assumptions of multiple linear regression. The first assumption of multiple linear regression analysis is that data residuals are normally distributed. The second is that the independent variables are not strongly correlated with each other. Third, the variance of error terms is similar for all independent variables in term of their values and finally, the distribution of the residuals is homogeneous (Kleinbaum et al. 1988). The data were tested, and the multiple linear regression assumptions was met in which the data found to be normal, with no multicollinearity between the independent variables, and homoscedastic. Thus, multiple linear regression analysis was used in this study to determine whether household wealth could be predicted based on the independent variables. This facilitated a critical evaluation of the overall results of the study to ensure the credibility of the independent variables chosen as influential factors in household wealth.

Multiple linear regression commonly used by academician. For example, it used to measure the relationship between financial literacy and individual's socio-demographic characteristics (Atkinson & Messy 2012), the relationship between financial literacy and retirement planning (Hung et al. 2009; Lusardi & Mitchell 2011a), and the relationship between financial literacy and financial behaviour (Mandell & Hanson 2009).

In addition, to mathematically define the relationship between household wealth and other independent variables, the researcher has included only independent variables that have a significant relationship with household wealth to the final multiple linear regression model. In the start, the **unadjusted model** of the multiple linear regression has estimated the model with all independent variables that are meant to be tested as part of this study (Unadjusted multiple linear regression). Then, in the **adjusted model** the researcher has re-estimated the model after deleting the insignificant variables (Zellner et al. 2001).

The following multiple regression model was used to address the main research question:

$$NW_i = \beta_{0i} + \beta_1 FL_i + \beta_2 EL_i + \beta_3 G_i + \beta_4 MS_i + \beta_5 NC_i + \beta_6 WE_i + \beta_7 PP_i + \beta_8 AG_i + \beta_9 IL_i + e_i$$

The legend for the multiple regression analysis is detailed and presented in an easy-to-follow summary in Table 3.10. The variables used for the model in this study are also defined.

Table 3. 10: Legend for the multiple regression models used in the study

Variable	Definition	Variable	Definition
NW	Net wealth	*FL*	Financial literacy
EL	Education level	*G*	Gender
MS	Marital status	*NC*	Number of children
WE	Work experience	*PP*	Sector (i.e. whether public or private)
AG	Age	*IL*	Income level
β0–β9	Coefficients to be estimated	*ei*	Error term

The *FL* and *NW* variables in the regression model were measured as summarised in Table 3.11.

Table 3. 11: Measures for variables in the regression models

No.	Variable	The measures to be used
1	*FL*	Measured using three questions following (Lusardi et al. 2009). The responses were scored as follows: • If a respondent answered only one question correctly, they were given a score of 1; • If a respondent answered two questions correctly, they were given a score of 2; and • If a respondent answered all three questions correctly, they were given a score of 3. • Respondents unable to answer any questions scored 0.
2	*NW*	Measured according to Bover (2008) definition: total assets minus total debt.

With that in place, four variables *MS*, *PP*, *G*, and *EL* were measured using dummy data as described in Table 3.12 to complete the model calculation.

Table 3. 12: Scoring of variables measured using dummy variables

No.	Variable	Measures and scoring
1	*MS*	Scored as 1 if the respondent was married; 2 if single, 3 if divorced or separated.
2	*PP*	Scored as 1 if the respondent was working in the private sector; 2 if in the public sector and 3 if self-employed.
3	*G*	Scored as 1 if the respondent was male; 2 if female.
4	*EL*	Categorical measure of different education levels (a separate dummy variable used for each education category).

The remaining four variables, *IL*, *NC*, *AG* and *WE* were measured as shown in Table 3.13.

Table 3. 13: Categorical variables

No.	Variable	The measures to be used
1	*IL*	Categorical measure of various income levels.
2	*NC*	Actual number of children (younger than 18).
3	*AG*	Categorical measure of different age levels.
4	*WE*	Categorical measure of years of employment.

3.14 Software Used

SPSS v. 23.0 was used for statistical and hypothesis analyses relevant to the impact of financial literacy on household wealth in Saudi Arabia. SPSS was used extensively in the extraction of statistical results. EndNote X8 also was used to manage references and bibliography of the study.

3.15 Ethical Considerations

This research was conducted as an online or email survey to collect responses from employed Saudi citizens. Ethics approval for the study was obtained from Victoria University to distribute the questionnaire to people. The prescribed procedure to apply for ethics approval was duly complied with as discussed in more detail below.

3.15.1 Researcher

Researchers must employ very strong and strict ethical values in conducting an unbiased study, collecting data for analysis and reporting findings (McNamara 1999).The researcher in this study confirms here that all actions and precautions were taken to ensure highly ethical processes were employed for data collection, analysis and reporting. This was done by adopting good practices throughout the study including reporting of findings. The researcher confirms there has been no manipulation of data or biased reporting.

3.15.2 Respondents

Each potential participant was notified about the purpose of the study. They were also informed of their absolute right to accept or refuse to participate in the survey voluntarily. According to Diener & Crandall (1978), respondents should be informed of the complete confidentiality of their personal details and any other information supplied. Second, personal responses should not be reported; only aggregate responses for a result are to be published. Third, no harm should be done in any way to respondents; and fourth, there should be no use of deceit in the administration the survey or data collection.

3.16 Chapter Summary

This chapter explained the appropriate research philosophy and research process. It also described the process of designing the research instrument and discussed the data collection and some of the related challenges. Moreover, it presented and discussed the statistical methods used to achieve the research objectives. Finally, it shed light on ethical considerations employed in this study. The next chapter presents the research findings and then discusses them in the context of the research hypotheses and thesis objectives.

Chapter 4: DATA ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Introduction

This chapter presents the findings of this study, which collected data from 741 Saudi workers over the age of 18 working in both the public and private sector. Although 1,450 questionnaires were distributed only 741 were fully completed, representing around 51% of the total distributed questionnaires. The aim of the study is to investigate the level of financial literacy, and how personal financial literacy has influenced the personal wealth accumulation of individuals in Saudi Arabia, one of the main economic leaders in the MENA region. Moreover, the study aims to explore the impact of demographic factors on household wealth. The study provides important information for the government of Saudi Arabia to use in supporting the economic position of the kingdom and for people who wish to enhance their financial situation. The objective arose from an extensive literature review that revealed scarce investigation of the influence of financial literacy on wealth accumulation in Saudi Arabia. Data were collected from the main cities of Saudi Arabia in 2017 via social media and shopping centres, and were appropriately cleaned before the analysis.

The data obtained from the questionnaire were statistically analysed using SPSS. The findings are discussed based on the sections of the questionnaire. As discussed in Chapter 3, the questionnaire was divided into five sections based on the definition of financial literacy and to present the questions in a way that was easy for respondents to follow, under the following headings: (1) Demographic Information, (2) Financial Knowledge, (3) Financial Decisions, (4) Personal Financial Attitude, and (5) Financial Planning and Wealth Accumulation.

This chapter describes the process of data preparation, the analytical techniques and the research questions addressed. It also describes the first section of the questionnaire, which focused mainly on the demographic characteristics of respondents in the study. The chapter then moves on to discuss the other sections of the questionnaire in general to address the research objectives and hypotheses.

The chapter then discusses RO1, related to measuring the level of financial literacy of Saudi workers based on descriptive analysis. The chapter also examines the impact of financial

literacy and some demographic variables on household wealth using cross-tabulation and chi-square statistics in a bivariate analysis. Chi-square test measure if the relationship between two variables is significant but cannot determine the strength or direction of this relationship. Thus, Spearman's rank-order correlation tests were used to identify whether the relationships between variables at the bivariate level were positive or negative. The aim here was to investigate how respondents' demographic characteristics influenced their household wealth.

The chapter concludes with a multivariate analysis to test the final equation of the study. The analysis tests the effect of financial literacy and demographic variables on household wealth using a linear regression model.

4.2 Data Preparation

To prepare the data for analysis, raw data from the returned questionnaires were transformed into a form that could be easily manipulated and analysed statistically to verify the research hypotheses and meet the research objectives. Different coding systems were devised to categorise the raw data from the questionnaires in an accessible manner for later analysis. The first step involved the demographic information provided by the questionnaire respondents: gender, age, marital status and the number of children, region and level of education, sector of work, the field of study, years of work experience, monthly income and ownership of the dwelling in which they resided. For instance, with regard to gender, '1' denoted males and '2' denoted females. Similarly, for marital status, '1' denoted married, '2' denoted single, '3' denoted divorced or separated. Likewise, workers in the private sector were coded '1', those in the public sector '2' and those who were self-employed '3'. Conversely, some demographic factors were in the form of categorical variables. For example, age variables were entered as an ordinal categorical variable for which '1' denoted an age of 18–22 years, '2' 23–29, '3' 30–39, '4' 40–59 and '5' 60 years or older. Similarly, for years spent in the current position or years of work experience overall, '1' denoted less than 2 years, '2' 2–5 years, '3' 5–10 years, and '4' >10 years. The aim of collecting this information was to facilitate a descriptive analysis of the respondents investigated in this study so that the data could be used to compare and contrast performance and attitude in relation to these factors.

After the data were input and coded accordingly, they were manipulated to obtain the exact variable to answer the research questions. For instance, with regard to financial literacy, 11 questions associated with correct and incorrect answers were presented to respondents. Of these

11 questions, the responses of three were merged to assess the financial literacy of each respondent. Respondents who answered the three questions correctly were classified as having a high level of financial literacy; respondents who answered two correctly were classified as having an average level of financial literacy; and respondents who answered one or no question correctly were classified as having a low level of financial literacy.

4.3 Analytical Techniques

The data were analysed using SPSS v. 23.0. The descriptive statistics from the data are presented here as frequency distributions. First, a general overview of the demographic and personal information of respondents based on a univariate analysis is provided. The overall separation of the questions into five sections of the questionnaire is described. Descriptive statistics such as means, standard deviations, frequencies and percentages were computed for each variable. The data were then analysed at the bivariate level of analysis using chi-square test, which are a statistical technique that identifies whether the relationship between two categorical variables is significant or not significant. Spearman's correlation tests were used to examine the direction of any significant relationships and to test hypotheses at the bivariate level. Finally, based on a multivariate analysis, the impact of all variables that proved to have a significant relationship with household wealth together was tested using multiple linear regression models to arrive at the final research equation.

4.4 Univariate Analysis

4.4.1 Descriptive Statistics

The questionnaire was a multidimensional instrument developed to achieve three main objectives: RO1, to measure the level of financial literacy among Saudi workers; RO2, to assess the relationship between financial literacy and household wealth in Saudi Arabia; and RO3, to examine the impact of selected demographic factors on household wealth in the kingdom. Respondents were asked to answer 40 questions. For each, respondents had options from which to choose. Questions 1–11 on the questionnaire collected information on the demographic characteristics of the respondents; questions 12–22 were related to respondents' financial knowledge; questions 23–27 were related to respondents' ability to make appropriate financial decisions; questions 28–34 were related to respondents' attitudes regarding some financial issues; and questions 35–40 related to the impact of family background on respondents'

financial planning and wealth accumulation. The analysis of responses to these questions facilitated addressing of the research questions regarding the relationship between financial literacy and household wealth by measuring the level of both financial literacy and net wealth and testing the impact of the selected demographic factors on household wealth.

4.4.1.1 Section 1: Demographics and General Information

In this section, the researcher describes the demographic information of participants as appears in table 4.1 below:

Table 4. 1: Descriptive statistics for the demographic characteristics of the 741 respondents in this study

Item variable	Frequency	Percentage
1.What is your gender?		
a) Male	519	70.0%
b) Female	222	30.0%
2.What is your age?		
a) 18–22 years	14	1.9%
b) 23–29 years	162	21.9%
c) 30–39 years	364	49.1%
d) 40–59 years	189	25.5%
e) 60 or older	12	1.6%
3.What is your marital status?		
a) Single	173	23.3%
b) Married	536	72.3%
c) Divorced	30	4.0%
d) Separated	2	.3%
4.How many children do you have?		
a) None	226	30.5%
b) 1–3	340	45.9%
c) 4–6	143	19.3%
d) 6+	32	4.3%
5.Where do you live in Saudi Arabia?		
a) Northern Region	17	2.3%
b) Southern Region	41	5.5%

Item variable	Frequency	Percentage
c) Western Region	442	59.6%
d) Central Region	158	21.3%
e) Eastern Region	83	11.3%
6.What is your highest level of education?		
a) Less than high school	7	.9%
b) High school or equivalent	37	5.0%
c) Diploma or equivalent	65	8.8%
d) Bachelor degree	373	50.3%
e) Post-graduate degree and above	259	35.0%
7.In what sector do you work?		
a) Public sector	399	53.8%
b) Private sector	287	38.7%
c) Self-employed	55	7.4%
.8.What is your major field of study?		
a) Business	170	22.9%
c) Agriculture and life sciences	3	.4%
b) Education and arts	17	2.3%
d) Human sciences and law	61	8.2%
e) Science	64	8.6%
f) Engineering	138	18.6%
g) Medicine	43	5.8%
h) Other, please specify …	245	33.1%
9.For how many years have you been employed?		
a) None	30	4.0%
b) <2	68	9.2%
c) 2–5	129	17.4%
d) 5–10	191	25.8%
e) >10	323	43.6%
10.What was your average monthly income during the last year?		
a) <5,000 SAR	85	11.5%
b) 5,001–10,000 SAR	189	25.5%
c) 10,001–20,000 SAR	329	44.4%
d) 20,001–40,000 SAR	103	13.9%

Item variable	Frequency	Percentage
e) >40,000 SAR	35	4.6%
11.I live in …		
a) A rented residence	352	47.5%
b) My own residence	208	28.1%
c) My parents' residence	181	24.4%
Total	741	

Gender. It can be seen from the table above that the number of male participants were higher than the female participants. This difference is expected in the situation of Saudi labour force work because of the lack of women empowerment in the Kingdom (Farhan et al. 2016). As mentioned in Chapter 1, in section 1.2, employees aged from 15 to 65 constitute 40% of the total population, with 68.6% being men working and only 31.4% are women who work (STATS 2020a). As shown in Table 4.1, of the 741 respondents who completed the questionnaire, 70.0% (*n* = 519) were male and 30.0% (*n* = 222) were female. According to a report conducted by World Economic Forum (2015) (WEF) states that 13 countries out of 15 with the world's lowest rate if employing women are within MENA countries (ERF 2019).

Age. The majority of respondents were middle aged: 49.1% were aged 30–39 years and 25.5% were 40–59. Young respondents made up the next most numerous category: people 23–29 made up 21.9% of the sample; 1.9% of respondents were aged 18–22 years. Respondents who were 60 or older were the smallest group (1.6%). This finding was in line with the current age statistics in the Kingdom, whereby 71.72% of the total population were aged between 15 and 64 years, and only about 3.41% were aged 65 or more (Statista 2020).

Marital status. When it comes to marital status, the majority of participants were married with a percentage of 72.3% of overall participants, while 23.3% of participants were single. Only a few participants were either divorced or separated. According to STATS (2016) for Saudi people aged over 20, more than 68% were married, 24% were unmarried, 2% were widowed, while less than 5% were divorced.

Number of children. The largest group of respondents (45.9%) had 1–3 children and 30.5% had no children. Respondents who had 4–6 children made up 19.3% of the sample and those with 6 or more children made up 4.3% of the sample. This finding agrees with that of Alkareef

(2017) who confirms that Saudi women's fertility rate has declined from 7 children per woman in the 1980s to the current 2.4 children per woman. **Region.** Of the respondents, most (59.6%) lived in the Western Region of Saudi Arabia and fewest in the Northern (2.3%) and Southern (5.5%) regions; 21.3% lived in the Central Region; and 11.3% in the Eastern Region. This result can be explained as the researcher himself lives in Western region, the second largest region in term of population size. in Saudi Arabia, while the researcher also collected about 21.3% of data from the central region which is consider as the first largest region in term of population size in the Kingdom. Followed by the Eastern region (11.3%), the third largest region in term of population size. Southern and Northern regions were the least in term of participants respectively. According to STATS (2016), over 50% of the total population in the kingdom live in the Riyadh and Western regions.

Level of education. Among the respondents, 50.3% held a Bachelor degree; 35.0% a post-graduate degree or above; 8.8% a diploma or its equivalent; and 5.0% a high school certificate or its equivalent. Only .9% had completed an education at less than the high school certificate level. It can be seen from the results that majority of respondents (almost 83%) had either a bachelor degree and postgraduate degree. This can be related to the focus of this study which is to measure the level of financial literacy among Saudi workers in both the private and public sectors. It is expected that most of those workers have at least bachelor degree. However, the majority of Saudi people are educated since education is free for both public and international students. Moreover, public university students in Saudi Arabia are provided with a monthly allowance. The Saudi government also provides scholarship programs for students wishing to complete postgraduate studies overseas. Thus, most of those workers have either bachelor degree or postgraduate degree (Bukhari & Denman 2013; Taylor & Albasri 2014). Moreover, according to STATS (2020b) 52%of employees in Saudi Arabia have completed their Bachelor degree.

Sector of work. Of the respondents, 53.8% of Saudi workers worked in the public sector; while 38.7% worked in the private sector; and only 7.4% were self-employed. According to the General Authority of Statistics, while referring generally to employees in Saudi Arabia, 12% worked in the public sector, 61% are in the private sector, while 26 percent were either self-employed or domestic workers (STATS 2020d). It should be noted that these percentages apply to both Saudi and non-Saudi employees. Non-Saudi employees are not eligible according to

labour force legislation to work in most government departments or agencies. Most of the public sector jobs are set aside specifically for Saudi nationals (Kumar et al. 2019).

Field of study. The data showed that 22.9% of the respondents had studied in the business field; .4% had studied in agriculture and life sciences; only 2.3% had studied in the education and arts field; 8.2% had studied human sciences and law; 8.6% had studied in the field of science; and 18.6% had studied engineering. Most (33.1%) replied that they had studied in other fields including medicine, tourism and hospitality, and aviation.

Work experience. Regarding work experience, most (43.6%) respondents reported having more than 10 years of work experience, which was the highest percentage. Those who had 5–10 years of work experience represented 25.8% of the sample, 17.4% had 2 years of work experience; 9.2% had <2 years; and only 4.0% reported having no years of work experience.

Income level. In terms of monthly income, most (44.4%) respondents had incomes of 10,001–20,000 SAR income per month. Those who had incomes of 5,001–10,000 SAR made up 25.5% of the sample; 13.9% had 20,001–40,000 SAR; 11.5% had <5,000 SAR; and 4.7% had >40,000 SAR monthly incomes. According to the last report for the second quarter of 2020, it was revealed by STATS (2020a) that the average income level was 9,970 Saudi Riyals for Saudis and 4,136 Saudi Riyals for non-Saudis.

Ownership of the dwelling. With reference to ownership of the dwelling in which the respondents lived, 47.5% lived in a rented residence; 28.1% in their own residence; and 24.4% in their parents' residence.

Overall these data indicate that the participation rate for males was twice that of females. The majority of respondents were in their middle age and more than half were married with one to three children. Moreover, half of the respondents had a Bachelor degree and most worked in the public and private sectors; self-employed respondents represented less than 10% of the total respondents. It is worth noting also that more than half of the data were collected from the Western Region of the kingdom. The highest proportion of respondents also lived in a rented residence. Last, the findings include that most respondents had more than 10 years of work experience and the monthly income level of a large number of respondents were between 10,001–20,000 SAR income per month.

4.4.1.2 Section 2: Financial Knowledge

This section of the questionnaire sought information related to respondents' financial knowledge that will be useful to measure their financial literacy level and included 11 questions (questions 12–22; see Table 4.2).

Table 4. 2: Information about respondents' financial knowledge

Item	Frequency	Percentage
12. Select the correct definition of net wealth		
a) The difference between income and expenditure	175	23.6%
b) The difference between assets and liabilities*	337	45.5%
c) The difference between cash inflows and outflows	70	9.4%
d) The difference between borrowings and savings	21	2.8%
e) None of the above	138	18.6%
13. Assume you are in your early twenties and you would like to build your wealth for a secure retirement in 30 years' time. Which of the following approaches would best meet your needs?		
a) Start to build up your bank savings account gradually	194	26.2%
b) Invest in certificates of deposits	13	1.8%
c) Put monthly savings in a diversified growth mutual fund	110	14.8%
d) Invest in the stock market	20	2.7%
e) Invest in real estate	375	50.6%
f) Accumulate money in a safe box located in a bank or at home	29	3.9%
14. Which of the following investment strategies has the highest investment risk?		
a) A mutual fund containing 80% stocks and 20% bonds	55	7.4%
b) A mutual fund containing 80% bonds and 20% stocks	72	9.7%
c) A mutual fund containing 100% stocks	134	18.1%
d) Stock in a single company*	480	64.8%
15. A couple that has recently had a baby received 10,000 SAR as a baby gift. Which of the following actions would you recommend to them?		
a) Spend the gift money on the baby's needs	84	11.3%
b) Invest in stocks and mutual funds	172	23.2%

Item	Frequency	Percentage
c) Deposit in a savings account	403	54.4%
d) Deposit in a current account	58	7.8%
e) Keep it as cash at home	24	3.2%
16. Some people save money to take care of unexpected expenses. In which of the following forms would it be of least benefit to them if they needed it right away?		
a) A savings account	358	48.3%
b) A house*	219	29.6%
c) Stocks	80	10.8%
d) A current account	84	11.3%
17. Suppose you had 100 SAR in a savings account and the profit rate was 2% per year. After 5 years; how much do you think you would have in the account if you left the money to grow:		
a) <102 SAR*	51	6.9%
b) >102	629	84.9%
c) Exactly 102 SAR	61	8.2%
18. The holder of a debit card that is lost or stolen is legally responsible for …		
a) Any unauthorised charges	38	5.1%
b) Any unauthorised charges until the loss or theft is reported*	518	69.9%
c) Only the first 50 SAR of any unauthorised charges	6	.8%
d) Only the first 500 SAR of any unauthorised charges	7	.9%
e) No unauthorised charges	172	23.2
19. What is your main motive for saving/investment?		
a) For unexpected expenses	28	3.8%
b) For retirement	63	8.5%
c) To receive s capital gain	9	1.2%
d) To leave something for children to inherit	45	6.1%
e) To increase my living standards in the future	312	42.1%
f) To be independent and be able to make choices	238	32.1%
g) To support my children's future educational needs	37	5.0%
f) No particular reason; this is a family tradition	9	1.2%
20. Suppose that the rate of profit on your savings account was 2% per year and the rate of inflation was 3% per year. After 1 year with the money in this account would you be able to buy …?		

Item	Frequency	Percentage
a) More than what you can buy today	121	16.3%
b) Exactly the same as what you can buy today	127	17.1%
c) Less than what you can buy today*	493	66.5%
21. Which of the following group of people would have the greatest problem during periods of high inflation?		
a) Older working couples saving for retirement	54	7.3%
b) Older people living only on fixed retirement income*	485	65.5%
c) Young couples with no children who both work	24	3.2%
d) Young working couples with children	178	24.0%
22. Assume your salary is 3,000 per month. You have to pay 1,000 SAR for rent and 300 SAR for food each month. You also spend 200 SAR per month on transport. If you budget 250 SAR each month for clothing, 200 SAR for dining out and 250 SAR for everything else, how long will it take for you to save SAR 1,600?		
a) 3 months	42	5.7%
b) 4 months	465	62.8%
c) 1 month	98	13.2%
d) 2 months*	136	18.4%

In response to **question 12**, which asked about the definition of net wealth, a high proportion (45.5%) of respondents selected the correct answer: 'The difference between assets and liabilities'. Almost a quarter (23.6%) claimed that it was 'The difference between income and expenditures'; and 18.6% chose 'None of the above'. A small proportion (9.4%) of respondents reported that it was 'The difference between cash inflows and outflows' and only 2.8% reported that it was 'The difference between borrowings and savings'.

In response to **question 13**, which asked respondents to select the best approach to plan for retirement, around half (50.6%) chose 'Invest in real estate'; while 26.2% chose 'Start to build up your bank savings account gradually'; and 14.8% indicated that they would 'Put monthly savings in a diversified growth mutual fund'. A small proportion (3.9%) picked 'Accumulate money in a safe-box rented in a local bank or at home', followed by 'Invest in stock market' (2.7%) and finally, 'Invest in certificates of deposit' (1.8%).

Q**uestion 14** asked about investment strategies with the highest risk. The highest percentage (64.8%) of respondents indicated that this would involve 'Stock in a single company'; which is the correct answer of the question. 18.1% selected 'A mutual fund containing 100% stocks'; and 9.7% indicated that 'A mutual fund containing 80% bonds and 20% stocks' would carry the highest investment risk.

In **question 15,** respondents were asked how they would advise a couple that had recently had a baby to spend a monetary gift. The question was asked to identify the expenditure attitude and saving attitude of individuals. Most (54.4%) respondents indicated that they would tell the couple to 'Deposit in a savings account'; 23.2% selected 'Invest in stocks and mutual funds'; 11.3% selected 'Spend the gift money on the baby's needs'; 7.8% chose 'Deposit in a current account'; and a mere 3.2% of respondents said they would tell the couple to 'Keep it as cash at home'.

In response to **question 16**, which asked about the form of savings that would be of least benefit if they needed to redeem them for an unexpected expense, an overwhelming 48.3% of the respondents indicated that money in 'A savings account' would be of least benefit. However, this answer considers as the lowest risk, low return on investment, at the same time easy to access withdraw the fund. Another 29.6% of respondents chose 'A house'; which is least benefits as they cannot get instant cash for an unexpected emergencies expense. 11.3% selected 'A current account'; this choice considers as a good choice also as they can access the fund at any time, but without any prophets. Finally, 10.8% of the respondents chose 'Stocks', which is involves a very high risk.

For **question 17**, which asked respondents to estimate how much they would have in savings in a particular scenario, the results were as follows: 84.9% of respondents indicated 'More than 102 SAR'; 8.2% of the respondents said, 'Exactly 102 SAR'; and 6.9% of the respondents indicated to 'Less than 102 SAR'. The majority of respondents were selected the right question, which is 102 SAR, while about 15.1% were selected the incorrect questions.

In regard to **question 18**, relating to responsibility for charges on a lost or stolen credit card, 69.9% responded that the card holder was legally responsible for 'Any unauthorised charges until the loss or theft is reported', the correct answer for the question. The rest of participants were selected the incorrect answers as follows: 23.2% selected 'No unauthorised charges'; 5.1% chose 'Any unauthorised charges'; .9% chose 'Only the first 500 SAR of any

unauthorised charges'; and .8% of the respondents indicated that the card holder was legally responsible for 'Only the first 50 SAR of any unauthorised charges'.

When asked in **question 19** about their main motive for saving/investment, 42.1% of respondents said that it was 'To increase my living standards in the future'; 32.1% chose 'To be independent and be able to make choices'; 8.5% selected 'For retirement'; 6.1% reported that it was 'To leave something for children to inherit'; 5.0% chose 'To support my children's future educational needs'; 3.8% said that it was 'For unexpected expenses'; and 1.2% of the respondents chose 'No particular reason; this is a family tradition'.

In response to **question 20**, which asked about the buying power of savings after 1 year given particular inflation and interest rates, 66.5% responded that it was 'Less than what you can buy today'; which is the correct answer of the question. 17.1% indicated 'Exactly the same as what you can buy today'; and 16.3% estimated it as 'More than what you can buy today'.

Further, for **question 21** regarding which category of people would have the greatest financial problems during periods of high inflation, 65.5% of the respondents selected 'Older people living only on fixed retirement income' which is the correct answer of the question. However, although those elderly have fixed income, they do not have the ability to generate extra income to deal the inflation. 24.0% selected 'Young working couples with children'; which is incorrect answer as they have time to work harder and generate more income. 7.3% suggested that it would be 'Older working couples saving for retirement'; this is not the worst scenario as they still have some time to change their financial strategies for retirement. Finally, 3.2% of respondents chose 'Young couples with no children who both work', who may have longer life to adjust their financial planning and saving strategies.

Finally, for **question 22**, the eleventh item in this section, when asked 'Assume your salary is 3,000 SAR per month. You have to pay 1000 SAR for rent and 300 SAR for food each month. You also spend 200 SAR per month on transportation. If you budget 250 SAR each month for clothing; 200 SAR for dining out and 250 SAR for everything else; how long will it take for you to save 1,600 SAR?' 18.4% of participants have selected, '2 months'; which is the correct answer. 81.6 of participants have selected the incorrect answers as follows: most (62.8%) of respondents said that it would take '4 months' which is incorrect answer. 13.2%, '1 month'; and 5.7% said that it would take '3 months'.

4.4.1.3 Section 3: Financial Decisions

This section of the survey contained information related to information related to respondents' ability to make appropriate financial decisions. It contained five questions (questions 23–27). Table 4.3 summarises responses about making financial decisions when encountering particular social issues.

Table 4. 3: Information related to respondents' ability to make appropriate financial decisions

Items	Frequency	Percentage
23. What is your ability to manage your own finances?		
a) Not sure at all	285	38.5%
b) Somewhat sure—I understand some of what I need to know	340	45.9%
c) Very sure—I understand money management very well	116	15.7%
24. How interested are you in increasing your financial knowledge?		
a) Very uninterested	24	3.2%
b) Somewhat uninterested	68	9.2%
c) Not sure	41	5.5%
d) Somewhat interested	311	42.0%
e) Very interested	297	40.1%
25. Who is responsible for daily decisions about money in your home?		
a) You and your partner	274	37.0%
b) You and another family member	339	45.7%
c) Your partner	48	6.5%
d) Another family member	21	2.8%
e) You and all family members	42	5.7%
f) Don't know	17	2.3%
26. Which of the following statements describes your monthly financial position?		
a) Sometimes we face financial difficulties to cover our necessary monthly expenses.	183	24.7%
b) We have enough money to cover our necessary expenses, but purchase of necessary durable goods is problematic.	206	27.8%

Items	Frequency	Percentage
c) We have no trouble buying necessary durable goods; but purchase of a really expensive thing like a car is.	273	36.8%
d) We can afford to buy everything we need.	79	10.7%
27. Read the following statements and rate them on a scale from 1 to 5 (1means very true of me and 5 means not at all true of me)		
a) I think credit cards are safe and risk free	321	43.36%
b) I feel happy when I purchase what I want	68	9.2%
c) I think putting money each month for savings or investments is important	41	5.5%
d) It is important to read rental contracts and loan agreements before I sign them	311	42.0%

When asked, 'What is your ability to manage your own finances?' (**question 23)**, **o**nly 45.9% of participants responded 'Somewhat sure —I understand some of what I need to know'. Around 38.5% chose 'Not sure at all' and 15.7% reported they were 'Very sure—I understand money management very well'. This finding indicates that high percentage of participants are not completely sure how to manage their financial expenses and planning for their daily expenses.

For question 24, respondents were asked—How interested are you in increasing your financial knowledge**?** about 42.0% of the respondents chose 'Somewhat interested'; 40.1% chose 'Very interested'; about 9.2% chose 'Somewhat uninterested'; 5.5% respondents chose 'Not sure' and about 3.2% of the respondents said that they were 'Very uninterested'. This finding indicates that 82.1% of participants are interested in increasing their financial knowledge to improve their financial practices.

In response to **question 25**, 'Who is responsible for daily decisions about money in your home?, 45.7% of the respondents chose 'You and another family member'; 37.0% chose 'You and your partner'; 6.5% chose 'Your partner'; 5.7% chose 'You and all family members'; 2.8% said it was 'Another family member'; and 2.3% responded 'Don't know'. This finding indicates that the majority of respondents confirmed that financial decisions are shared with family members made.

For **question 26**, 'Which of the following statements describes your monthly financial position?', 36.8% of the respondents chose 'We have no trouble buying necessary durable goods'; 27.8% said 'We have enough money to cover our necessary expenses, but purchase of necessary durable goods is problematic'; 24.7% indicated that 'Sometimes we face financial difficulties to cover our necessary monthly expenses'; and around 10.7% said; 'we can afford to buy everything we need'. It can be indicated that the majority of respondents are able to cover their monthly expenses without any financial difficulties. This result supported by other finding indicated previously in this study which illustrate that the average monthly income is more than 10,000 SAR a month

Finally, in **question 27,** respondents were asked to read a series of statements as shown in Table 4.3. In response, around 43.4% selected 'I think credit cards are safe and risk free'; 42.0% said that 'It is important to read rental contracts and loan agreements before I sign them'; 9.2% chose 'I feel happy when I purchase what I want'; and 5.5% of respondents chose 'I think putting money each month for savings or investments is important'.

4.4.1.4 Section 4: Personal Financial Attitude

This section contained general information related to respondents' financial attitude towards some financial situations. It included seven questions (28–34; see Table 4.4).

Table 4. 4: Respondents' financial attitude regarding some financial issues

Items	Frequency	Percentage
28. There are two groups of people. Some of them tend to be very economical; saving money whenever they have the chance while the second group is spending oriented; buying whenever they can and even borrowing to consume more. How would you classify yourself?		
a) Very economical, often saving money	77	10.4%
b) Somewhat economical, saving money whenever I can	294	39.7%
c) Neither economical nor spending oriented	137	18.5%
d) Somewhat spending oriented, seldom saving money	149	20.1%
e) Very spending oriented, hardly ever saving money	84	11.3%
29. What kind of assets do you own? Check all the answers that are applicable.		
a) Cash in a saving account	28	3.8%

Items	Frequency	Percentage
b) Cash in a current account	63	8.5%
c) Stocks	9	1.2%
d) Real estate	45	6.1%
e) Mutual funds	312	42.1%
f) Precious metals	238	32.1%
g) Other investments	37	5.0%
30. What is the estimate of your current borrowings (include the total of credit card debts; housing loans, the other loans from financial institutions and loans from friends and relatives)?		
a) None	96	13.0%
b) 1–10,000 SAR	101	13.6%
c) 10,001 - 50,000 SAR	79	10.7%
d) 50,001– 100,000 SAR	168	22.7%
e) 100,001– 500,000 SAR	71	9.6%
f) More than 500,000 SAR	226	30.5%
31. How many credit cards do you have?		
a) I don’t have any	224	30.2%
b) One	324	43.7%
c) Two	121	16.3%
d) More than two	72	9.7%
32. What is the combined total balance owed on your credit cards?		
a) 0–1,000 SAR	139	18.8%
b) 1,001–5,000 SAR	99	13.4%
c) 5,001–20,000 SAR	119	16.1%
d) 20,001–50,000 SAR	58	7.8%
e) ≥50,000 SAR	37	5.0%
f) Don't know	65	8.8%
33. How do you usually pay your monthly credit card bills?		
a) I pay the minimum	122	16.5%
b) I pay credit card bills in full	299	40.4%
c) My parents pay my credit card bills	10	1.3%
d) I don’t use them at all	86	11.6%
34. Do you record your income and expenditure?		

Items	Frequency	Percentage
a) Yes, I do.	96	13.0%
b) No, but I know in general how much money is received and spent during a month.	512	69.1%
c) No, I do not know in general how much money is received and spent during a month.	133	17.9%

In response to **question 28**, which asked respondents to classify themselves on a scale of savings orientation, only 39.7% of them indicated 'Somewhat economical, saving money whenever I can'; about 20.1% 'Somewhat spending oriented, seldom saving money'; 18.5% said they were 'Neither economical nor spending oriented'; 11.3% revealed that they were 'Very spending oriented, hardly ever saving money'; and 10.4% of respondents selected 'Very economical, often saving money'.

With regard to **question 29**, 'What kind of assets do you own?', where respondents could select multiple options, approximately 42.1% revealed that they had 'Mutual funds'; 32.1% said they had 'Precious metals'; 8.5% said they had 'Cash in a current account'; 6.1% of respondents reported that they owned 'Real estate'; 5.0% revealed that they had 'Other investments'; 3.8% had 'Cash in a saving account'; and 1.2% of the respondents said that they had 'Stocks'.

For **question 30**, which asked about respondents' debt, 30.5% said they owed 'More than 500,000 SAR'; 22.7% of respondents revealed that they had '50,000–100,000 SAR' of debt; 13.6% owed '1–10,000 SAR'; 13.0% owed 'None'; 10.7% indicated that they owed '10,001–50,000 SAR'; and around 9.6% of respondents indicated that they had '100,001–500,000 SAR' worth of debt.

When asked how many credit cards they owned (**question 31**), 43.7% of respondents answered 'One'; 30.2% said 'I don't have any'; 16.3% said 'Two', and 9.7% of the respondents revealed that they had 'More than two'.

In response to **question 32**, 'What is the combined total balance owed on your credit cards?', 18.8% of the respondents said '0–1,000 SAR'; 16.1% said '5,001–20,000 SAR'; 13.4% said '1,001–5,000 SAR'; 8.8% of the respondents chose 'Don't know'; 7.8% estimated their credit card debt as '20,001–50,000 SAR'; and 5.0% of the respondents answered '50,000 SAR or more'.

For **question 33**, 'How do you usually pay your monthly credit card bills?' around 40.4% of the respondents said, 'I pay credit card bills in full'; 16.5% revealed that they 'Pay the minimum; 11.6% revealed 'I don't use them at all'; and 1.3% said 'My parents pay my credit card bills'.

Finally, for **question 34**, 'Do you record your income and expenditures?' most (69.1%) respondents said, 'No, but I know in general how much money is received and spent during a month'; 17.9% of the respondents said, 'No, I do not know in general how much money is received and spent during a month'; and 13.0% replied 'Yes, I do'.

4.4.1.5 Section 5: Financial Planning and Wealth Accumulation

This section of the questionnaire sought general information related to the impact of a respondent's family background and their personal net wealth. It included six questions (35–40, see Table 4.5).

Table 4. 5: Questions on the impact of family background on financial planning and respondents' wealth accumulation

Items	Frequency	Percentage
35. From whom have you learned about managing your income? Check all the answers that are applicable.		
a) From parents	207	14.8%
b) From friends	148	10.6%
c) From books	118	8.5%
d) From the media	103	7.4%
e) From the internet	148	10.6%
f) From experience	467	33.5%
g) Have learned nothing about managing my income	135	9.7%
36. Comparing yourself to your parents, would you say that you are …		
a) Much more likely to save	130	17.5%
b) About as likely to save/spend	405	54.7%
c) Much more likely to spend	206	27.8%
37. Which of the following did you learn in your home while growing up? Check all the answers that are applicable.		
a) Loans	73	9.95
b) Investing	121	16.3%

Items	Frequency	Percentage
c) Debit cards	96	13.0%
d) Credit cards	34	4.6%
e) Saving	304	41.0%
f) Budgeting	152	20.5%
g) Interest rates	19	2.6%
h) Automobile insurance	38	5.1%
i) Keeping financial records	85	11.5%
38. What are your total assets worth (the total of real state, stocks, valuables, bank deposits and cash)?		
a) <5,000 SAR	211	28.5%
b) 5,001–50,000 SAR	124	16.7%
c) 50,001–100,000 SAR	91	12.3%
d) 100,001–500,000 SAR	144	19.4%
e) 500,001–3,000,000 SAR	110	14.8%
f) >3,000,001 SAR	61	8.2%
39. Select the most dominant asset in your wealth		
a) Real estate	248	33.5%
b) Cash (including bank deposits)	364	49.1%
c) Stocks and mutual funds	67	9.0%
d) Valuables (jewellery and precious metals etc.)	62	8.4%
40. Have you ever planned for retirement?		
a) Yes, I have	251	33.8%
b) No, I have not	490	66.1%

With regard to **question 35** 'From whom have you learned about managing your income?' 14.5% of the responses nominated 'From parents'; 10.6% said 'From the internet'; 8.5% revealed that they were influenced 'From books'; 10.6% said 'From friends'; 7.4% revealed that it was 'From the media', and finally 33.5% of the respondents said that they had learned about managing their income 'From experience'. However, 9.7% of the respondents said that they had learned nothing about how to manage their income.

When asked in **question 36** to compare themselves with their parents in terms of propensity to save, 54.7% of respondents indicated that they were 'about as likely to save/spend'; 27.8%

revealed that they were ‘Much more likely to spend’; and 17.5% revealed they were ‘Much more likely to save’.

For **question 37**, asking about financial knowledge they had gained at home while growing up, around 41.0% of the respondents said that they had learned about ‘Saving’; 20.5% about ‘Budgeting’; 16.3% about ‘Investing’; 13.0% of the respondents said ‘Debit cards’; 11.5% indicated ‘Keeping financial records’; 9.9% had learned about ‘Loans’; 5.1% chose ‘Automobile insurance’; 4.6% indicated ‘Credit cards’; 2.6% indicated ‘Interest rates’, and a large portion (22.6%) said they had learned about none of these financial factors.

For **question 38**, ‘What are your total assets worth (the total of real state, stocks, valuables, bank deposits, and cash)?’, around 28.5% of the respondents chose ‘<5,000 SAR’; 19.4% said ‘100,001–500,000 SAR’; 16.7% indicated ‘5,001–50,000 SAR’; 14.8% chose ‘500,001–3,000,000 SAR’; 12.3% of the respondents said ‘50,001-100,000 SAR’, and 8.2% of the respondents selected ‘>3,000,001 SAR’.

For **question 39**, where they were asked to select the most dominant asset in their wealth, a high proportion (49.1%) of respondents revealed that it was ‘Cash (including bank deposits)’; 33.5% of the respondents said ‘Real estate’; 9.0% of the respondents chose ‘Stocks and mutual funds’; and 8.4% said ‘Valuables (Jewels and precious metals etc.)’.

Finally, in response to the last question in the questionnaire, **question 40**, ‘Have you ever planned for retirement?’, the vast majority (66.1%) answered in the affirmative.

4.4.2 Measuring the Level of Financial Literacy – (RO1)

To reiterate, the first objective of this study was to measure the level of financial literacy among Saudi workers. Financial literacy was measured based on three basic financial questions (Q14, Q17, Q20) that were explained in Chapter 3. Responses to these three questions were merged to assess the financial literacy of the respondents. Respondents who answered all three questions correctly were classified as having a high level of financial literacy; respondents who answered two questions correctly were classified as having an average level of financial literacy; while respondents who answered only one or no questions correctly were classified as having a low level of financial literacy.

The findings as presented in Table 4.6 show that the highest proportion of respondents (41.8%) that answered the questionnaire had a high level of financial literacy, while 35.3% had an average level of financial literacy. Finally, 22.9% of the respondents had a low level of financial literacy, having answered one or no questions correctly.

Table 4. 6: Level of financial literacy among respondents

Financial literacy level	Frequency	Percentage
Low	170	22.9%
Average	261	35.3%
High	310	41.8%
Total	741	100.0%

However, to achieve RO2, which aims to examine the impact of financial literacy on household wealth, it was essential to measure the frequency distribution of household wealth, as presented in the following section.

4.4.3 Frequency Distribution of Household Wealth Level

The frequency distribution of household wealth among respondents was examined with the aim of exploring the impact of financial literacy on household wealth. The household wealth of respondents was constructed by recoding question 39, about the worth of a respondent's total assets (total of real state, stocks, valuables, bank deposits and cash) in the fifth section of the questionnaire related to the impact of family background on financial planning and respondents' wealth accumulation.

The data concerning household wealth has been converted into categorical data in order to facilitate the bivariate analysis process as follows; respondents who had less than 50,000 SAR as the worth of their total assets were classified as having low Household Wealth Index (HWI). Meanwhile respondents who had total assets worth 50,001–500,000 SAR were classified as having average HWI, and respondents whose total assets were more than 500,000 were classified as having high HWI (Atkinson 2007; Doss et al. 2013; Owens et al. 2006). The study findings in Table 4.7 show that a high proportion (45.2%) of respondents belonged to the low HWI category. Further, 31.7% of the respondents had an average HWI while 23.1% belonged to a high HWI category.

Table 4. 7: Frequency distribution for HWI categories

HWI category	No. respondents	Percentage
Low	335	45.2%
Average	235	31.7%
High	171	23.1%

4.5 Bivariate Analysis

This section of the thesis is concerned with testing the relationships between pairs of variables to test the hypotheses developed. First, the relationship is confirmed using the Chi- square test. Then the direction of the established relationship is confirmed using the spearman rank correlation test. This approach has been adopted in studies by (Chen & Volpe 1998b; Hogarth & Hilgert 2002; Ibrahim et al. 2009; Sevim et al. 2012). Chi-square test also is a non-parametric test that can be used as a robustness test (Fagerland 2012; Lanzante 1996).

4.5.1 Testing the impact of financial literacy on household wealth (RO2)

4.5.1.1 *Hypothesis 1*

H1: There is a statistically significant relationship between financial literacy and household wealth in Saudi Arabia.

Level of significance: .10

Decision rule: reject H_0 if P < .10, otherwise accept H_0

Decision: based on the chi-square test result and as $p < .10$, H_0 is rejected and it is concluded that there was a significant relationship between household wealth and level of financial literacy.

Moreover, based on a cross-tabulation analysis (see Table 4.8), the findings reveal that the relationship between financial literacy and wealth accumulation was positive. Among respondents with a high level of financial literacy, 28.4% had high household wealth, while 38.1% had average household wealth and 33.5% of them had low household wealth. This was

in contrast to respondents who had a low level of financial literacy, of which the majority (57.1%) had low household wealth, while just 17.1% were in the high HWI category.

Table 4. 8: The association between financial literacy and household wealth

Level of financial literacy	HWI category				Chi-square	*p*-value
	Low	Average	High	Total		
Low	97 (57.1%)	44 (25.9%)	29 (17.1%)	170	30.794	<.001
Average	134 (51.3%)	73 (28.0%)	54 (20.7%)	261		
High	104 (33.5%)	118 (38.1%)	88 (28.4%)	310		

The previous discussion indicated that respondents with a high level of financial literacy tended to be wealthier than those with a low level of financial literacy. The majority of respondents with a high level of financial literacy belonged to the high and average HWI categories, while of those with a low level of financial literacy, more than half belonged to the low HWI category.

However, to determine the direction of the relationship between financial literacy and household wealth, a Spearman's correlation test was performed, with the results shown in Table 4.9. There was a significant positive relationship between financial literacy and HWI category, which supports H1 in this study. Thus, it can be concluded that financial literacy had a positive impact on household wealth, which means that household wealth is expected to be high if a person's financial literacy is high.

Table 4. 9: Spearman's correlation coefficients for financial literacy and HWI

		Financial literacy	HWI
Financial literacy	Correlation coefficient	1.000	.113**
	Significance (2-tailed)	.	.002
	No. respondents	741	741
HWI	Correlation coefficient	.133**	1.000
	Significance (2-tailed)	.002	.
	No. respondents	741	741

**. Correlation is significant at the .01 level (2-tailed).

4.5.2 Testing the Impact of Demographic Variables on Household Wealth Index (RO3)

4.5.2.1 *Hypothesis 2*

H2: **There is a significant impact of demographic variables (age, gender, level of education, work experience, marital status, number of children, private or public, and income level) on household wealth in Saudi Arabia.**

This hypothesis is divided into eight sub-hypotheses to test the impact of each demographic factor on household wealth, as in the following.

4.5.2.2 *Hypothesis 2.1*

H2.1: There is a significant relationship between age and household wealth.

Level of significance: .10

Decision rule: reject H_0 if $P < .10$, otherwise accept H_0

Decision: based on the chi-square test result and as $p < .10$, H_0 is rejected and it is concluded that there is a significant positive relationship between age and household wealth.

The cross-tabulation analysis in Table 4.10 shows that there was a positive relationship between age and household wealth. Thus, young people had less household wealth than older adults. For example, almost 93% of respondents aged 18–22 years appeared to have a low level of net wealth compared with respondents from older age groups. Thus, the results indicate a highly significant association between age and household wealth.

Table 4. 10: Impact of age on HWI category

Age (years)	HWI category				Chi-square	*p*-value
	Low	Average	High	Total		
18–22	13 (92.9%)	1 (7.1%)	0	14	81.247	<.001
23–29	93 (57.4%)	56 (34.6%)	13 (8.0%)	162		

30–39	166 (45.6%)	125 (34.3%)	73 (20.1%)	364		
40–59	60 (31.7%)	51 (27.0%)	78 (41.3%)	189		
≥60	3 (25.0%)	2 (16.7%)	7 (58.3%)	12		

However, to examine the direction of the relationship between age and household wealth, Spearman's correlations tests were employed, with results shown in Table 4.11. The results reveal that the relationship between age and HWI was highly significant. Moreover, the test shows that there was a weak positive relationship between age and household wealth. Thus, H2.1 is supported.

Table 4. 11: Spearman's correlation coefficient for age and HWI

		HWI	**Age**
HWI	Correlation coefficient	1.000	.112**
	Significance (2-tailed)	.	.001
	No. respondents	741	741
Age	Correlation coefficient	.122**	1.000
	Significance (2-tailed)	.001	.
	No. respondents	741	741

**. Correlation is significant at the .01 level (2-tailed).

4.5.2.3 *Hypothesis 2.2*

H2.2: There is a significant difference in household wealth between males and females.

Level of significance: .10

Decision rule: reject H_0 if P < .10, otherwise accept H_0

Decision: based on the chi-square test result and as $p < .10$, H_0 is rejected and it is concluded that there is a significant relationship between gender and household wealth.

Based on cross-tabulation analysis, it can be seen in Table 4.12 that males had more net wealth than females. For example, 56.3% of females were considered to have low household wealth, while this was true for only 40.5% of males. However, the proportions of males and females in the moderate HWI category were similar: 32.4% for males and 30.2% for females. In contrast, the study findings show that 27.2% of male respondents were in the high HWI category, but this was true for only 13.5% of female respondents.

Thus, H2.2 is accepted as the level of household wealth among males and females was significantly different.

Table 4. 12: Impact of gender on HWI category

Gender	HWI category				Chi-square	*p*-value
	Low	Average	High	Total		
Female	125 (56.3%)	67 (30.2%)	30 (13.5%)	222	21.431	<.001
Male	210 (40.5%)	168 (32.4%)	141 (27.2%)	519		

4.5.2.4 *Hypothesis 2.3*

H2.3: There is a significant relationship between level of education and household wealth

Level of significance: .10

Decision rule: reject H_0 if P < .10, otherwise accept H_0

Decision: based on the chi-square test result and as $p < .10$, H_0 is rejected and it is concluded that there is a significant relationship between level of education and household wealth.

The chi-square test revealed a significant relationship between level of education and household wealth. Respondents with a post-graduate degree or above made up the greatest proportion (29.7%) of the high HWI category; while respondents with a high school certificate or equivalent made up the lowest proportion (13.5%) in the high HWI category, and a similar proportion (14.3%) had not completed high school (see Table 4.13).

Table 4. 13: Impact of level of education on HWI category

Level of education	HWI category				Chi-square	*p*-value
	Low	Average	High	Total		
Less than high school	5 (71.4%)	1 (14.3%)	1 (14.3%)	7	28.471	<.001
High school or equivalent	23 (62.2%)	9 (24.3%)	5 (13.5%)	37		
Diploma or equivalent	38 (58.5%)	12 (18.5%)	15 (23.1%)	65		
Bachelor degree	180 (48.3%)	120 (32.2%)	73 (19.6%)	373		
Post-graduate degree and above	89 (34.4%)	93 (35.9%)	77 (29.7%)	259		

Spearman's correlation coefficient was calculated to understand the direction of the relationship between level of education and household wealth. The results showed that the relationship between level of education and household wealth was highly significant and negative (see Table 4.14).

Table 4. 14: Spearman's correlation coefficient for level of education and household wealth

		HWI	Level of education
HWI	Correlation coefficient	1.000	–.234**
	Significance (2-tailed)	.	.000
	No. respondents	741	741
Level of education	Correlation coefficient	–.234**	1.000
	Significance (2-tailed)	.000	.
	No. respondents	741	741

**. Correlation is significant at the .01 level (2-tailed).

4.5.2.5 *Hypothesis 2.4*

H2.4: There is a significant relationship between years of work experience and household wealth.

Level of significance: .10

Decision rule: reject H_0 if P < .1, otherwise accept H_0

Decision: based on the chi-square test result and as $p < .10$, H_0 is rejected and it is concluded that there is a significant relationship between years of work experience and household wealth.

The chi-square test revealed a highly significant relationship between years of work experience and level of household wealth. A cross-tabulation analysis showed that there was a positive relationship between household wealth and years of work experience. Respondents with no work experience made up 6.7% of the high HWI category, increasing to 8.8% for respondents with less than 2 years of work experience and to 10.1% for respondents with 2–5 years of work experience. The highest percentage of respondents in the high HWI category were those with more than 10 years of work experience (36.5%); respondents who had 5–10 years of work experience made up 16.8% of the high HWI category (see Table 4.15).

Table 4. 15: Impact of years of work experience on HWI category

Years of work experience	HWI category				Chi-square	*p*-value
	Low	Average	High	Total		
None	25 (83.3%)	3 (10.0%)	2 (6.7%)	30	81.460	<.001
<2	42 (61.8%)	20 (29.4%)	6 (8.8%)	68		
2–5	72 (55.8%)	44 (34.1%)	13 (10.1%)	129		
5–10	85 44.5%)	74 (38.7%)	32 (16.8%)	191		
10	111 (34.4%)	94 (29.1%)	118 (36.5%)	323		

Spearman's correlation tests were used to examine the direction and the strength of this relationship (see Table 4.16). The results showed that the relationship between work experience and household wealth was highly significant. Moreover, based on spearman's correlation coefficient, the relationship was positive.

Table 4. 16: Spearman's correlation coefficient of work experience and household wealth

		HWI	Work experience
HWI	Correlation coefficient	1.000	.221**
	Significance (2-tailed)	.	.000
	No. respondents	741	741
Work experience	Correlation coefficient	.221**	1.000
	Significance (2-tailed)	.000	.
	No. respondents	741	741

**. Correlation is significant at the .01 level (2-tailed).

4.5.2.6 *Hypothesis 2.5*

H2.5: There is a significant relationship between marital status and household wealth.

Level of significance: .10

Decision rule: reject H_0 if P < .1, otherwise accept H_0

Decision: based on the chi-square test result and as $p < .10$, H_0 is therefore rejected and it is concluded that there is a significant relationship between marital status and household wealth.

The chi-square test showed there was a relationship between marital status and household wealth at the 90% confidence level. A cross-tabulation analysis (see Table 4.17) showed that married respondents were the most prominent (27.6%) in the high HWI category, while divorcees and single people represented 20.0% and 9.8% respectively of the high HWI category and none of those that were separated were in the high HWI category.

Table 4. 17: Impact of marital status on HWI category

Marital status	HWI category				Chi-square	*p*-value
	Low	Average	High	Total		
Single	100 (57.8%)	56 (32.4%)	17 (9.8%)	173	30.997	<.001

Married	216 (40.3%)	172 (32.1%)	148 (27.6%)	536		
Divorced	17 (56.7%)	7 (23.3%)	6 (20.0%)	30		
Separated	2 (100%)	0	0	2		

4.5.2.7 *Hypothesis 2.6*

H2.6: There is a significant relationship between number of children and household wealth.

Level of significance: .10

Decision rule: reject H_0 if P < .10, otherwise accept H_0

Decision: based on the chi-square test result and as $p < .10$, H_0 is therefore rejected and it is concluded that there is a significant relationship between number of children and household wealth.

The findings in Table 4.18 indicate that there is a relationship between household wealth and number of children. The percentage of respondents in the high HWI category was highest (59.4%) for respondents with more than 6 children, while respondents with no children represented just 9.7% of respondents in that category.

Table 4. 18: Impact of number of children on HWI category

No. children	HWI category				Chi-square	*p*-value
	Low	Average	High	Total		
None	129 (57.1%)	75 (33.2%)	22 (9.7%)	226	61.855	<.001
1–3	155 (45.6%)	101 (29.7%)	84 (24.7%)	340		
4–6	47 (32.9%)	50 (35.0%)	46 (32.2%)	143		
6+	4 (12.5%)	9 (28.1%)	19 (59.4%)	32		

To examine this relationship further, Spearman's correlation tests were applied to understand the direction and strength of the relationship between number of children and household wealth. The relationship between number of children and HWI category was weak and significant only at the (2-tailed) .5 level (Table 4.19). Thus, there was a very weak positive relationship between the variables.

Table 4. 19: Spearman' correlation coefficient for number of children and household wealth

		HWI	No. of children
HWI	Correlation coefficient	1.000	.076**
	Significance (2-tailed)	.	.040
	No. respondents	741	741
No. of children	Correlation coefficient	.076**	1.000
	Significance (2-tailed)	.040	.
	No. respondents	741	741

**. Correlation is significant at the .01 level (2-tailed).

4.5.2.8 *Hypothesis 2.7*

H2.7: There is a significant association between sector of work and household wealth.

Level of significance: .10

Decision rule: reject H_0 if $P < .10$, otherwise accept H_0

Decision: as $p = .84$, which is greater than .10, H_0 is accepted and it is concluded that there is no significant relationship between sector and household wealth.

The results show no significant relationship between the sector in which a respondent worked and their accumulation of household wealth (Table 4.20. However, self-employed respondents made up the highest percentage (25.5%) in the high HWI category, closely followed by respondents in the private sector (23.3%) and then those in the public sector (22.6%). Nonetheless, H2.7 is rejected.

Table 4. 20: Impact of sector on HWI category

Sector	HWI category				Chi-square	*p*-value
	Low	Average	High	Total		
Public sector	177 (44.4%)	132 (33.1%)	90 (22.6%)	399	1.409	.84
Private sector	131 (45.6%)	89 (31.0%)	67 (23.3%)	287		
Self-employed	27 (49.1%)	14 (25.5%)	14 (25.5%)	55		

4.5.2.9 *Hypothesis 2.8*

H2.8: There is a significant relationship between average monthly income and household wealth.

Level of significance: .10

Decision rule: reject H_0 if $P < .10$, otherwise accept H_0

Decision: based on the chi-square test result and as $p < .10$, H_0 is rejected and it is concluded that there is a significant relationship between average monthly income and financial household wealth.

The chi-square test revealed that there was a significant relationship between average monthly income and household wealth: household wealth increased as average monthly income increased. Respondents who earned a large amount of money as average monthly income were in a higher HWI category than those who earned a lower amount as monthly income. Only 1.2% of respondents in the high HWI category earned less than 5,000 SAR, while respondents who earned 5,001–10,000 SAR per month represented 7.4% of high HWI category. Respondents who earned more than 40,000 SAR as average monthly income were the most common (65.7%) in the high HWI category, followed by respondents who earned 20,001–40,000 SAR (51.5%) and those earning 10,001– 20,000 SAR per month making up 24.3% of the high HWI category (see Table 4.21).

Table 4. 21: Impact of average monthly income on HWI category

Average monthly income	HWI category				Chi-square	*p*-value
	Low	Average	High	Total		
<5,000 SAR	72 (84.7%)	12 (14.1%)	1 (1.2%)	85	182.6	<.001
5,001–10,000 SAR	115 (60.8%)	60 (31.7%)	14 (7.4%)	189		
10,001–20,000 SAR	123 (37.4%)	126 (38.3%)	80 (24.3 %)	329		
20,001–40,000 SAR	20 (19.4%)	30 (29.1%)	53 (51.5 %)	103		
>40,000 SAR	5 (14.3%)	7 (20.0%)	23 (65.7 %)	35		

The Spearman's correlation coefficient was applied to examine the direction and strength of the relationship (Table 4.22). This showed that the relationship between income level and household wealth was strongly significant and positive.

Table 4. 22: Spearman's correlation coefficient for income level and household wealth

		HWI	Income level
HWI	Correlation coefficient	1.000	.190**
	Significance (2-tailed)	.	.000
	No. respondents	741	741
Income level	Correlation coefficient	.190**	1.000
	Significance (2-tailed)	.000	.
	No. respondents	741	741

**. Correlation is significant at the .01 level (2-tailed).

4.6 Multivariate Analysis

This section is concerned with testing the multivariable relationship between household wealth, financial literacy and other independent variables. A chi-square test shows only the dependence between two variables; it does not indicate whether there is a significantly positive or negative

relationship between them. Thus, Spearman's correlation coefficients were calculated to examine the direction of the relationships between the dependent and independent variables. A multiple linear regression analysis can also be used to confirm the direction of a relationship. In this section, a multiple regression model is used to test the effect of financial literacy (*FL*), age (*AG*), gender (*G*), educational level (*EL*), income level (*IL*), work experience (*WS*), sector (*PP*), number of children (*NC*) and marital status (*MS*) on net wealth. All categorical independent variables were converted into dummy variables (*J–1)* to satisfy the first condition for using categorical independent variables in a linear regression.

Table 4. 23: Descriptive statistics for unstandardised net wealth categorised according to the independent variables

Variable	Mean	*N*	Standard deviation
Level of financial literacy			
Low	520,661.76	170	1646829.313
Average	602,969.35	261	1881344.406
High	687,064.52	310	1821089.310
Total	619,267.88	741	1803337.370
Educational level			
Less than high school	667,500.00	7	1808516.312
High school or equivalent	258,310.81	37	1270769.541
Diploma or equivalent	454,538.46	65	1773815.070
Bachelor degree	527,493.30	373	1703046.315
Post-graduate degree and above	843,040.54	259	1993906.256
Total	619,267.88	741	1803337.370
Gender			
Male	738,660.89	519	1952078.900
Female	340,146.40	222	1358579.286
Total	619,267.88	741	1803337.370
Marital status			
Single	262,687.86	173	1213379.686
Married	773,479.48	536	1970739.655
Divorced	199,16.67	30	908119.619
Separated	–875,000.00	2	1233901.333

Variable	Mean	*N*	Standard deviation
Total	619,267.88	741	1803337.370
No. children			
None	249,325.22	226	1172029.490
1–3	588,036.76	340	1778194.938
4–6	905,576.92	143	2110005.042
6+	228,4375.00	32	2904997.710
Total	619,267.88	741	1803337.370
Years of work experience			
None	285,916.67	30	1214064.576
<2	337,352.94	68	1156631.503
2–5	203,294.57	129	1281458.671
5–10	285,615.18	191	1163665.452
>10	1,073,010.84	323	2289473.509
Total	619,267.88	741	1803337.370
Sector			
Public sector	611,510.03	399	1877088.115
Private sector	543,092.33	287	1609415.776
Self–employed	1,073,045.45	55	2153140.078
Total	619,267.88	741	1803337.370
Age (years)			
18–22	9,821.43	14	20765.733
23–29	154,706.79	162	731860.101
30–39	473,777.47	364	1645220.386
40–59	1,179,550.26	189	2353488.144
≥60	3,190,625.00	12	3160178.563
Total	619,267.88	741	1803337.370
Income level			
<5,000 SAR	–12,470.59	85	348171.776
5,001–10,000 SAR	166,679.89	189	1263495.732
10,001–20,000 SAR	595,235.56	329	1716218.102
20,001–40,000 SAR	1,339,029.13	103	2336923.417
>40,000 SAR	2,705,214.29	35	2943462.245

Variable	Mean	*N*	Standard deviation
Total	619,267.88	741	1803337.370

Table 4.23 shows the average and standard deviation for net wealth in different categories of each independent variable. Average net wealth with regard to financial literacy levels shows that respondents with a high level of financial literacy had the highest average net wealth (687,064) SAR, while respondents with a low level of financial literacy had the lowest net wealth average of 520,661. This pattern was the same for *EL*: respondents with a post-graduate degree and above had the highest average net wealth (843,040) and respondents with high school or equivalent had the lowest average net wealth (258,310).

Average net wealth according to gender showed that males had higher average net wealth than females. The average net wealth of males (738,660) was twice that of females (340,146); further, married people had the highest net wealth, while the net wealth average for separated couples was negative (–875,000).

With regard to number of children, respondents with more than 6 children had the highest average net wealth (2,284,375) of all categories and respondents with no children had the lowest average net wealth (249,325). With regard to work experience, respondents with more than 10 years of work experience had the highest average net wealth.

The results for sector showed that respondents who were self-employed had the highest net wealth, followed by respondents who worked in the private sector. The results also showed that older respondents had the highest average net wealth: oldest age group (60 or older) had average net wealth of 3,190,625 while the youngest age group had an average of only 9,821.

Net wealth for respondents who earned more than 40,000 SAR monthly as highest (2,705,214); respondents who earned less than 5,000 SAR monthly had negative average net wealth (–12,470). This result showed that net wealth average increased as monthly income level increased.

The dependent variable (net wealth) was tested for normality (see Table 4.24), which revealed that it was heavily positively skewed with a skewness value (2.369) greater than 1. Thus, the net wealth variable to be tested was generated by converting unstandardised net wealth into log

values using arithmetic $\log_{10}$, to smooth the extreme (large) numbers in the data (Howell 1967; Presse et al. 2008; Sidoti et al. 2019; Woods et al. 2003). This procedure resulted in a standardised numerical net wealth variable with a skewness (0.418) of less than 1, which met the conditions for normality.

Table 4. 24: Normality test of the dependent variable (net wealth)

Statistics	Unstandardised net wealth	Standardised net wealth
Mean	619267.88	2.82
Median	2500.00	1.99
Mode	0	–1.09
Skewness	2.369	.418
Standard Error of skewness	.09	.09
Minimum	–1747500	–3.43
Maximum	6500000	10.95

A negative value indicates that liabilities exceed assets.

4.6.1 Multiple Linear Regression Models

A multiple regression analysis was used to test whether financial literacy and the specified demographic variables significantly predicted the net wealth of participants. The results indicated that the predictors explained 38.9% of the variance (adjusted $R^2 = .389$, F (27,713) = 18.471, $p < .01$) (see Table 4.25).

Table 4. 25: Unadjusted multiple linear regression model

Coefficients							
Model	**Unstandardised coefficient**		**Standardised coefficient**	**t**	**Sig.**	**Collinearity statistics**	
	B	**Std. error**	**β**			**Tolerance**	**VIF**
(Constant)	.912	.476		1.915	.056		
Gender: Female	RC						
Gender: Male	1.763	.228	.256	7.746	.000	.753	1.328
Age: 18–22	3.075	.812	.133	3.788	.000	.670	1.492
Age: 23–29	1.194	.310	.157	3.844	.000	.497	2.012
Age_30–39	RC						
Age: 40–59	.302	.297	.042	1.017	.310	.488	2.051
Age: ≥60	1.408	.779	.056	1.807	.071	.846	1.182

Coefficients							
Model	**Unstandardised coefficient**		**Standardised coefficient**	**t**	**Sig.**	**Collinearity statistics**	
	B	**Std. error**	**β**			**Tolerance**	**VIF**
Education: Less than high school	–1.500	.980	–.046	–1.531	.126	.911	1.098
Education: High school	–1.457	.491	–.101	–2.968	.003	.716	1.397
Education: Diploma	–2.232	.372	–.200	–5.999	.000	.739	1.353
Education: Bachelor degree	–.947	.217	–.150	–4.367	.000	.697	1.435
Education: Post-graduate	RC						
Income: <5,000	–1.987	.398	–.201	–4.989	.000	.508	1.968
Income: 5,001–10,000	–1.712	.250	–.237	–6.847	.000	.689	1.451
Income: 10,001–20,000	RC						
Income: 20,001–40,000	.908	.299	.100	3.041	.002	.767	1.304
Income: >40,000	2.586	.463	.174	5.588	.000	.849	1.177
No work experience	1.221	.645	.076	1.892	.059	.506	1.975
<2 years' experience	1.774	.435	.163	4.083	.000	.520	1.922
2-5 years' experience	.277	.341	.033	.813	.416	.489	2.045
5-10 years' experience	1.115	.271	.155	4.112	.000	.582	1.719
>10 years' experience	RC						
Public sector	RC						
Private sector	1.229	.217	.190	5.667	.000	.733	1.364
Self-employed	2.635	.389	.219	6.768	.000	.786	1.272
No. children: None	RC						
No. children: 1–3	.294	.379	.047	.777	.437	.230	4.348
No. f children 4–6	.682	.455	.085	1.499	.134	.254	3.935
No. children: 6+	2.620	.629	.169	4.162	.000	.500	2.000
Marital status: Single	1.330	.398	.179	3.342	.001	.289	3.464
Marital status: Married	RC						
Marital status: Divorced	–.129	.485	–.008	–.266	.790	.896	1.116
Marital status: Separated	–5.044	1.781	–.083	–2.832	.005	.959	1.043
Financial literacy: Low	.128	.249	.017	.514	.608	.744	1.344
Financial literacy: Average	RC						
Financial literacy: High	.526	.217	.082	2.425	.016	.715	1.399

Coefficients							
Model	**Unstandardised coefficient**		**Standardised coefficient**	**t**	**Sig.**	**Collinearity statistics**	
	B	**Std. error**	**β**			**Tolerance**	**VIF**

a. Dependent variable: adjusted net wealth

The **unadjusted model** of the multiple linear regression aims to estimate the model with all independent variables that are meant to be tested as part of this study. The unadjusted model showed that gender significantly predicted net wealth as males had more net wealth than females (β = 1.76, $p < .001$); further, respondents aged 18–22 or 23–29 and those above 60 had more net wealth on average (β = 3.07, $p < .01$; β = 1.19, $p < .01$; and β = 1.41, $p < .05$) than did those aged age 30–39. Respondents who had completed a bachelor degree, diploma or high school had a lower net wealth on average (β = –.947, $p < .01$; β = –2.232, $p < .01$; and β = –1.46, $p < .05$) than those with a post-graduate degree. Monthly income was also significantly associated with increased net wealth: average net wealth significantly increased as monthly income increased. For example, respondents with a monthly income of more than 40,000 had higher average net wealth than those who earned less than 5,000 (β = 2.586, $p < .001$; β = –1.987, $p < .001$).

It was also found that sector of work predicted net wealth: respondents working in the private sector and those who were self-employed had higher net wealth on average (β = 1.229, $p < .01$) and β = 2.635, $p < .01$ respectively) than did respondents working in the public sector. Similarly, respondents who had more than six children had higher net wealth on average (β = 2.62, $p < .01$) than respondents with no children. Respondents who were single or married also had more average net wealth than respondents who were separated from their spouse. Finally, respondents with average or high financial literacy had more net wealth on average than those with low financial literacy.

Table 4.26 below summarises the unadjusted regression model.

Table 4. 26: Unadjusted multiple regression model summary

Model summary					
Model	R	R^2	Adjusted R^2	Std. error of the estimate	Durbin–Watson
1	.642[a]	.412	.389	2.46301	2.068

Variables that were significant at the 10% significance level were included in the final adjusted regression model (see section 3.13.2 in the methodology chapter) while those that were not significant in the unadjusted model were dropped (Zellner et al. 2001), as shown in Table 4.27

Table 4. 27: Adjusted multiple linear regression

Coefficient[a]					
Model	**Unstandardised coefficient**		**Standardised coefficient**	**t**	**Sig.**
	B	**Std. error**	**β**		
(Constant)	1.441	.223		6.460	.000
Gender: Female	RC				
Gender: Male	1.898	.220	.276	8.608	.000
Age: 18–22	2.997	.748	.130	4.006	.000
Age: 23–29	1.240	.280	.163	4.437	.000
Age: 30–39	RC				
Education: Diploma	–1.932	.356	–.173	–5.427	.000
Education: Bachelor degree	–.744	.199	–.118	–3.730	.000
Education: Post-graduate	RC				
Income: <5,000	–1.972	.362	–.200	–5.448	.000
Income: 5,001–10,000	–1.861	.242	–.258	–7.675	.000
Income: 10,001–20,000	RC				
Income: 20,001–40,000	1.096	.292	.120	3.748	.000
Income: >40,000	2.785	.457	.188	6.089	.000
No work experience	RC				
<2 years' experience	1.458	.355	.134	4.111	.000
5–10 years' experience	.814	.219	.113	3.717	.000
Public sector	RC				
Private sector	1.038	.211	.160	4.928	.000
Self-employed	2.509	.379	.209	6.623	.000
No. children: None	RC				
No. children: ≥6	2.226	.468	.144	4.758	.000
Marital status: Single	1.073	.260	.144	4.132	.000
Marital status: Married	RC				
Marital status: Separated	–5.789	1.773	–.095	–3.266	.001
Financial literacy: Average	.442	.194	.069	2.283	.023
Financial literacy: High	RC				

a. Dependent variable: adjusted net wealth

The **adjusted model** aims re-estimated the model after deleting the insignificant variables. In the multiple regression model adjusted by dropping variables that were not significant at the 10% level, the significant predictors explained 39.5% of the variation in net wealth ($R^2 = .395$, F (17,723) = 27.771, $p < .01$).

The adjusted model showed that gender significantly predicted net wealth (males had more net wealth than females; β =1.90, $p < .001$), as did age—respondents aged 18–22 and 23–29 had more net wealth on average (β = 2.99, $p < .01$ and β = 1.24, $p < .01$) than did respondents aged 30–39 years. Respondents with a diploma or a bachelor degree had lower net wealth on average (β = –1.947, $p < .01$; β = –.744, $p < .01$, respectively) than did respondents with a post-graduate degree. Further, net wealth significantly increased as monthly income increased.

Sector of work was also found to predict net wealth: respondents working in the private sector and those who were self-employed have more net wealth on average (β = 1.038, $p< .01$; β = 2.509, $p< .01$, respectively) than those working in the public sector. Similarly, respondents with more than six children had more net wealth on average (β = 2.226, $p < .01$) than those with no children. Respondents who were single or married also had more net wealth on average than those who were separated from their spouse. Further, respondents with an average level of financial literacy and those with a high level of financial literacy had more net wealth on average than those with low financial literacy.

Table 4.28 below summarises the unadjusted regression model.

Table 4. 28: Adjusted multiple regression model summary

Model summary				
Model	R	R^2	Adjusted R^2	Std. error of the estimate
1	.629[a]	.395	.381	2.48008

Final equation of the model:

Net wealth = 1.441 + (.442) average financial literacy + (1.898) male + (2.997) aged 18–22 + (–1.932) education diploma + (2.785) more than 40,000 monthly income + (1.458) less than two years' experience + (2.509) self-employed + (2.226) six and above number of children + (–5.789) separated

4.6.2 Diagnostic Test

Four essential assumptions must be satisfied prior to the implementation of multiple linear regression models as a tool for prediction. If any of these assumptions does not hold, the results from multiple linear regression models may be inefficient or trustworthy (Osborne & Waters 2002; Williams et al. 2013). These assumptions are (1) no multicollinearity between the independent variables; (2) normality of the residuals; (3) heteroscedasticity must be demonstrated to ensure that the variance in error terms is similar across the values of the independent variables; and (4) linearity must exist between the outcome variable and the independent variables (Osborne & Waters 2002). These assumptions are tested in the following sections.

4.6.2.1 Multicollinearity

The easiest way to ensure that there is no multicollinearity is by via variance inflation factors (VIFs). The literature suggests these values must be less than 10, and the best case if they are less than 5 (O'Brien 2007). The regression output in Table 4.29 shows that there is no evidence of multicollinearity in the data, as the VIF values for all variables fall within the range of 1-10.

Table 4. 29: Multicollinearity statistics test (VIF)

	Multicollinearity statistics	
Model	**Tolerance**	**VIF**
Gender (Male)	.753	1.328
Age (18–22)	.670	1.492
Age (23–29)	.497	2.012
Age (40–59)	.488	2.051
(Age >60)	.846	1.182
Education level (Less than high school)	.911	1.098
Education level (High school)	.716	1.397
Education level (Diploma)	.739	1.353
Education level (Bachelor)	.697	1.435
Monthly income (<5,000)	.508	1.968
Monthly income (5,001–10,000)	.689	1.451
Monthly income (20,001–40,000)	.767	1.304
Monthly income (>40,000)	.849	1.177
No work experience	.506	1.975
Years of work experience (<2)	.520	1.922
Years of work experience (2–5)	.489	2.045
Years of work experience (5–10)	.582	1.719
Public or private (Private sector)	.733	1.364
Public or private (Self-employed)	.786	1.272
No. children (1–3)	.230	4.348
No. children (4–6)	.254	3.935
No. children (6+)	.500	2.000
Marital status (Single)	.289	3.464
Marital status (Divorced)	.896	1.116
Marital status (Separated)	.959	1.043
Financial literacy (Low)	.744	1.344
Financial literacy (High)	.715	1.399

4.6.2.2 Normality of Residuals

To test normality of the residuals, a Shapiro–Wilk test was applied; this is considered appropriate statistical test for small sample sizes (<50) (Mudholkar et al. 1995). However, this test may not be sufficient for large sample sizes; thus, a normal Q–Q plot test was also applied to confirm the results of the Shapiro–Wilk test. The Shapiro–Wilk test results showed that the unstandardised residual values were normally distributed as the test statistic was not significant (.05, > .05) (see Table 4.30). The Q–Q plot also showed that the values did not depart far from the regression line (see Figure 4.1).

Table 4. 30: Shapiro–Wilk's post-test for normality

Tests of normality						
	Kolmogorov–Smirnov[a]			Shapiro–Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Residual value	.035	741	.033	.996	741	.053

a. Lilliefors significance correction

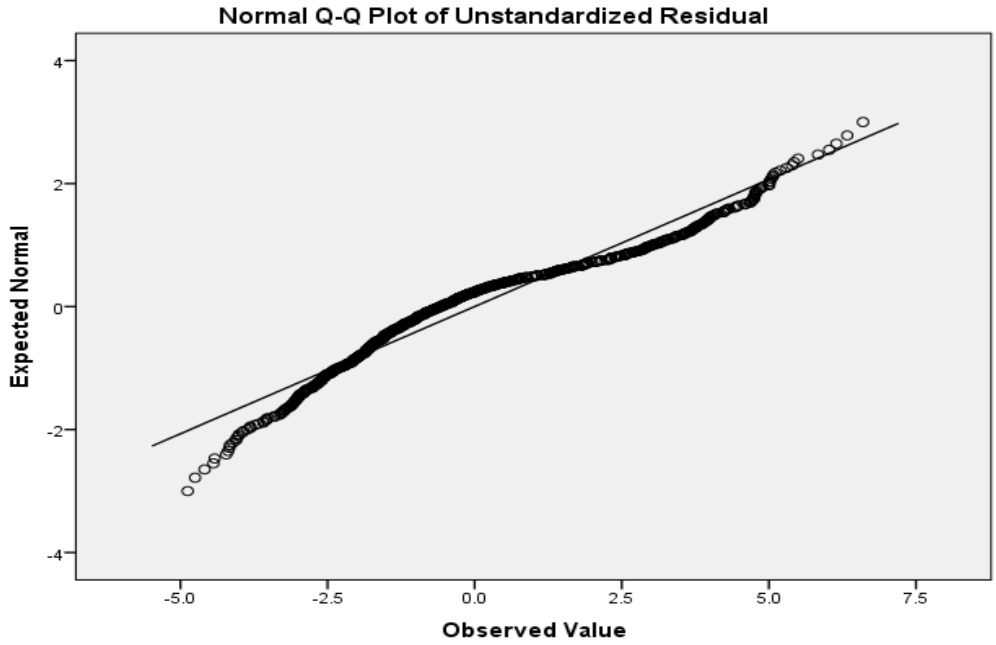

Figure 4. 1: Normal Q–Q plot of unstandardised residuals

4.6.2.3 Heteroskedasticity of Residuals

The heteroscedasticity assumption was tested using a scatterplot graph of the predicted value of the independent variable versus the regression residual. A particular pattern in the scatterplot may indicate a problem of heteroscedasticity in the data. Conversely, if there is no clear pattern and the dots are well spread between the regression residuals values of –3 to 3, there is no indication of heteroscedasticity (White 1980). The scatterplot in Figure 4.2 shows a relatively homogeneous distribution of the residuals along the *x*-axis and is no pattern of heteroscedasticity of residuals is evident in the graph.

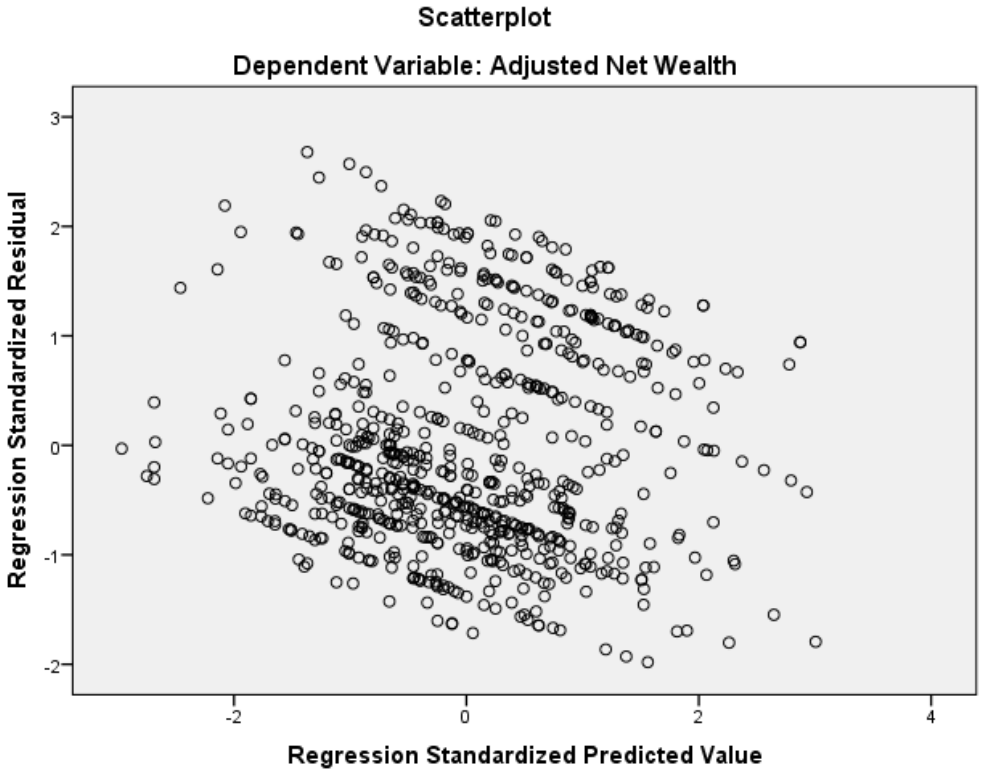

Figure 4. 2: Heteroscedasticity test of residuals

4.6.2.4 Linearity

As demonstrated in the literature, if residuals are normally distributed and homoscedastic, the independent variables in the regression have a linear relationship with the outcome variables (Jarque & Bera 1980). However, to confirm linearity a test was performed using the predicted value and the residuals presented using the main categorical variables (Smithson & Merkle 2013). The results showed that the variables met the linearity assumption with a deviation from linearity of .331, which allowed rejections of the null hypothesis; thus, it was concluded that

the variables using the residual and predicted values met the linearity assumption (see Table 4.31).

Table 4. 31: Linearity test between the standardised residual and the standardised predicted values

ANOVA table							
			Sum of squares	**df**	**Mean square**	**F**	**Sig.**
Standardised residual * Standardised predicted value	Between groups	(Combined)	519.837	532	.977	1.052	.337
		Linearity	.000	1	.000	.000	1.000
		Deviation from linearity	519.837	531	.979	1.054	.331
	Within groups		193.163	208	.929		
	Total		713.000	740			

4.7 Chapter Summary

The research was designed to examine the impact of financial literacy and selected demographic variables on household wealth or net wealth in Saudi Arabia, a strong economic player in the MENA region, to provide some fundamental knowledge on how financial literacy is related to household wealth. The analysis showed that more people had a high level of financial literacy in Saudi Arabia than had low financial literacy. Some previous studies, such as the US study of Lusardi & Mitchelli (2007), found a high proportion of the population, regardless of age, is financially illiterate and that financial illiteracy is widespread, which can have a serious impact on financial decisions. The current research also found a significant relationship between financial literacy and household wealth at the bivariate level of analysis, which is in agreement with several previous studies (Behrman et al. 2012; Drexler et al. 2014; Jessen, 2011). Based on cross-tabulation analysis, Spearman's correlation tests and multiple regression models, the study showed that an increase in financial literacy led to an increase in household wealth and vice versa. The studies of Gale and Levine (2011) and Chen and Volpe (2002) also reported a significant correlation between financial literacy and wealth accumulation. Similarly, the results here showed that financial literacy significantly predicted net wealth at the multivariate level of analysis.

Age of respondents, gender, level of education, average monthly income, years of experience, number of children and marital status were all found to be significantly associated with household wealth at the bivariate level of analysis. The multiple regression model provided similar results: respondents aged 60 and over had more net wealth on average; males had more net wealth on average than females; respondents with a post-graduate degree had more net wealth than those with less than high school while net wealth significantly increased as average monthly income increased. Years of experience also significantly predicted net wealth, while separation from spouse significantly reduced net wealth and respondents with six or more children had more net wealth than respondents with have no children. A similar situation was reported by Lee et al. (2000), who claimed that the total net wealth of a household may be affected by the number of children, as adults with a large number of children spend less on luxuries and tend to be highly motivated to save money for their children.

The results here included a significant association between age of respondents and financial literacy. Some other demographic characteristics also had a significant relationship with level of financial literacy. A study by Bucher-Koenen & Lusardi (2011) concluded that men had significantly more (~70%) financial knowledge than women in the least developed areas of Germany, as well as a significantly higher rate of financial literacy. In the same vein, Volpe et al. (2002) reported that males had higher financial literacy rate than females. The findings of the current study are in line with the literature, as 47.4% of male respondents had a high level of financial literacy, while only 28.8% of female respondents did.

Studies have established that students usually receive financial knowledge and experience as routine during their university life through tuition fee loans as well as financial responsibilities (Yates & Ward 2011). In addition, it has been reported that people usually gain an understanding of possible financial benefits from previous financial opportunities (Birkenmaier et al. 2013). The previous also study revealed that financial knowledge was mostly gained through experience rather than any other factor. (Lusardi 2008b) highlighted that many people do not think about retirement, even when they are going to retire within 5–10 years. Similarly, the current study found that the majority of respondents (around 67%) had made no financial plans for their retirement.

Chapter 5: DISCUSSION

5.1 Introduction

Recent advances in technology have improved human interactions and activities. They have also enhanced knowledge of finance given that money matters are pivotal to people's financial behaviour and ability to create wealth (Agarwal et al. 2015; Lusardi 2008b; Lusardi & Mitchelli 2007). In lieu of the above assertion, this study examined the level of financial literacy among Saudi workers and the extent to which relationships exist between financial literacy and household wealth. The study also examined the impact of selected demographic factors on household wealth creation. The study explored the differences that exist in some selected demographic characteristics (gender, age, level of education, work experience, marital status, number of children, level of education, sector of the work, and monthly income) associated with personal household wealth.

This chapter presents a summative discussion of each objective of the study. First, the findings reflecting the level of financial literacy among Saudi workers (RO1) are presented. Second, the chapter moves on to discuss how the level of financial literacy was related to household wealth creation (RO2), and finally, it presents an intensive discussion of the influence of the selected demographic factors on household wealth (RO3).

5.2 Measuring the Level of Financial Literacy (RO1)

The aim of the first objective of the research was to answer the following research question: What is the level of financial literacy among Saudi Arabian workers? This question was addressed via three main financial questions that were explained in Chapter 3. Surprisingly, the findings revealed that a high percentage of respondents (~41%) had a high level of financial literacy and a further 261 respondents (~35% of the sample) appeared to have an average level of financial literacy. Thus, only around 23% of respondents had a level of financial literacy that was classified as low. This outcome is inconsistent with the results of studies in other countries. For instance, across a number of US studies, the majority of sampled individuals, regardless of age, have a low level of financial literacy (Atkinson & Messy 2012; Chen & Volpe 1998; Lusardi & Mitchell 2007). In this study it was assumed that the level of financial literacy among Saudi workers was high because of significant factors that forced people to

improve their financial knowledge to adapt to recent changes in their financial situation. For example, in mid-2015 when international oil prices dropped and the Saudi economy was greatly affected, the Saudi government was forced to devise a new economic plan, called *Saudi Vision 2030*, to diversify the country's economy and income streams (Elachola & Memish 2016; Raimi et al. 2018). Although Gale et al. (2012) emphasised that the private sector is a key player in enhancing people's financial literacy, this study found otherwise: specifically, it showed that the public sector had the highest number of respondents with high financial literacy. This result may be due to the fact that public sector employees were the most affected by the Saudi government's economic reform. Under the new plan, government employees had their salaries cut and many had to reorganise their finances (Raimi et al. 2018). Following the financial crisis stemming from the drop in oil prices, moreover, the Saudi government announced a new taxation system, which was introduced in 2018 (Raimi et al. 2018). Further, the prices of required basic household items rose, including electricity and water; the cost of petroleum increased by more than 200% (Groissböck & Pickl 2018).

The significant decrease in the oil price came on the tail of the 2010 stock market financial crisis that affected nearly every household in Saudi Arabia. Prior to the crash, stock market values had risen dramatically for several years and many people rashly sold their houses and cars to invest in shares. The crash thus had many painful implications for working people in the KSA. After the crash people began to educate themselves about financial risk, diversification and other basic financial concepts. This inevitably forced most people to reschedule their bank loan repayments at an increased interest rate (Almalki & Ganong 2018). People's spending patterns thus changed considerably to comply with new incomes and more costly daily expenses.

Al-Tamimi (2009) found that financial literacy is heavily related to the quality of financial education. Thus, it was expected that Saudi workers—as typically Muslim people—would have a strong education base through their understanding of Islamic financial doctrine. Financial literacy within Islamic law can be defined as the ability to understand the concepts of saving, spending, *Sadaqa*, *Zakat*, *Shariah* commitments and shirking the temptations of gambling, financial corruption and uncertainty (Biplob & Abdullah 2019). Every Muslim, according to Islam, must seek knowledge as this is considered an act of worship. Seeking knowledge in Islam is essential; it is not limited to religious knowledge, but covers all aspects of a Muslim's life including financial knowledge (Al-Zuhaili 1996). Thus, the high level of

financial literacy among Saudi workers may be inevitable because they are Muslims and one of the goals of *Shariah* is to enhance the wellbeing of humans through a systematic financial system (Biplob & Abdullah 2019).

However, as mentioned in Chapter 2, a low level of financial literacy may be the main obstacle preventing people making appropriate financial decisions regarding retirement planning, saving and investing (Amidjono et al. 2016). Thus, this study urges governments and policymakers to establish education programmes for financially illiterate people to remove information barriers and simplify the decision-making process for people. As found by Bernheim et al. (2001), people who are exposed to financial education programmes while in high school are more likely to save later in life.

To enhance savings effectiveness, programmes need to be tailored to the size of the problem they are trying to solve. While it is not possible to transform low literacy individuals into financial wizards, it is feasible to emphasise simple rules and good financial behaviour, such as the importance of diversification, exploitation of the power of compound interest, and taking advantage of tax incentives and employers' pension packages. Overall, lack of information may lead to an inability to plan and procrastination can prevent people from saving and contributing to pensions, so default options are clearly an effective remedy. Defaults are the most powerful and innovative programmes in the field of saving and pensions and they should be exploited by policymakers. However, the design of defaults is crucial; low contribution rates and investment in assets that are too conservative may eventually offset the benefits of default enrolment in saving programmes. This, however, is very different from the view expressed in studies that concluded that defaults and financial education programmes are not necessarily substitutes for each other, but rather are complementary.

Combining default options with financial education programmes or financial advice may prevent workers from saving at rates that are too modest. Moreover, it may help workers evaluate their total savings—not only pensions but also private savings—and, for example, help them save for their children's education, to build a buffer to insure against shocks, or for other reasons. Several large firms, such as IBM, have adopted such initiatives and in the future it will be possible to evaluate the outcome of such combined programmes (Wiig 2015). The findings from this study may contribute to the research literature and existing knowledge in the education sector regarding programmes that aim to increase the financial literacy of individuals with a low level of financial literacy.

5.3 The Impact of Financial Literacy on Household Wealth (RO2)

The second objective of this research was to address the question, What is the impact of financial literacy on household wealth? This objective aimed to understand the relationship between financial literacy and the level of personal household wealth. The answer to the research question related to this objective is fundamental in terms of understanding the possible impact of financial literacy on household wealth, which may emphasise the importance of financial literacy for people in the short and long term. It can also be considered useful output for policymakers who want to enhance the economic situation of a country at the governmental, organisational and personal levels. This objective was related to the first hypothesis of the study, which was stated as:

H1: There is a statistically significant relationship between financial literacy and household wealth in Saudi Arabia.

In this study a high proportion (45.5%) of respondents had a low level of household wealth (>50,000 SAR): 31.7% had an average level and around 23.0% had a high level of household wealth. This suggests that many people in Saudi Arabia can afford only necessary durable goods and will find it difficult to purchase expensive items. The study findings regarding household wealth distribution are similar to those in a study by Chesters (2016), who found that Saudi Arabia is one of the most inequitable wealth distribution countries. Chesters found that the strongest growth in wealth inequality exists in China, followed by Russia and the US. Further, although the level of wealth inequality in France, Germany, Japan, Mexico and Saudi Arabia is relatively high, wealth inequality in those countries has begun to decrease slightly since 2013. In this case, it is imperative to understand the socioeconomic factors that affect personal household wealth, which strongly affects people's quality of life, the opportunities they can pursue and their sense of safety and security (Ali et al. 2014; Worthington 2016). Personal household wealth affects not only people at the personal level, but also influences the overall economic wellbeing of society (Worthington 2016). Although measuring the distribution of wealth among the respondents was not one of the objectives of the current study, it was deemed a necessary step to measure the impact of financial literacy on household wealth. The findings revealed a positive relationship between financial literacy and household wealth in Saudi Arabia.

First, based on a chi-square test, the *p*-value was less than .05 and thus the result was significant at the 95% confidence level, showing that the variables were not independent of one another and that there was a significant relationship between financial literacy and household wealth. Moreover, a cross-tabulation analysis and Spearman's correlation coefficient test showed that the direction of this relationship was positive. Using a cross-tabulation analysis, the results revealed that among respondents with a high level of financial literacy, 66.5% had high or average household wealth, and only 33.5% had low household wealth. This is in contrast to respondents who had a low level of financial literacy, of which the majority (57.1%) had low household wealth, 25.9% had an avarege level of household wealth and just 17.1% of them were in the high household wealth category. Thus, people with high financial literacy in this study had more in total assets and belonged to a higher household wealth category on average than those who had low financial literacy. Thus, H1 was accepted. This finding is consistent with those of Gale & Levine (2010), Chen & Volpe (2002) and Drexler et al. (2014) in Western context who detected significant positive relationships between financial literacy and household wealth accumulation.

Understanding the influence of financial literacy on household wealth is in line with various stakeholders' interests, including those of the government, organisations and individuals, as discussed in the following sections.

5.3.1 The Impact of Financial Literacy on Household Wealth at a Governmental Level

As suggested in the literature and confirmed for Saudi workers in this study, if people's level of financial literacy is improved, their personal household wealth will also improve (Volpe et al. 2002). It evident also from the literature that strong and stable household wealth is not only beneficial for individuals, but is often beneficial for a country's economy as a whole (Lusardi & Mitchell 2014). For example, encouraging individuals to save leads to significant change in longer-term national interests. The main reason for this is that the economic development of a country depends strongly on successfully turning local savings into productive and fruitful investment opportunities (Singh 2010; Sothan 2014).

However, it is worth noting that any economy can perform much more effectively if people with a high level of household wealth are also financially literate. A strong economy exists when individuals understand how to maximise their risk-adjusted returns to make resources flow to their highest productive use relative to risk, leading to higher and longer-term growth

(Lusardi & Mitchell 2017). In contrast, when individuals are not able to evaluate the risk–return trade-off, the impact on the economy can be highly destructive. Thus, it is imperative that individuals have adequate financial literacy, even those who have a high level of household wealth.

The KSA is one of the top 20 economies in the world according to the World Economic Forum's Global Competitiveness (EFGCI) Index (Cordesman 2003; Nurunnabi 2017); however, in 2008 the Saudi government announced its intention to make the kingdom one of the top 10 nations economically around the world. To that end it developed a CSR index known as the Saudi Responsible Competitiveness Index, which aims in the first instance to enhance the level of competitiveness among private organisations in the kingdom (SAGIA 2008). This aim can be achieved only through effective collaboration between the government and finically literate people who have the skills required to allow them to make wise financial decisions (Lusardi 2012). Such individuals are a key factor in achieving *Saudi Vision 2030*, which aims to reduce Saudi government dependency on oil as the main source of income and diversify the country's economic resources through effective participation in the Saudi market by both local and foreign investments based on good financial literacy. In recent times, 40% of the total Gross Domestic Product (GDP) of the kingdom has come from the private sector, which represents private organisations owned by individuals with good financial literacy. The private sector's GDP might be increased through effective financial decisions aligned with a high level of net wealth. Such investments play an important role in enhancing the Saudi economy and increasing employment opportunities for the Saudi population (Al-Tamimi 2009).

Financial literacy that leads to stable household wealth is not beneficial only in terms of the economics of a country but is also considered a crucial factor for resolving social issues such as unemployment, obesity, mental illness and lack of education (Pinto & Coulson 2011). This in turn will reduce government expenditure on social welfare. Financial literacy matters because its benefits extend well beyond better household wealth balance sheets to include the contribution of a more dynamic allocation of resources in the local economy.

5.3.2 The Impact of Financial Literacy on Household Wealth at Organisational Level

Financial literacy associated with household wealth is not only beneficial at the governmental level, but also makes a significant contribution to the strength and efficiency of the financial system and the overall performance of organisations (Eniola & Entebang 2017; Lambert 2012).

Especially for small businesses, financial literacy and financial education are vital to the financial sustainability and effectiveness of financial systems (Dahmen & Rodríguez 2014). Financial literacy can also support financial sustainability of organisations by enhancing market discipline. Market discipline can be defined as the process by which customers can jointly influence the financial behaviour of an organisation for the better; thus, it is more likely to perform safely, ethically and efficiently. Without doubt, if transparency exists within an organisation's financial system and customers are well informed about this, customers are more likely to switch their business from risky, poor run financial firms to the well-managed organisation (Fung et al. 2007).

5.3.3 The Impact of Financial Literacy on Household Wealth at the Individual Level

For individuals, basic concepts of financial literacy are considered important tools that help them make better financial decisions and judgments about their financial affairs, especially if they are able to understand the effect of their financial decisions on the wider economy (Lusardi & Mitchell 2017). Financially skilled individuals may realise the wisdom of solid financial planning from childhood to improve their opportunities to reach their financial goals. These goals can be achieved through a strategic plan for saving, spending and wealth creation. Financial goals may include the purchase of real estate, education of children and importantly, making appropriate saving or investing decisions for old age (Lusardi & Mitchell 2011a). People's awareness of the need for retirement planning must be gained through financial education from an early age.

Financially literate and educated individuals are more likely to recognise the importance of making further personal contributions to their retirement benefits. However, the chances of making bad financial decisions come heavy and rapid through life. Many of these decisions, especially for younger adults, are associated with easy access to credit cards, easy payment methods such as pay later and instalment plans offered by many retailers (Lusardi & Mitchelli 2007; Mandell & Klein 2007). These financial failures can be bypassed via an education system that aims to increase the level of financial literacy among young people (Amidjono et al. 2016; Arora 2016).

Although the level of financial literacy of Saudi workers appeared relatively high compared with other countries (Lusardi & Mitchelli 2007) as a result of financial crises affecting the economic situation in Saudi Arabia, it seems likely that there is a lack of implementation of

financial planning given that the results also showed that around 45.5% of Saudi workers had a low level of household wealth. Moreover, it was evident that the impact of financial literacy on household wealth was significantly positive, which means that financial literacy mattered for the financial sustainability of all stakeholders, including government, organisations and individuals. While financial literacy has been essential for some time, the necessity for financial education has assumed the utmost urgency for Saudi Arabia and other MENA countries in light of the ever-broadening range of financial products and financial services being promoted to consumers. Figure 5.1 summarises the importance of financial literacy and household wealth at the governmental, organisational and individual levels.

In Figure 5.1, financial literacy is shown as having has a positive impact on household wealth, which in turn plays a crucial rule for different stakeholders including the Saudi government, organisations and individuals. For the government, understanding this relationship increases investment opportunities, economic competitiveness of the kingdom and employment opportunities, and reduces government expenditure on social welfare. For organisations, it enhances financial sustainability, increases the effectiveness of the finance system and enhances market discipline. Last, with regard to individuals, it improves their power of judgment and helps them to make better decisions about financial affairs and financial planning, including planning for their retirement.

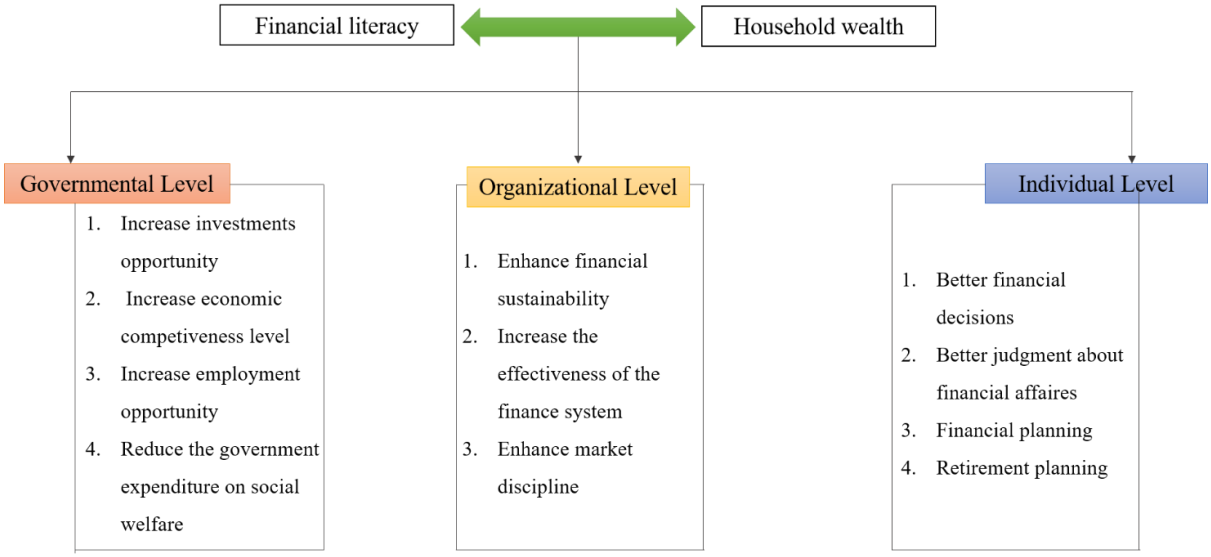

Figure 5. 1: The impact of financial literacy on household wealth

5.4 The Impact of Demographic Factors and Household Wealth (RO3)

The final research question addressed in this study was ‘Are there any significant differences between demographic variables (age, gender, education level, work experience, marital status, number of children, private or public, and income level) in their effect on household wealth?’. Thus, the final objective of the study was to explore differences in the impact of demographic variables on household wealth. This objective is related to the second hypothesis of the study, which stated that:

H2: There is a significant impact of demographic variables (age, gender, level of education, work experience, marital status, number of children, private or public, and income level) on household wealth.

These factors were tested for their relationship with household wealth. Based on chi-square tests, all variables except sector had a significant relationship with the HWI at the 5% level of significance. Cross-tabulation analysis with Spearman’s correlation coefficients was used to understand the direction of these relationships. To that end, the main hypothesis as divided into eight sub-hypotheses as presented in detail in the following subsections.

5.4.1 The Impact of Age on Household Wealth

The first demographic variable tested was the impact of age on household wealth based on the following sub-hypothesis:

H2.1: There is a significant relationship between age and household wealth.

It was concluded, based on a bivariate analysis, that there was a significant positive relationship between age and household wealth. This result is only partially consistent with the literature. For example, Becker (2009), claimed that incomes for those entering the labour force tend to be low, they rise throughout life until reaching a peak at 45–54 years of age and decline again in older age. Another study confirmed that people in childhood and old age tend to spend more than they earn, while they spend less than what they earn in their middle age (Lee et al. 2000). Further, according to the life cycle hypothesis of saving, people usually aggregate their assets during their early working lives; later, when they reach retirement, they tend to use their total assets and dis-save (Ando & Modigliani 1963; Modigliani 1966).

The findings in this study on the impact of age on household wealth are similar to those of previous studies for all age levels, except that household wealth in this study continued to increase after reaching the age of 40–59. One possible explanation for this difference is that primary necessities and cultural aspects vary around the world (Sinkovics et al. 2015) and most previous studies were undertaken in developed Western societies where individualism is the main cultural feature. In contrast, a collectivist culture is characteristic of the East and MENA countries such as Saudi Arabia (Triandis 1996). Western societies value being independent and showing little concern for others' needs and interests (Dion & Dion 1993); whereas in Saudi Arabia, people value interpersonal relationships and pay more attention to others' needs and interests (Reykowski 1994). The definition of the self in collectivist cultures is intertwined with other group members (Markus & Kitayama 1991). When parents become older in collectivist societies such as Saudi Arabia, it is expected that their children will be responsible for them. Thus, their expenses will be reduced and rather than giving money for their children, children will give their parents money as they get older. This is important according to Islam, as individuals must give back some benefits to their parents and take care of them as they did before until they die (Goodman 1980). For these reasons, household wealth of Saudi workers increases when they get older.

5.4.2 The Impact of Gender on Household Wealth

The second demographic variable tested was gender based on the following sub-hypothesis:

H2.2: There is a significant difference in household wealth between males and females.

Among respondents with high household wealth, there was a higher percentage of males (27.2%) than females (13.5%). The percentages of males and females with an average level of household wealth were similar (30.2% and 32.4%, respectively), while 56.3% of females and 40.5% of males had low household wealth. Thus, overall, male workers had more household wealth than female workers.

These findings strongly agree with most previous studies, the majority of which have suggested that family responsibilities and motherhood negatively affect women's wealth accumulation (Becker & Becker 2009; Buehler & Gerard 1995; Yamokoski & Keister 2006); thus, men have more household wealth than women (Yamokoski & Keister 2006).

In Saudi Arabia, the situation is similar; family responsibilities and motherhood can be considered the main obstacle preventing women from creating wealth. However, there are additional factors that enhance this situation in the kingdom. First, men in Saudi Arabia, as in other Islamic countries, are considered the main money providers according to Islamic law (Al Alhareth et al. 2015). According to Islamic religion and traditions, males typically earn more money than females; thus, they have more power in Saudi families. Females depend on their guardians (Father, husband, or brother) for financial support (Almosaed 2008). A husband is responsible for his wife and children and is required to provide all the needs of his family, even if his wife is in the workforce. Financially, according to *Shariah*, working women are responsible only for themselves (Bakhashab 1988) and in case if inheriting siblings, males inherit twice as much as females (Hassan 1991).

Further, culture and social norms in Saudi Arabia are considered a major factor challenging females in building their household wealth (Farhan et al. 2016). For example, according to Saudi culture there is a belief that a woman's involvement in the labour force is social (Rajkhan 2014); this cultural perspective is likely to affect female participation in the workforce of Saudi Arabia (Al Alhareth et al. 2015). Thus, Saudi Arabia is considered to have one of the lowest female empowerment rates in the MENA region and globally. For instance, only 18% of Saudi females were employed in 2017, while female participation in the labour market was recently estimated as 50% in Japan, 63% in Switzerland and 56% in the US (ERF 2019). Women in the kingdom, as in other Arab countries, are described as being subject to many more restrictions than men (Shen & Khalifa 2010), and this is reflected in the findings of this study where Saudi males had more household wealth than Saudi females.

5.4.3 The Impact of the Level of Education on Household Wealth

The third demographic variable tested was level of education, based on the following sub-hypothesis:

H2.3: There is a significant relationship between level of education and household wealth.

Thus, the results revealed a negative relationship between level of education and household wealth among Saudi workers. Although only 14.3% of respondents in the high household wealth category had less than a high school level of education, the percentage of respondents with a high school certificate or equivalent was slightly lower (13.5%) and the percentage that had a diploma or equivalent (23.1%) was higher than that for a bachelor degree (19.6%).

Spearman's correlation coefficients confirmed the relationship between level of education and household wealth was negative. This finding is inconsistent with most of the literature from Western cultures (Campbell 2006; Hilgert et al. 2003; Keister 2000; Lusardi & Mitchelli 2007; Yamokoski & Keister 2006), in which individuals who understand financial concepts are reported to enjoy much better economic wellbeing.

According to Michael (1975), level of education is strongly positively associated with level of income and financial behaviour, with strong effects on expenditure. In the case of Saudi Arabia prior to financial crises affecting the economy and even after the financial crash, there was a clear emergence of consumer-oriented behaviour, especially among well-educated individuals (Aldossry & Varul 2016; Assad 2008). In Saudi Arabian society, lower middle-income individuals copy the lifestyles of higher-income individuals regarding their spending behaviour. This situation increases the level of competition between these different income classes; thus Saudi Arabia has been one of the consumerist societies in the marketplace (Assad 2006). The well-educated group, for example, emulates the Western leisure class as the standard for perfect taste. Consequently, they consider that a luxury lifestyle reflects their level of education, background, uniqueness and specialness (Mellor et al. 2011).

Most individuals with a post-graduate education, for example, are academics working in the public sector with an average level of income; however, they emulate the upper-income class because they believe that this reflects their high level of education. This financial behaviour is expected to negatively affect their personal household wealth as was observed in this study. Moreover, some education levels are considered over-qualification for the requirements of the workplace; thus, the lower level of education group may have better opportunities to obtain better jobs with higher salaries.

5.4.4 The Impact of Work Experience on Household Wealth

The fourth demographic variable tested was work experience, based on the following sub-hypothesis:

H2.4: There is a significant relationship between years of work experience and household wealth.

It was concluded that years of work experience had a positive relationship with household wealth. Workers with no work experience who had high household wealth represented only

6.7% of total respondents, while workers with more than 10 years' experience who had high household wealth represented 36.5% of respondents. Among respondents with no work experience, 61.8% had a low level of household wealth, while 10% of respondents had an average level of household wealth and only 6.7% of respondents with no work experience were in the low level of household wealth category. Among people with less than 2 years' experience, 61.8% were in the low level of household wealth category, while 29.4% belonged to the average household wealth category and 8.8% were in the high household wealth category. Among respondents with 2–10 years of work experience, 55.8% belonged to the low level of household wealth category, 34.1% belonged to the average household wealth category and 10.1% were in the high household wealth category. For respondents with 5–10 years' experience, 44.5% were in the low level of household wealth category, 38.7% were in the average household wealth category and 16.8% belonged to the high level of household wealth category. Finally, for respondents with more than 10 years' experience, 34.4% were in the low level of household wealth category, 29.1% were in the average category and 36.5% were in the high level of household wealth category. Thus, although the percentages of respondents in all categories of years of work experience were higher in the low level of household wealth category than in the lower wealth category, the number of respondents with more years of work experience increased gradually in the high level of household wealth category.

These findings are consistent with most previous studies, in which work experience provides individuals with valuable skills and a great opportunity to balance their expenses; hence it has a positive impact on personal household wealth (Etokeren 2014; Rosen 1972; Wang 2011). However, it is worth noting that it is illegal for people who work in the public sector in Saudi Arabia, regardless of their number of years of experience, to 'moonlight' in the private sector or even have their own businesses (Madhi & Barrientos 2003). According to article 14 of the civil service law, public sector employees are prohibited from joining the private sector, or engaging in any kind of commercial practice. Any government employee found to be participating in private sector trade or commercial activities without prior approval will be fined up to 10,000 SAR (Alsharif 2018). Mohan & Prasad (2016) found that private sector employees in India had more financial experience, especially regarding sophisticated financial literacy; thus, private sector employees tended to be more financially literate about the functions of the stock market; the relationship between bond prices and interest rates; the relationship between stocks, savings accounts and bonds; the relationship between shares and stock mutual funds; and the relationship between risk diversification of shares and bond.

5.4.5 The Impact of Marital Status on Household Wealth

The fifth demographic variable tested was marital status on household wealth based on the following sub-hypothesis:

H2.5: There is a significant relationship between marital status and household wealth.

The study findings revealed a significant relationship between marital status and household wealth. Individuals who were married were more likely (27.6%) to have a high HWI while 20% of those who were divorced and 9.8% of those were single had a low Household Wealth Index. These study findings are consistent with those of Lusardi & Mitchell (2006) conducted in USA, that married people have substantially (at least four times) more net wealth than non-married people. Moreover, a number of studies in Western context have reported that saving behaviour and wealth accumulation is higher for married individuals than unmarried individuals (Lupton 2003; Wakita et al. 2000).

5.4.6 The Impact of Number of Children on Household Wealth

The sixth demographic variable tested was number of children based on the following sub-hypothesis:

H2.6: There is a significant relationship between number of children and household wealth.

A significant positive relationship was found between number of children and household wealth: 59.4% of respondents with high household wealth had more than six children, while only 9.7% of respondents with no children had high household wealth. The literature shows that number of children has a significant impact on household wealth (Lee et al. 2000). Similarly, a great number of studies have shown that number of children in the family has a positive influence on household net worth: if the number of children increases, parents tend to spend less on luxuries and accumulate wealth to leave bequests for their children (Douthitt & Fedyk 1989; Hefferan 1982; Lupton 2003; Stampfl 1978; Zissimopoulos et al. 2015). Thus, the current findings for Saudi Arabia regarding the impact of number of children on household wealth are similar to those reported for Western countries.

5.4.7 The Impact of Sector of Work on Household Wealth

The seventh demographic variable tested was work sector, based on the following sub-hypothesis:

H2.7: There is a significant association between sector of work and household wealth.

The findings revealed no significant relationship between sector and household wealth. However, 25.5% of self-employed individuals in the high household wealth category, closely followed by respondents in the private sector (23.3%) and respondents in the public sector (22.6%). The literature suggests that although workers in the public sector are more financially stable than private sector employees, some employees in the public sector earn less than private sector employees with the same qualifications; thus, private sectors employees and self-employed people tend to have higher wealth (Hartog & Oosterbeek 1993; Van Ophem 1993).

5.4.8 The Impact of the Level of Income on Household Wealth

The eighth demographic variable tested was average monthly income based on the following sub-hypothesis:

H2.8: There is a significant relationship between average monthly income and household wealth.

A chi-square test revealed a significant relationship between average monthly income and financial household wealth and a Spearman's correlation coefficient test confirmed that the relationship was positive. Cross-tabulation analysis showed that household wealth increased as average monthly income increased. Individuals with a high average monthly income had high household wealth, while those with lower monthly incomes had low household wealth. For example, only 1.2% of respondants who earned less than 5,000 SAR per month had high household wealth and 7.4% of respondants who earned 5,001–10,000 SAR as a monthly income had high household wealth. Conversely, 65.7% of respondents who earned more than 40,000 SAR had high household wealth, followed by 51.5% of those who earned between 20,001 and 39,999 SAR per month. Thus, the current findings for Saudi Arabia are similar to those in previous studies. That is, there is a positive relationship between income level for a household and saving behaviour (Chang 1994; Heckman & Hanna 2015; Solmon 1975). Generally, economists consider the level of personal income as a major indicator of economic

wellbeing and stable household wealth. However, based on this study and consistent with a study by Lusardi & Mitchell (2017), it is also important for individuals to have an adequate level of financial literacy to be able to sustain their personal household wealth and participate effectively in the country's economic growth.

In summary, the study findings revealed a positive relationship between age and household wealth. Although previous studies in Western countries have suggested that household wealth reaches a peak from the age of 45–59, with household wealth beginning to decrease from the age of 60 and older, in Saudi Arabia household wealth continues to increase slightly as a result of cultural factors. Also similar to previous studies, men in Saudi Arabia were found to have higher household wealth than women. Similarly, the analysis here revealed a significant relationship between level of education and household wealth; however, this relationship was negative. This may be a result of the bad consumerism behaviour of well-educated people in Saudi Arabia, which negatively affects the household wealth of educated people.

The study also revealed a highly significant relationship between work experience and household wealth. Household wealth increased as years in employment increased. There was also a significant relationship between marital status and household wealth: married respondents were more likely to be in the high HWI category than those who were divorced, single or separated. Number of children and household wealth was also significantly related: household wealth was higher for people with more children. Further, there was a significant positive relationship between average monthly income and household wealth.

Thre was no significant relationship between the sector in which one worked and their accumulated household wealth. However, there was a relationship between respondents' financial behaviour and household wealth. As defined, a key predictor of financial behaviour was financial literacy, which involves certain skills that help people make financial decisions effectively and give them the confidence to make responsible financial decisions (Huston 2010; Remund 2010). Geetha and Ramesh (2012) found that demographic factors exert a significant influence over some elements of investment decisions but were not significant for other elements. The current study also elucidated investors' perceptions of various investment avenues, which were in line with the literature review (Lusardi & Mitchell 2006; Lusardi & Mitchelli 2007; Yamokoski & Keister 2006).

5.5 Final Equation Testing (Multiple Regression Model)

In this section, the final equation of the study is discussed to explore the impact of all independent variables on household wealth according to a liner regression analysis involving the study variables (*FL, AG, G, EL, WS, MS, NC, PP* and *IL*) on household wealth (net wealth). Multiple linear regression analysis was used to predict the value of the dependent variable (household wealth) based on the values of the chosen variables to ensure their credibility as influential factors in household wealth. Based on the multiple regression analysis, the final equation of the study is:

Net wealth = 1.441 + (.442) average financial literacy + (1.898) male + (2.997) aged 18–22 + (–1.932) education diploma + (2.785) more than 40,000 monthly income + (1.458) less than two years' experience + (2.509) self-employed + (2.226) six and above number of children + (–5.789) separated

Multiple linear regression analysis was used to test whether financial literacy and the other identified demographic variables significantly predicted the household wealth of individuals. As shown in Table 4.28 in Chapter 4, the adjusted multiple regression model showed that the significant predictors explained 38.1% of the variation in net wealth (adjusted $R^2 = .381$, $F(17,723) = 27.771$, $p < .01$). The multiple regression model showed that gender was one of the main predictors of household wealth, as was age: respondents aged 18–22 or 23–29 had more household wealth on average than respondents aged age 30–39. Respondents with a diploma or bachelor degree had lower household wealth on average than those with a post-graduate degree. It was also found that level of income positively increased household wealth.

Further, sector of work predicted household wealth: respondents working in the private sector and those who were self-employed had higher household wealth on average than public sector workers. Similarly, respondents with more than six children had higher household wealth on average than respondents with no children. Respondents who were single or married had more household wealth than those who were separated from their spouse. Finally, respondents who had an average or high level of financial literacy had more household wealth on average than respondents with low financial literacy.

Based on this discussion, it can be concluded that the selected demographic factors predicted reasonably well ($R^2 = .381$). However, other factors that were note measured in this study may

influence the household wealth of individuals, including inheritance, financial intelligence, the country's economic growth and public policy. These factors have been suggested as important in a number of studies (Athukorala & Tsai 2003; Chatterjee et al. 2011; Gale & Scholz 1994; Kotlikoff & Summers 1981).

5.6 Summative Discussion of the Research Objectives

As summarised in Figure 5.2, although it appeared from the findings related to RO1 that the level of financial literacy was relatively high, the data analysis showed that the overall household wealth of respondents was low. This is counter to the finding that financial literacy positively affected the level of household wealth. Thus, the research went on to examine the impact of other demographic factors on household wealth. The findings of this study are important not only for people who want to enhance their wellbeing but also for government and organisations. Any economic development in a country is highly related to how individuals turn their savings successfully into productive venture opportunities. This effective saving requires an adequate level of financial literacy that can help people make good financial decisions in both the short and long term. Those financially literate people are considered key players that make the objectives of *Saudi Vision* 2030 achievable: if the Saudi government aims to diversify its income resources and be less dependent on oil as the major source of income, it must make use of financially literate people to make fruitful financial decisions. Further, financial literacy helps organisations with financial sustainability through effective financial decisions that improve the overall financial system, taking into consideration ethical financial practices such as transparency.

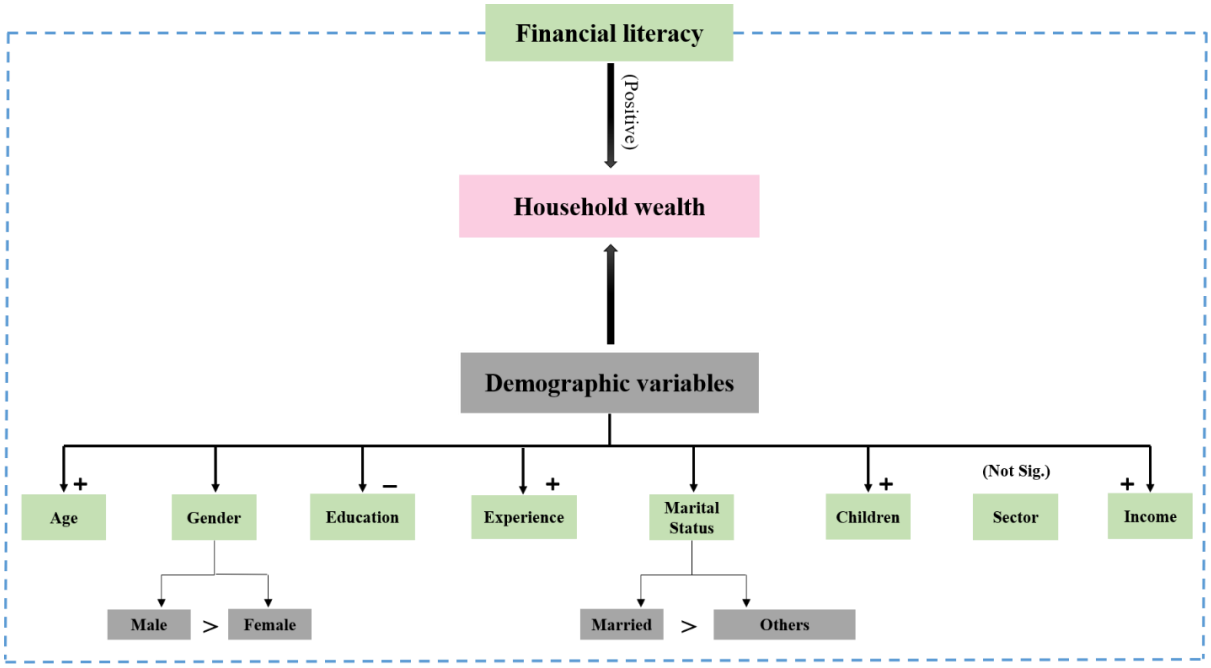

Figure 5. 2: The conceptual framework for the impact of independent factors on household wealth

The previous discussion shows it is important to understand the impact of other demographic factors that may influence personal household wealth in Saudi Arabia. Examining the impact of age on household wealth showed that, unlike in other studies, age was positively related to household wealth, which continuously increased even for people over 60 years of age. This departure from other findings in the literature is likely a result of the positive social norms of Muslims that emphasise the importance of being financially responsible for one's parents when they are no longer financially independent.

Regarding the gender of respondents, the findings of this study were in line with the literature, in that males have higher household wealth than females. Generally, the literature shows that women lack confidence regarding financial decision-making and are less risk taking than men (Chen & Volpe 2002; Lusardi & Mitchell 2008; Volpe et al. 2002). In Saudi Arabia and according to *Shariah*, men are the main money providers and women cannot make financial decisions without their guardian's permission. Further, there is a lack of female empowerment within the Saudi labour workforce because of social norms that prevent women from working. Thus, women are more likely to be financially illiterate than men. The Saudi government will not be able to move forward and achieve its economic goals without the purposeful engagement of women in the labour force market and their effective participation in the commercial activities of the country (Sabri & Thomas 2019). Thus, the Saudi government should consider

increasing the level of financial literacy among Saudi women to support the overall income of the kingdom.

Surprisingly, the findings relating to the impact of level of education on household wealth were in contrast to those in the literature. The impact of the level of education of Saudi workers on household wealth in this study was negative. One possible explanation for this result is the remarkable increase in consumerist behaviour among well-educated people, who believe that their standard of living should reflect their level of education (Assad 2008).

Regarding years of work experience, the study findings are consistent with the literature: work experience has a positive impact on household wealth. However, work experience is not related solely to the number of years in work, but also to the extent to which an individual encounters financial issues and financial decisions in their regular daily life, which may affect their knowledge and thus their level of household wealth positively. For example, private sector workers may have more household wealth because they can engage in different commercial ventures, in contrast to public sector workers.

The findings included that married people had more household wealth than single or divorced people. Further, married people with more children tended to have more household wealth than people with no children. The underlining reasoning, as illustrated in the literature, is that married people with more children spend less on luxuries and accumulate wealth to leave bequests for their children (Douthitt & Fedyk 1989; Hefferan 1982; Lupton 2003; Stampfl 1978; Zissimopoulos et al. 2015). The findings of the study include that there was no significant relationship between sector of work and household wealth. Finally, consistent with the literature, there was a strong positive relationship between household wealth and level of monthly income, especially if this was linked to a high level of financial literacy.

5.7 Chapter Summary

This chapter discussed the findings related to the research objectives. Measuring financial literacy among Saudi workers was the first objective of this study and the discussion of the findings regarding this objective showed that the level of financial literacy among Saudi workers was relatively high compared with individuals in other countries. This may be due to financial crises affecting their level of financial literacy in a positive way. The second objective of the study was to examine the impact of financial literacy on household wealth. A positive

relationship was found between the two variables. The combination of a high level of financial literacy and high level of household wealth leads to a great positive result not only for individuals, but also for government and organisations. The examination of the impact of demographic variables on household wealth (RO3) revealed a significant positive impact of some demographic factors on household wealth, including age, work of experience, number of children and level of monthly income. However, the impact of the level of education on household wealth was negative and there was significant relationship between sector of work and household wealth. Further, males and married people had higher household wealth than women and single/divorced people. The ways in which each of the study findings may contribute effectively to the economic growth of Saudi Arabia were discussed.

The next chapter presents the final conclusions of the study, the study contributions, the implications of the findings and the main limitations encountered during the study. Recommendations for future research in the field of financial literacy and household wealth are also presented.

Chapter 6: CONCLUSION

6.1 Introduction

This final chapter of the thesis presents the overall conclusions from the data analysis discussion presented in the previous chapter. It also outlines the significant practical contributions of the study to the field of financial literacy and household wealth, which may be useful to achieve the strategic goals of the kingdom and useful for other MENA countries as well. The chapter discusses the important implications of the research findings for individuals, organisations and policymakers. It then discusses the main limitations of the research and recommends possible directions for future research concerning financial literacy and household wealth.

6.2 Closing Remarks

This study identifies the impact of some factors on personal household wealth of Saudi workers. The results of this study can be also generalised for MENA region which share the same culture, religion, and backgrounds. The findings of this study are summarised below:

This study has provided substantial knowledge regarding financial literacy and household wealth in Saudi Arabia. First, concerning the first objective of the study, surprisingly, the level of financial literacy among Saudi workers in either the public or private sector is high in comparison with that of individuals in other countries. Although not examined here are the factors that shape the level of financial literacy among workers, it is worth noting that their level of financial literacy may have been affected positively by a number of factors. For example, the financial crisis in the stock market created by the significant decrease in oil prices of 2015 had several painful impacts on individuals. Another factor is the remarkable increase in electricity, water and petroleum prices, by up to 200%. These factors forced workers in Saudi Arabia to increase their financial literacy to adapt to their new financial situation and deal with the increased cost of daily life requirements.

It is also expected that Islamic finance rules increased the ability of people in Saudi Arabia along with Muslims in other MENA countries, to understand some financial concepts such as saving, spending, *Sadaqa*, *Zakat* and all *Shariah* commitments and avoiding the sins of gambling, financial corruption and uncertainty. Consequently, the researcher suggests that

more studies must be conducted to understand the possible reasons for the high level of financial literacy among Saudi workers.

Regarding the second objective of the study relating to the impact of financial literacy on household wealth, the study findings indicate a positive relationship between financial literacy and household wealth. People with a high level of financial literacy have a higher level of household wealth than those with a low level of financial literacy. This relationship, as evident in the literature, is crucial for individuals who want to improve their financial situation and to participate effectively in the economic growth of the kingdom based on correct financial decisions. These financially literate individuals are Saudi investors who own private organisations with a high level of ethical financial systems that lead to financial sustainability in the long term for both their business and the economic growth of their country.

The last objective of the study was to understand the effects of some demographic factors on household wealth. As individuals with a high level of household wealth due to a high level of financial literacy participate effectively in the economic growth of the kingdom, it is important to understand the impact of demographic factors on household wealth. The findings here will help policymakers understand the low level of household wealth and rethink strategies that aim to increase people's household wealth. For example, young people have less household wealth than older adults although people should plan financially for their future from an early age, which may be enhanced through effective financial education starting from an early age; particularly for individuals aged 18–39 years.

Women were also found to have less household wealth than men. Although Islam and some social norms emphasise the role of men as the main money providers (in both Saudi Arabia and other MENA countries), the kingdom will not be able achieve its strategic objectives without the dynamic participation of women in its economic growth. Achieving this will require substantial effort from policymakers to establish financial education programmes to improve the financial literacy of women in Saudi Arabia as it is evident in the literature that the low level of women's household wealth is related to their level of financial literacy.

Regarding the impact of level of education on household wealth, the study confirms that the relationship between level of education and household wealth was negative. Single and divorced individuals also tend to have less household wealth and must be financially educated to enable them to overcome any possible challenges in the future.

Some demographic factors have a positive impact on household wealth, including work experience and monthly income. Although in this study work experience was measured as the years of work experience, it could also be measured as the level of financial problems an individual encounters in their life that forces them to make financial decisions. Thus, the financial knowledge of people with less work experience may be improved through financial education.

In summary, savings decisions are based not only on maximising budget constraints but overcoming tough challenges generated by a low level of financial literacy, lack of information and crude sources of financial advice. Government policies that aim to stimulate savings and financial security after retirement should consider a variety of incentives including by reducing or removing informational barriers and simplifying people's decision-making, especially for those who need financial education the most. There should be an increase in people's financial knowledge, especially those who have a low level of household wealth, which will help generate wealth creation and sensible investment decisions, in turn enhancing the country's economic performance.

6.3 Contributions of the Study

The study adds to the existing body of knowledge by providing new evidence on the effects of financial literacy and demographics factors on household wealth, for the purpose of explaining the level of household wealth among workers in the KSA, as follows:

1. the level of financial literacy among Saudi workers is relatively high compared with workers in other countries
2. financial literacy is a strong determinant of household wealth
3. sociodemographic variables including age, gender, level of education, work experience, marital status, number of children, and the level of income are among the determinants of household wealth
4. the sociodemographic variables age, gender, level of education, work experience, marital status, number of children, sector of work and level of income are significant predictors of household wealth.

These findings are essential for the economic growth of the kingdom. The determinants of financial literacy in Saudi Arabia were examined by Boora & Agarwal (2018) and Mian (2014).

However, there is a scarcity of literature on household wealth and its determinants in MENA countries, especially KSA. Thus, the study findings fill a gap in knowledge in relation to household wealth in Saudi Arabia, providing individuals and policymakers with an understanding of the importance of financial literacy in improving household wealth. Knowledge of the relationship between the selected demographic factors and household wealth is important as it will help policymakers identify the most affected segment of Saudi society, and prompt the Saudi government to consider new and effective strategies to enhance the country's economic wellbeing and to understand other factors associated with low household wealth of various groups in society and how people have achieved a high level of household wealth.

Importantly, the findings will help the Saudi government achieve its *Saudi Vision 2030*, especially in terms of strongly diversifying the financial resources of the kingdom through the efforts of capable citizens who are financially literate with a good source of income that makes them able to accelerate the economic growth of the kingdom through effective financial plans and financial decisions. The study findings provide a background understanding of the extent of Saudi workers' financial literacy and its impact on household wealth, which is important for developing government policies and strategies to improve the level of financial literacy among citizens, especially that segment of society with a low level of household wealth.

Policymakers must make worthwhile efforts to develop strategies that help economic growth. For example, the finding of this study confirmed that the most affected people who were the least financially literate in Saudi Arabia were young people, women, and people on low incomes. Accordingly, the Saudi government must organise training and education programs specifically to improve the financial literacy of these people. Such programs should not be limited to accounting and bookkeeping knowledge; they should also cover access to finance and risk management. For instance, the Saudi government may involve financial service providers, financial education schools, not-for-profit organisations, CSR agencies, and other key stakeholders to build the financial capabilities of young people. We must underline here the importance of using not only schools to provide financial education, but also other innovative methods to reach young, out-of-school youth.

Financial literacy initiatives play a significant role in reducing economic imbalance as well as empowering citizens and reducing information asymmetries between financial mediators and consumers. Policymakers have a responsibility to develop financial education policies and set

up solid financial consumer protection frameworks to ensure that consumers are informed and understand the financial products that are available to them. Innovations such as electronic payments are now favouring those who have, for too long, been excluded from the system. However, unless consumers are equipped to make good decisions when using financial services, no amount of innovation will bridge the gap. Financial education programs help the Saudi government to: firstly, achieve its economic goals; and secondly, provide special support for those who need it most. The Saudi government should measure the effectiveness of financial education programs designed for those who need them.

Special attention should be devoted to addressing the problem of women not contributing enough to the Saudi GDP. For hundreds of years the Kingdom has had a deeply and culturally entrenched system of segregation between the sexes, which has resulted in differentiation and discrimination. However, the government's Vision 2030 strategy is in effect a paradigm change that seeks to empower women along certain prescribed lines (Varshney 2019). Saudi women are now better educated, more well-informed, and more financially independent and this is a reflection of economic changes that Saudi Arabia has responded to. Policymakers could also develop laws and regulations enabling women to share the opportunities (and risks) of projects with government institutions and in this way generate their own wealth, the family's wealth and financial literacy.

Further, the outcomes of the research will be useful for practitioners in many ways. First, the evidence gathered will be useful for financial product marketers to target the right market segment for what they offer. Second, the findings will help investment advisers to assist their clients allocate their investments in a way that maximises their wealth. Individuals also can use the findings to improve their personal financial decisions. In addition, the findings will provide individuals with the required financial knowledge or support to reach a better understanding, which may enhance the local economy. For example, the findings reveal that the level of education differs according to the level of personal literacy. People with minimal education can nonetheless increase their financial literacy through education programs and employment circumstances. Individuals also may rethink a better decision regarding marriage as the study confirms that married people usually make wiser financial decisions. Through marriage, one partner must take the responsibility of managing the financial activities in that family unit. This may encourage them to develop the relevant financial skills. Therefore, socioeconomic

characteristics such as marital status may have a significant impact on financial literacy and financial behaviour (Setyawati & Suroso 2016).

6.4 Implications of the Study

The findings on financial literacy and household wealth determinants in Saudi Arabia have several implications, which can be structured in terms of theory and practice important to policymakers, financial practitioners and personal financial management companies. The level of financial knowledge in Saudi Arabia was found to be pivotal to the wealth creation process and guided many individuals' investment choices. This finding extends the current understanding of financial literacy. This study has significant implications and impacts in three major areas: academic implications, practical contributions and the rigour of the research methodology. These are explained further below.

6.4.1 Academic Implications

The main academic implication of the study is the addition of important and valuable information regarding perceived value, which positively supports the research aim of investigating financial literacy in relation to household wealth creation in Saudi Arabia. The inclusion of perceived value in the analysis has increased the accuracy of demographic data and their effect on household wealth. The study expands the literature on financial literacy and household wealth especially in emerging economies such as Saudi Arabia. Most previous literature has examined the impact of financial literacy on household wealth, and the impact of demographic factors on both financial literacy and household wealth in developed countries. Some analyses have investigated the impact of demographic factors in developing economies, but there is a lack of literature regarding the effect of demographic factors on personal household wealth in developing countries and particularly for Islamic regions such as MENA. This study open doors for further research regarding the impact of Islamic doctrine on personal financial literacy and wealth creation. The study also invites researchers to evaluate the impact of social norms on financial literacy of some segments of society in Islamic countries, for instance women, the elderly, and people on low incomes. Although the study findings were consistent with those reported elsewhere, some differences emerged. Especially regarding the level of education the study findings suggest that the relationship between financial literacy and the level of education was negative. Thus, the consumer behaviour shown by well-educated people in Saudi Arabia must be investigated in future research.

6.4.2 Practical Implications

The practical implications of the study include important academic implications extending knowledge on financial literacy and household wealth creation. The study's findings filled the gap in the knowledge about personal household wealth and financial literacy in the MENA region based on a case study of Saudi Arabia. This study looked at the impact of demographics (gender, age, marital status and number of children, region, level of education, income level) on financial literacy and household wealth creation in Saudi Arabia. Another gap still exists and this refers to the role of Islam in promoting financial literacy. However, this study encourages other researchers to consider the role of Islam in enhancing people's financial literacy. It is expected that Muslims in MENA countries have some level of Islamic financial literacy, particularly in Saudi Arabia as Islamic law is the main cultural reference for finance-related decisions made at both the government and personal level.

This study also confirms that some theories related to financial literacy and household wealth might not be useful or suitable for the MENA region. For example, the conventional economic approach does not consider Islamic values, while further studies need to be conducted regarding the life cycle hypothesis of saving. The hypothesis assumes that household wealth rises throughout a person's life until a peak is reached at around 45–54 years of age and declines as people get older and they can no longer work. Previous studies confirmed this assumption, yet the finding of this study as well as that of Yasin (2008) for the MENA region confirm that personal household wealth was not affected negatively despite older age (Yasin 2008). The findings lead to a better understanding of the conditions related to and affecting the level of financial literacy of people in Saudi Arabia. Further, this study contributes to a better understanding of how financial literacy may facilitate household wealth creation. The knowledge obtained from this study explains personal financial behaviour in regard to certain financial products, assets and savings among people in KSA.

6.4.3 Implications for Policymakers

To implement the new policies in the context of the economic plan known as *Saudi Vision 2030*, it is important for policymakers to understand the level of financial literacy of Saudi people and how it enhances the wealth of the country. As such, the findings provide a wealth of knowledge to policymakers to ensure that the *Saudi Vision 2030* statement will help people save money, build wealth and plan for their retirement. This will depend to a great extent on

broader economic circumstances, private and public sector investment, employment levels and so on.

6.4.4 Implications for Financial Practitioners and Personal Financial Management

The implications of the findings for financial practitioners are twofold. First, the findings and evidence gathered will be useful for financial practitioners and product marketers to target the right market segment. Second, they will help financial practitioners and investment advisers to assist clients to allocate their investments in the right way and at the right time to maximise their wealth. Further, the findings include detailed information that can be used by individuals for their personal financial management. The study offers individuals the required financial knowledge and support to reach a better understanding of finance, to manage their financial affairs more systematically at all times. This will be helpful for increasing the level of household wealth.

6.5 Limitations of the Study

This study has number of limitations that may partially affect the quality of the study findings. The limitations of the study are summarised in short as follows:

1. Since the researcher aims to measure the level of financial literacy among Saudi workers, this study may not be representative for all people in Saudi Arabia such as unemployed and students.

2. The online questionnaire may affect the quality of data provided and the overall response rate. Number of studies have proved that internet-based questionnaire usually provides lower response rate compared with paper questionnaire. The low response rate to the online questionnaire resulted from a lack of communication with respondents.

3. The questionnaire was long, thus, the resercher has received a large number of uncomplated questionnaires. In addition, as the questionnaire aims to measure some concepts related to financial literacy, number of respondents refused to answer the complex questions due a lack of financial knowledge.

6.6 Recommendations for Future Research

In accordance with the study findings and in order to ensure the delivery of useful outcomes in future, further work is needed to fill the existing gaps in the field of creating wealth and financial literacy. For this reason, the researcher recommends that extra work and efforts should be made in the future as follows:

1. Future studies might ensure greater coverage and a longer study rather than a cross-sectional view of the subject matter to increase its generalisation. Further, future research might involve a comparison of different groups in society to understand the main differences between them and factors that affect their financial literacy and household wealth.
2. Future research might involve suggesting financial policies that enhance the level of individuals' financial literacy, especially among people with low financial literacy.
3. Future studies might employ a qualitative method or mixed method analysis so that quantitative and qualitative aspects are taken into account. This will make possible a better understanding of factors other than demographic ones, that may influence the level of financial literacy and household wealth. For example, these include financial crisis, financial policies, social values and religion. This will allow for a better understanding of factors other than demographic ones, that may influence the level of financial literacy and household wealth. For example, financial crisis, financial policies, social values and religion.
4. Future research might investigate the consumerist behaviour of well-educated people in Saudi Arabia. Such people appear to lack basic knowledge of financial concepts, as reflected in their hasty financial decisions and propensity to purchase what they do not need instead of saving for the future. These financial decisions will have serious outcomes for well-educated and well-paid people in the long-term, especially when they borrow money to fund their luxurious lifestyles and not living as frugally as they should.
5. Also, future studies might account for more variables as predictors of financial literacy and household wealth creation; for example, including several locations with more diverse cultural groups, social classes or castes, or the impact of inheritance and financial intelligence on household wealth.

6.7 Concluding Statement

To sum up, Saudi Arabia as an emerging market economy will not be able to advance and reduce the country's dependence on oil as its main source of income without wise financial decisions being throughout all levels of society. These goals can be achieved only through effective collaboration between the government and financially literate people who have the skills required to create wealth for both themselves and their country through wise financial decision-making. This study provides practical recommendations to policymakers and key individuals in Saudi Arabia and the MENA by shedding light on the most affected segment; the financially illiterate. The study confirms that demographic issues have a significant relationship with household wealth. It also transpired that financial literacy is instrumental in many of the practical aspects of people's day-to-day financial behaviour.

REFERENCES

Abdullah, F, Hassan, T & Mohamad, S 2007, 'Investigation of Performance of Malaysian Islamic Unit Trust Funds: Comparison with Conventional Unit Trust Funds', *Managerial Finance*, vol. 33, no. 2, pp. 142-53.

Abreu, M & Mendes, V 2010, 'Financial Literacy and Portfolio Diversification', *Quantitative Finance*, vol. 10, no. 5, pp. 515-28.

Agarwal, R, Audretsch, D & Sarkar, M 2010, 'Knowledge Spillovers and Strategic Entrepreneurship', *Strategic Entrepreneurship Journal*, vol. 4, no. 4, pp. 271-83.

Agarwal, S, Amromin, G, Ben-David, I, Chomsisengphet, S & Evanoff, DD 2015, 'Financial Literacy and Financial Planning: Evidence from India', *Journal of Housing Economics*, vol. 27, no. 4, pp. 4-21.

Agarwal, S, Driscoll, JC, Gabaix, X & Laibson, D 2007, *The Age of Reason: Financial Decisions over the Life-Cycle* 13191, Cambridge, USA, viewed 12 November 2019, <http://www.nber.org/papers/w13191>.

Agarwal, S, Driscoll, JC, Gabaix, X & Laibson, D 2009, 'The Age of Reason: Financial Decisions over the Life-Cycle with Implications for Regulation', *Brookings Papers on Economic Activity*, vol. 9, no. 2, pp. 51-117.

Agarwalla, SK, Barua, SK, Jacob, J & Varma, JR 2015, 'Financial Literacy among Working Young in Urban India', *World Development*, vol. 67, no. 2, pp. 101-9.

Ahmad, F & Hassan, K 2007, 'Riba and Islamic Banking', *Journal of Islamic Economics, Banking and Finance*, vol. 3, no. 1, pp. 1-33.

Al-Jabri, MA 2008, *Democracy, Human Rights and Law in Islamic Thought*, IB Tauris, London, UK.

Al-Rasheed, M 2008, *Kingdom without Borders: Saudi Political, Religious and Media Expansion*, Hurst and Co., London, UK.

Al-Zuhaili, W 1996, *Usul Al-Fiqh Al-Islami*, Dar Fikr, Jeddah, Saudi Arabia.

Al-Bahrani, A, Weathers, J & Patel, D 2019, 'Racial Differences in the Returns to Financial Literacy Education', *Journal of Consumer Affairs*, vol. 53, no. 2, pp. 572-99.

Al-Tamimi, H 2009, 'Financial Literacy and Investment Decisions of UAE Investors', *The Journal of Risk Finance*, vol. 10, no. 5, pp. 500-16.

Al Alhareth, Y, Al Alhareth, Y & Al Dighrir, I 2015, 'Review of Women and Society in Saudi Arabia', *American Journal of Educational Research*, vol. 3, no. 2, pp. 121-5.

Al Rajhi, A, Al Salamah, A, Malik, M & Wilson, R 2012, *Economic Development in Saudi Arabia*, Routledge, New York, USA.

Alam, M & Al-Sakran, SA 2001, 'Culture, Finance and Markets in Saudi Arabia', *Managerial Finance*, vol. 27, no. 10/11, pp. 25-46.

Aldossry, T & Varul, MZ 2016, 'A Time to Pray, a Time to Play?: Everyday Life in the Kingdom of Saudi Arabia between the Temporalities of Religion, Tradition and Consumerism', *Time & Society*, vol. 25, no. 3, pp. 471-92.

Algaoud, LM & Lewis, MK 2007, *Islamic Critique of Conventional Financing*, Handbook of Islamic Banking, UK, London.

Alhabeeb, M 1996, 'Teenagers' Money, Discretionary Spending and Saving', *Journal of Financial Counseling and Planning*, vol. 7, no. 1, pp. 123-32.

Ali, P, Anderson, ME, Mcrae, CH & Ramsay, I 2014, 'The Financial Literacy of Young Australians: An Empirical Study and Implications for Consumer Protection and Asic's National Financial Literacy Strategy', *Company and Securities Law Journal*, vol. 32, no. 5, pp. 334-52.

Alkareef, R 2017, 'Change in Fertility Rates in the Kingdom ... To Where?', *Aleqtisadiah*, 7 January 2017, viewed 19 November 2020, <https://www.aleqt.com/2017/01/07/article_1116214.html>.

Allgood, S & Walstad, W 2011, 'The Effects of Perceived and Actual Financial Knowledge on Credit Card Behavior', *Networks Financial Institute Working Paper*, no. 15.

Almalki, M, Fitzgerald, G & Clark, M 2011, 'Health Care System in Saudi Arabia: An Overview', *EMHJ-Eastern Mediterranean Health Journal*, vol. 17, no. 10, pp. 784-93.

Almalki, S & Ganong, L 2018, 'Family Life Education in Saudi Arabia', in *Global Perspectives on Family Life Education*, Springer, Cham, pp. 381-96.

Almenberg, J & Dreber, A 2015, 'Gender, Stock Market Participation and Financial Literacy', *Economics Letters*, vol. 137, no. 1, pp. 140-2.

Almosaed, N 2008, 'Money and Power in Saudi Family', *JKAU: Arts & Humanities*, vol. 16, no. 2, pp. 61-87.

Alnefaee, SM 2019, 'Macroeconomic Determinants of Consumer Lending in Saudi Arabia', *Journal of Accounting, Business and Finance Research*, vol. 5, no. 2, pp. 60-6.

Alshahrani, SA & Alsadiq, A 2014, *Economic Growth and Government Spending in Saudi Arabia: An Empirical Investigation*, WP/14/3, International Monetary Fund, USA, viewed 17 November 2019, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.800.952&rep=rep1&type=pdf>.

Alsharif, D 2018, *Why Saudi Government Workers Are Barred from Private Sector Jobs*, Arabnews viewed 23 Febraury 2020, <https://www.arabnews.com/node/1370651>.

Amidjono, DS, Brock, J & Junaidi, E 2016, 'Financial Literacy in Indonesia', in *International Handbook of Financial Literacy*, Springer, Singapore, Singapore, pp. 277-90.

Ando, A & Modigliani, F 1963, 'The" Life Cycle" Hypothesis of Saving: Aggregate Implications and Tests', *The American Economic Review*, vol. 53, no. 1, pp. 55-84.

Anz, B 2015, *Anz Survey of Adult Financial Literacy in Australia*, 11 005 357 522, Australia and New Zealand Banking Group Limited, Australia, viewed 14 March 2018, <https://www.anz.com/resources/3/1/31cbc1fd-9491-4a22-91dc-4c803e4c34ab/adult-financial-literacy-survey-full-results.pdf>.

Ariss, RT 2010, 'Competitive Conditions in Islamic and Conventional Banking: A Global Perspective', *Review of Financial Economics*, vol. 19, no. 3, pp. 101-8.

Arora, A 2016, 'Assessment of Financial Literacy among Working India Women', *Business Analyst*, vol. 36, no. 2, pp. 219-37.

ASICS 2018, *Australian Financial Attitudes and Behaviour Tracker* Australia, viewed 5 May 2020, <https://financialcapability.gov.au/files/afab-tracker_wave-6-key-findings.pdf>.

Assad, S 2008, 'The Rise of Consumerism in Saudi Arabian Society', *International Journal of Commerce and Management*, vol. 17, no. 1/2, pp. 73-104.

Assad, SW 2006, 'Facing the Challenges of Consumerism in Saudi Arabia', *King Saud University Press Arts*, vol. 19, no. 1, pp. 1-20.

Athukorala, P-C & Tsai, P-L 2003, 'Determinants of Household Saving in Taiwan: Growth, Demography and Public Policy', *The Journal of Development Studies*, vol. 39, no. 5, pp. 65-88.

Atkinson, A & Messy, F-A 2012, 'Measuring Financial Literacy: Results of the OECD/International Network on Financial Education (Infe) Pilot Study', *OECD Working Papers on Financial Education Insurance and Private Pensions*, vol. 15, pp. 7-73.

Atkinson, AB 2007, 'Measuring Top Incomes: Methodological Issues', *Top incomes over the twentieth century: A contrast between continental European and English-speaking countries*, vol. 1, pp. 18-42.

Attanasio, OP & Weber, G 2010, 'Consumption and Saving: Models of Intertemporal Allocation and Their Implications for Public Policy', *Journal of Economic Literature*, vol. 48, no. 3, pp. 693-751.

Babbie, E & Rubin, A 2010, *Essential Research Methods for Social Work*, Cengage Learning Belmont, Canada.

Bakhashab, OA 1988, 'Islamic Law and the Environment: Some Basic Principles', *Arab Law Quarterly*, vol. 3, no. 3, pp. 287-98.

Bandura, A 2000, 'Cultivate Self-Efficacy for Personal and Organizational Effectiveness', in *Handbook of Principles of Organization Behavior*, John Wiley & Sons, Ltd, UK, London, pp. 179-200.

Barro, RJ 2001, 'Education and Economic Growth', *The Contribution of Human and Social Capital to Sustained Economic Growth and Well-Being*, vol. 2, no. 1, pp. 14-41.

Baruch, Y 1999, 'Response Rate in Academic Studies-a Comparative Analysis', *Human relations*, vol. 52, no. 4, pp. 421-38.

Beal, D & Delpachitra, S 2003, 'Financial Literacy among Australian University Students', *Economic Papers: A Journal of Applied Economics and Policy*, vol. 22, no. 1, pp. 65-78.

Becker, GS 2009, 'Age, Earnings, Wealth, and Human Capital', in *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, University of Chicago press, UK, London, pp. 214-30.

Becker, GS & Becker, GS 2009, *A Treatise on the Family*, Harvard university press, UK, London.

Behrman, JR, Mitchell, OS, Soo, C & Bravo, D 2010, *Financial Literacy, Schooling, and Wealth Accumulation*, ED512555, National Bureau of Economic Research, viewed 11 October, <https://eric.ed.gov/?id=ED512555>.

Behrman, JR, Mitchell, OS, Soo, CK & Bravo, D 2012, 'How Financial Literacy Affects Household Wealth Accumulation', *American Economic Review*, vol. 102, no. 3, pp. 300-4.

Bergström, M, Svedberg Helgesson, K & Mörth, U 2011, 'A New Role for for-Profit Actors? The Case of Anti-Money Laundering and Risk Management', *JCMS: Journal of Common Market Studies*, vol. 49, no. 5, pp. 1043-64.

Berman, K & Knight, J 2013, *Financial Intelligence, Revised Edition: A Manager's Guide to Knowing What the Numbers Really Mean*, Harvard Business Review Press, UK, London.

Bernard, HR & Bernard, HR 2013, *Social Research Methods: Qualitative and Quantitative Approaches*, Sage, UK, London.

Bernheim, BD, Garrett, DM & Maki, DM 2001, 'Education and Saving: The Long-Term Effects of High School Financial Curriculum Mandates', *Journal of Public Economics*, vol. 80, no. 3, pp. 435-65.

Bernstein, IH 2012, *Applied Multivariate Analysis*, Springer Science & Business Media, USA.

Bharadwaj, AS 2000, 'A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation', *MIS quarterly*, vol. 24, no. 1, pp. 169-96.

Bhatti, M & Bhatti, MI 2010, 'Toward Understanding Islamic Corporate Governance Issues in Islamic Finance', *Asian Politics & Policy*, vol. 2, no. 1, pp. 25-38.

Binswanger, J & Carman, KG 2012, 'How Real People Make Long-Term Decisions: The Case of Retirement Preparation', *Journal of Economic Behavior & Organization*, vol. 81, no. 1, pp. 39-60.

Biplob, H & Abdullah, MF 2019, 'The Importance of Islamic Financial Literacy for Muslims: A General Review', *Islam and Civilisational Renewal (ICR)*, vol. 10, no. 1, pp. 106-17.

Birkenmaier, J, Curley, J & Sherraden, M 2013, *Financial Education and Capability: Research, Education, Policy, and Practice*, Oxford University Press, UK.

Boora, RK & Agarwal, J 2018, 'Financial Literacy: Evidence from Saudi Women', *Journal of Business and Management*, vol. 20, no. 5, pp. 38-44.

Borodich, S, Deplazes, S, Kardash, N & Kovzik, A 2010, 'Comparative Analysis of the Levels of Financial Literacy among Students in the Us, Belarus, and Japan', *Journal of Economics and Economic Education Research*, vol. 11, no. 3, p. 71.

Bos, JW & Kool, CJ 2006, 'Bank Efficiency: The Role of Bank Strategy and Local Market Conditions', *Journal of Banking & Finance*, vol. 30, no. 7, pp. 1953-74.

Bosbait, M & Wilson, R 2005, 'Education, School to Work Transitions and Unemployment in Saudi Arabia', *Middle Eastern Studies*, vol. 41, no. 4, pp. 533-46.

Bostic, R, Gabriel, S & Painter, G 2009, 'Housing Wealth, Financial Wealth, and Consumption: New Evidence from Micro Data', *Regional Science and Urban Economics*, vol. 39, no. 1, pp. 79-89.

Bover, O 2008, 'The Dynamics of Household Income and Wealth: Results from the Panel of the Spanish Survey of Household Finances (Eff) 2002-2005', *Banco de Espana occasional paper*, pp. 1-33, viewed 6 January 2020, <file:///C:/Users/bayan/Downloads/SSRN-id1304573.pdf>.

Bradley, JR 2015, *Saudi Arabia Exposed: Inside a Kingdom in Crisis*, St. Martin's Press, USA.

Braunstein, S & Welch, C 2002, 'Financial Literacy: An Overview of Practice, Research, and Policy', *Fed. Res. Bull.*, vol. 88, no. 1, pp. 445-57.

Briesacher, BA, Ross-Degnan, D, Wagner, AK, Fouayzi, H, Zhang, F, Gurwitz, JH & Soumerai, SB 2010, 'Out-of-Pocket Burden of Health Care Spending and the Adequacy of the Medicare Part D Low-Income Subsidy', *Medical care*, vol. 48, no. 6, p. 503.

Bross, ID 1971, 'Critical Levels, Statistical Language and Scientific Inference', *Foundations of Statistical Inference*, vol. 2, no. 1, pp. 500-13.

Browning, M, Gørtz, M & Leth-Petersen, S 2013, 'Housing Wealth and Consumption: A Micro Panel Study', *The Economic Journal*, vol. 123, no. 568, pp. 401-28.

Browning, M & Lusardi, A 1996, 'Household Saving: Micro Theories and Micro Facts', *Journal of Economic Literature*, vol. 34, no. 4, pp. 1797-855.

Bryman, A & Cramer, D 2009, *Quantitative Data Analysis with Spss 14, 15 & 16: A Guide for Social Scientists*, Routledge/Taylor & Francis Group, USA.

Bucher-Koenen, T & Lusardi, A 2011, *Financial Literacy and Retirement Planning in Germany*, 0898-2937, National Bureau of Economic Research, viewed 6 February 2018, <https://www.nber.org/system/files/working_papers/w17110/w17110.pdf>.

Bucher-Koenen, T, Lusardi, A, Alessie, R & Van Rooij, M 2017, 'How Financially Literate Are Women? An Overview and New Insights', *Journal of consumer affairs*, vol. 51, no. 2, pp. 255-83.

Bucks, B & Pence, KM 2006, *Do Homeowners Know Their House Values and Mortgage Terms?*, Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, USA.

Buehler, C & Gerard, JM 1995, 'Divorce Law in the United States: A Focus on Child Custody', *Family Relations*, vol. 44, no. 4, pp. 439-58.

Bukhari, F & Denman, B 2013, 'Student Scholarships in Saudi Arabia: Implications and Opportunities for Overseas Engagement', in *Higher Education in Saudi Arabia*, Springer, pp. 151-8.

Callender, C & Kemp, M 2000, *Changing Student Finances: Income, Expenditure and Take-up of Student Loans among Full-and Part-Time Higher Education Students in 1998/9*, 213, South Bank University, <https://core.ac.uk/download/pdf/4154527.pdf>.

Calvet, LE, Campbell, JY & Sodini, P 2007, 'Down or Out: Assessing the Welfare Costs of Household Investment Mistakes', *Journal of Political Economy*, vol. 115, no. 5, pp. 707-47.

Campbell, JY 2006, 'Household Finance', *The Journal of Finance*, vol. 61, no. 4, pp. 1553-604.

Canova, L, Rattazzi, AMM & Webley, P 2005, 'The Hierarchical Structure of Saving Motives', *Journal of Economic Psychology*, vol. 26, no. 1, pp. 21-34.

Capuano, A & Ramsay, I 2011, 'What Causes Suboptimal Financial Behaviour? An Exploration of Financial Literacy, Social Influences and Behavioural Economics', *The University of Melbourne,Corporate law and Securities Regulation*, no. 1, pp. 1-243.

Cerny, BA & Kaiser, HF 1977, 'A Study of a Measure of Sampling Adequacy for Factor-Analytic Correlation Matrices', *Multivariate behavioral research*, vol. 12, no. 1, pp. 43-7.

Chai, J, Maurer, R, Mitchell, OS & Rogalla, R 2013, *Exchanging Delayed Social Security Benefits for Lump Sums: Could This Incentivize Longer Work Careers?*, w19032, National Bureau of Economic Research, <https://www.nber.org/system/files/working_papers/w19032/w19032.pdf>.

Chang, YR 1994, 'Saving Behavior of Us Households in the 1980s: Results from the 1983 and 1986 Survey of Consumer Finance', *Financial Counseling and Planning*, vol. 5, no. 1, pp. 45-64.

Chatterjee, S, Finke, M & Harness, N 2011, 'The Impact of Self-Efficacy on Wealth Accumulation and Portfolio Choice', *Applied Economics Letters*, vol. 18, no. 7, pp. 627-31.

Chen, H & Volpe, RP 1998, 'An Analysis of Personal Financial Literacy among College Students', *Financial Services Review*, vol. 2, no. 7, pp. 107-29.

Chen, H & Volpe, RP 2002, 'Gender Differences in Personal Financial Literacy among College Students', *Financial services review*, vol. 11, no. 3, p. 289.

Chesters, J 2016, 'Trends in Economic Growth and Levels of Wealth Inequality in G20 Nations: 2001–2013', *Contemporary Social Science*, vol. 11, no. 2-3, pp. 270-81.

Cohen, M & Nelson, C 2011, 'Financial Literacy: A Step for Clients Towards Financial Inclusion', *Global Microcredit Summit*, vol. 1, no. 1, pp. 14-7.

Cole, S & Fernando, N 2008, 'Assessing the Importance of Financial Literacy', *ADB Finance for the Poor*, vol. 9, no. 2, pp. 1-6.

Cole, SA, Sampson, TA & Zia, BH 2009, *Financial Literacy, Financial Decisions, and the Demand for Financial Services: Evidence from India and Indonesia*, Harvard Business School Cambridge, UK.

Collis, J & Hussey, R 2013, *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*, 3 edn, Macmillan International Higher Education, UK.

Cook, C, Heath, F & Thompson, RL 2000, 'A Meta-Analysis of Response Rates in Web-or Internet-Based Surveys', *Educational and psychological measurement*, vol. 60, no. 6, pp. 821-36.

Cook, KS, Cheshire, C, Rice, ER & Nakagawa, S 2013, 'Social Exchange Theory', in *Handbook of Social Psychology*, Springer, pp. 61-88.

Cordesman, AH 2003, *Saudi Arabia Enters the Twenty-First Century: The Political, Foreign Policy, Economic, and Energy Dimensions*, vol. 2, Greenwood Publishing Group, USA.

Cordesman, AH 2019, *The Gulf and the Search for Strategic Stability: Saudi Arabia, the Military Balance in the Gulf, and Trends in the Arab-Israeli Military Balance*, Routledge, UK.

Cozby, PC & Bates, S 2009, *Methods in Behavioral Research* 15 edn, McGraw-Hill, USA.

Cronbach, LJ 1951, 'Coefficient Alpha and the Internal Structure of Tests', *psychometrika*, vol. 16, no. 3, pp. 297-334.

Cropanzano, R, Anthony, EL, Daniels, SR & Hall, AV 2017, 'Social Exchange Theory: A Critical Review with Theoretical Remedies', *Academy of Management Annals*, vol. 11, no. 1, pp. 479-516.

Crs 2012, *The Survey System*, Creative Research System, viewed 1 November 2020, <https://www.surveysystem.com/sscalc.htm#one>.

Cull, M & Whitton, D 2011, 'University Students' Financial Literacy Levels: Obstacles and Aids', *The Economic and Labour Relations Review*, vol. 22, no. 1, pp. 99-114.

Dagum, C 2006, 'Wealth Distribution Models: Analisys and Applications', *Statistica*, vol. 66, no. 3, pp. 235-68.

Dahmen, P & Rodríguez, E 2014, 'Financial Literacy and the Success of Small Businesses: An Observation from a Small Business Development Center', *Numeracy: Advancing Education in Quantitative Literacy*, vol. 7, no. 1.

De Bel-Air, F 2014, *Demography, Migration and Labour Market in Saudi Arabia*, 1/2014, European University Institute <https://cadmus.eui.eu/bitstream/handle/1814/32151/GLMM%20ExpNote_01-2014.pdf?sequence=1&isAllowed=y>.

De Vaus, D 2002, *Analyzing Social Science Data: 50 Key Problems in Data Analysis*, Sage, London, UK.

Demirguc-Kunt, A, Beck, T & Honohan, P 2007, *Finance for All?: Policies and Pitfalls in Expanding Access*, 41792, The World Bank, <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/932501468136179348/finance-for-all-policies-and-pitfalls-in-expanding-access>.

Demirguc-Kunt, A, Klapper, L & Singer, D 2013, *Financial Inclusion and Legal Discrimination against Women: Evidence from Developing Countries*, The World Bank, USA.

Denscombe, M 2008, 'Communities of Practice: A Research Paradigm for the Mixed Methods Approach', *Journal of Mixed Methods Research*, vol. 2, no. 3, pp. 270-83.

Derhally, MA 2012, *Consumer Lending in Saudi Arabia Increases 5%* Arabian Business, http://www.arabianbusiness.com, <http://www.arabianbusiness.com/consumer-lending-in-saudi-arabia-increases-5--456853.html>.

Diamantopoulos, A, Reynolds, N & Schlegelmilch, B 1994, 'Pretesting in Questionnaire Design: The Impact of Respondent Characteristics on Error Detection', *Market Research Society. Journal.*, vol. 36, no. 4, pp. 1-15.

Diener, E & Crandall, R 1978, *Ethics in Social and Behavioral Research*, U Chicago Press, USA.

Digby, P & Kempton, RA 2012, *Multivariate Analysis of Ecological Communities*, vol. 5, Springer Science & Business Media, London, UK.

Dillman, DA 2011, *Mail and Internet Surveys: The Tailored Design Method--2007 Update with New Internet, Visual, and Mixed-Mode Guide*, John Wiley & Sons, UK.

Dion, KK & Dion, KL 1993, 'Individualistic and Collectivistic Perspectives on Gender and the Cultural Context of Love and Intimacy', *Journal of Social Issues*, vol. 49, no. 3, pp. 53-69.

Doss, C, Baah-Boateng, W, Boakye-Yiadom, L, Catanzarite, Z, Deere, CD, Swaminathan, H, Lahoti, R & Suchitra, J 2013, *Measuring Personal Wealth in Developing Countries: Interviewing Men and Women About Asset Values*, 15, The Indian Institute of Management Bangalore (IIMB), Florida, USA, viewed 7 February 2018, <https://www.researchgate.net/profile/William_Baah-Boateng2/publication/270278605_Measuring_Personal_Wealth_in_Developing_Countries_Interviewing_Men_and_Women_about_Asset_Values/links/54a5a6f50cf256bf8bb4d890.pdf>.

Douthitt, RA & Fedyk, JM 1989, 'The Use of Savings as a Family Resource Management Strategy to Meet Child Rearing Costs', *Lifestyles*, vol. 10, no. 3, pp. 233-48.

Drexler, A, Fischer, G & Schoar, A 2014, 'Keeping It Simple: Financial Literacy and Rules of Thumb', *American Economic Journal: Applied Economics*, vol. 6, no. 2, pp. 1-31.

Duderija, A 2007, 'Toward a Methodology of Understanding the Nature and Scope of the Concept of Sunnah', *Arab Law Quarterly*, vol. 21, no. 3, pp. 269-80.

Eades, KM, Fox, J, Keown, A & Staten, ME 2011, 'The Role of Professors in Improving Financial Literacy', *Jurnal of Applied Finance*, pp. 187-96.

El-Gamal, M 2001, 'An Economic Explication of the Prohibition of Gharar in Classical Islamic Jurisprudence', *Islamic Economic Studies*, vol. 8, no. 2, pp. 29-58.

El-Gamal, MA 2000, *A Basic Guide to Contemporary Islamic Banking and Finance*, Rice University Houston, TX, USA.

Elachola, H & Memish, ZA 2016, 'Oil Prices, Climate Change—Health Challenges in Saudi Arabia', *The Lancet*, vol. 387, no. 10021, pp. 827-9.

Elfakhani, S, Hassan, MK & Sidani, Y 2005, 'Comparative Performance of Islamic Versus Secular Mutual Funds', in *12th Economic Research Forum Conference in Cairo, Egypt*, vol. 53, pp. 19-21.

Elfakhani, SM, Hassan, MK & Sidani, YM 2007, '16 Islamic Mutual Funds', in *Handbook of Islamic Banking*, Edward Elgar Publishing Limited, Cheltenham, UK, pp. 256-73.

Enderle, G 2009, 'A Rich Concept of Wealth Creation Beyond Profit Maximaization and Adding Value', *Journal of Business Ethics*, vol. 84, pp. 281-96.

Eniola, AA & Entebang, H 2017, 'Sme Managers and Financial Literacy', *Global Business Review*, vol. 18, no. 3, pp. 559-76.

Ercanbrack, JG 2011, 'The Law of Islamic Finance in the United Kingdom: Legal Pluralism and Financial Competition', PhD thesis, University of London, viewed 2 November 2020, <https://eprints.soas.ac.uk/13598/1/Ercanbrack_3342.pdf>.

Erf 2019, *Women, Work and Social Norms in Saudi Arabia*, The Economic Research Forum, viewed 14 October 2019, <https://theforum.erf.org.eg/2019/05/07/women-work-social-norms-saudi-arabia/>.

Erskine, M, Kier, C, Leung, A & Sproule, R 2006, 'Peer Crowds, Work Experience, and Financial Saving Behaviour of Young Canadians', *Journal of Economic Psychology*, vol. 27, no. 2, pp. 262-84.

Etikan, I, Musa, SA & Alkassim, RS 2016, 'Comparison of Convenience Sampling and Purposive Sampling', *American Journal of Theoretical and Applied Statistics*, vol. 5, no. 1, pp. 1-4.

Etokeren, MS 2014, 'Wealth Creation-Business Education Perspective', *Multidisciplinary Journal of Research Development*, vol. 22, no. 1, pp. 1-8.

Fagerland, MW 2012, 'T-Tests, Non-Parametric Tests, and Large Studies—a Paradox of Statistical Practice?', *BMC Medical Research Methodology*, vol. 12, no. 1, pp. 78-85.

Farhan, B, Brevetti, M & Laditan, D 2016, 'Unemployment in Saudi Arabia: The Ethical and Economic Impact of Foreign Workers on the Middle East Market', *Middle East Journal of Business*, vol. 11, no. 4, pp. 21-38.

Fernandes, D, Lynch Jr, JG & Netemeyer, RG 2014, 'Financial Literacy, Financial Education, and Downstream Financial Behaviors', *Management Science*, vol. 60, no. 8, pp. 1861-83.

Folbre, N 1984, 'The Pauperization of Motherhood: Patriarchy and Public Policy in the United States', *Review of Radical Political Economics*, vol. 16, no. 4, pp. 72-88.

Fornero, E & Monticone, C 2011, 'Financial Literacy and Pension Plan Participation in Italy', *Journal of Pension Economics & Finance*, vol. 10, no. 4, pp. 547-64.

Fournier, P 2016, *Muslim Marriage in Western Courts: Lost in Transplantation*, Routledge, London, UK.

Fowler, A 2013, *Striking a Balance: A Guide to Enhancing the Effectiveness of Non-Governmental Organisations in International Development*, Routledge, London, UK.

Frankfort-Nachmias, C & Nachmias, D 2007, *Study Guide for Research Methods in the Social Sciences*, Macmillan, USA.

Friedman, M 1957, 'The Permanent Income Hypothesis', in *A Theory of the Consumption Function*, Princeton University Press, USA, pp. 20-37.

Fung, A, Graham, M & Weil, D 2007, *Full Disclosure: The Perils and Promise of Transparency*, Cambridge University Press, UK.

Gaisina, S 2018, 'Financial Literacy in Rural Areas of Kazakhstan–Determinants and Characteristics', in *13th European International Farming Systems Association (IFSA) Symposium, Farming systems: facing uncertainties and enhancing opportunities, 1-5 July 2018, Chania, Crete, Greece*, pp. 1-18.

Gale, WG, Harris, BH & Levine, R 2012, 'Raising Household Saving: Does Financial Education Work', *Social Security Bulletin*, vol. 72, no. 2, pp. 39-48.

Gale, WG & Levine, R 2010, 'Financial Literacy: What Works? How Could It Be More Effective? How Could It Be More Effective?', *Social Security Administration to the Center for Financial Literacy*, vol. 17, no. 1, pp. 1-26.

Gale, WG & Scholz, JK 1994, 'Intergenerational Transfers and the Accumulation of Wealth', *Journal of Economic Perspectives*, vol. 8, no. 4, pp. 145-60.

Gallery, N, Newton, C & Palm, C 2011, 'Framework for Assessing Financial Literacy and Superannuation Investment Choice Decisions', *Australasian Accounting, Business and Finance Journal*, vol. 5, no. 2, pp. 3-22.

Garcia, MJR 2013, 'Financial Education and Behavioral Finance: New Insights into the Role of Information in Financial Decisions', *Journal of Economic Surveys*, vol. 27, no. 2, pp. 297-315.

Gaudecker, H-MV 2015, 'How Does Household Portfolio Diversification Vary with Financial Literacy and Financial Advice?', *The Journal of Finance*, vol. 70, no. 2, pp. 489-507.

Gaurav, S & Singh, A 2012, 'An Inquiry into the Financial Literacy and Cognitive Ability of Farmers: Evidence from Rural India', *Oxford Development Studies*, vol. 40, no. 3, pp. 358-80.

Geetha, N & Ramesh, M 2012, 'A Study on Relevance of Demographic Factors in Investment Decisions', *Perspectives of Innovations, Economics & Business*, vol. 10, no. 1, pp. 14-27.

Ghauri, P, Grønhaug, K & Strange, R 2020, *Research Methods in Business Studies*, 5 edn, Cambridge University Press, USA.

Gilani, H 2015, 'Exploring the Ethical Aspects of Islamic Banking', *International Journal of Islamic and Middle Eastern Finance and Management*, vol. 8, no. 1, pp. 85-98.

Girard, EC & Hassan, MK 2008, 'Is There a Cost to Faith-Based Investing: Evidence from Ftse Islamic Indices', *The Journal of Investing*, vol. 17, no. 4, pp. 112-21.

Goodman, JG 1980, *Aging Parents: Whose Responsibility?*, Family Service Association of America New York, USA.

Grau, E 2007, 'Using Factor Analysis and Cronbach's Alpha to Ascertain Relationships between Questions of a Dietary Behavior Questionnaire', in *Proc Am Stat Assoc*, USA vol. 1.

Green, PE, Carroll, JD & Desarbo, WS 1978, 'A New Measure of Predictor Variable Importance in Multiple Regression', *Journal of marketing Research*, vol. 15, no. 3, pp. 356-60.

Greenberger, E & Steinberg, L 1986, *When Teenagers Work: The Psychological and Social Costs of Adolescent Employment*, Basic Books, USA.

Groissböck, M & Pickl, MJ 2018, 'Fuel-Price Reform to Achieve Climate and Energy Policy Goals in Saudi Arabia: A Multiple-Scenario Analysis', *Utilities Policy*, vol. 50, pp. 1-12.

Guion, RM & Gottier, RF 1965, 'Validity of Personality Measures in Personnel Selection', *Personnel Psychology*, vol. 18, no. 2, pp. 135-64.

Gustman, AL, Steinmeier, TL & Tabatabai, N 2010a, 'Financial Knowledge and Financial Literacy at the Household Level', *American Economic Review, American Economic Association*, vol. 102, no. 3, p. 309.

Gustman, AL, Steinmeier, TL & Tabatabai, N 2010b, 'What the Stock Market Decline Means for the Financial Security and Retirement Choices of the near-Retirement Population', *Journal of Economic Perspectives*, vol. 24, no. 1, pp. 161-82.

Hamid, A & Nordin, N 2001, 'A Study on Islamic Banking Education and Strategy for the New Millennium-Malaysian Experience', *International Journal of Islamic Financial Services*, vol. 2, no. 4, pp. 3-11.

Hanzaee, KH & Ramezani, MR 2011, 'Intention to Halal Products in the World Markets', *Interdisciplinary Journal of Research in Business*, vol. 1, no. 5, pp. 1-7.

Hartog, J & Oosterbeek, H 1993, 'Public and Private Sector Wages in the Netherlands', *European Economic Review*, vol. 37, no. 1, pp. 97-114.

Hassan, MK 2002, 'Risk, Return and Volatility of Faith-Based Investing: The Case of Dow Jones Islamic Index', in *Proceedings of the Fifth Harvard University Forum on Islamic Finance*, pp. 43-67.

Hassan, R 1991, 'The Issue of Woman-Man Equality in the Islamic Tradition', *Women's and Men's Liberation: Testimonies of Spirit*, vol. 3, no. 1, pp. 65-82.

Hastings, J & Mitchell, OS 2020, 'How Financial Literacy and Impatience Shape Retirement Wealth and Investment Behaviors', *Journal of Pension Economics & Finance*, vol. 19, no. 1, pp. 1-20.

Hatcher, L & Stepanski, EJ 1994, *A Step-by-Step Approach to Using the Sas System for Univariate and Multivariate Statistics*, SAS Institute, USA.

Hayes, BE & Hayes, BE 1998, *Measuring Customer Satisfaction: Survey Design, Use, and Statistical Analysis Methods*, ASQC Quality Press Milwauke, USA.

Heckman, SJ & Hanna, SD 2015, 'Individual and Institutional Factors Related to Low-Income Household Saving Behavior', *Journal of Financial Counseling and Planning*, vol. 26, no. 2, pp. 187-99.

Hefferan, C 1982, 'Determinants and Patterns of Family Saving', *Home Economics Research Journal*, vol. 11, no. 1, pp. 47-55.

Hilgert, MA, Hogarth, JM & Beverly, SG 2003, 'Household Financial Management: The Connection between Knowledge and Behavior', *Federal Reserve Bulletin*, vol. 89, pp. 309-23.

Ho, R 2006, *Handbook of Univariate and Multivariate Data Analysis and Interpretation with Spss*, CRC press, UK.

Hogarth, JM & Hilgert, MA 2002, 'Financial Knowledge, Experience and Learning Preferences: Preliminary Results from a New Survey on Financial Literacy', *Consumer Interest Annual*, vol. 48, no. 1, pp. 1-7.

Homan, HS 2015, 'Comparative Study of Students Financial Literacy and Its Demographic Factors', in *International Conference on Economics and Banking (iceb-15)*, USA, vol. 3.

Howell, KM 1967, 'Multiple Precision Arithmetic Techniques', *The computer journal*, vol. 9, no. 4, pp. 383-7.

Howlett, E, Kees, J & Kemp, E 2008, 'The Role of Self-Regulation, Future Orientation, and Financial Knowledge in Long-Term Financial Decisions', *Journal of Consumer Affairs*, vol. 42, no. 2, pp. 223-42.

Huddleston-Casas, CA, Danes, SM & Boyce, L 1999, 'Impact Evaluation of a Financial Literacy Program: Evidence for Needed Educational Policy Changes', *Consumer Interests Annual*, vol. 45, no. 1, pp. 109-14.

Hung, A, Parker, AM & Yoong, J 2009, *Defining and Measuring Financial Literacy*, 708, Roybal Center for Financial Decision Making, USA, viewed 8 March 2017, <https://www.rand.org/content/dam/rand/pubs/working_papers/2009/RAND_WR708.pdf>.

Huston, SJ 2010, 'Measuring Financial Literacy', *Journal of Consumer Affairs*, vol. 44, no. 2, pp. 296-316.

Ibrahim, MF, Eng, OS & Parsa, A 2009, 'International Articles: Shariah Property Investment in Asia', *Journal of Real Estate Literature*, vol. 17, no. 2, pp. 231-48.

Infante, G, Lecouteux, G & Sugden, R 2016, 'Preference Purification and the Inner Rational Agent: A Critique of the Conventional Wisdom of Behavioural Welfare Economics', *Journal of Economic Methodology*, vol. 23, no. 1, pp. 1-25.

Infe, O 2011, *Measuring Financial Literacy: Questionnaire and Guidance Notes for Conducting an Internationally Comparable Survey of Financial Literacy*, International Network on Financial Education, Cape Town, South Africa.

Iqbal, Z & Greuning, H 2008, 'Banking and the Risk Environment: Corporate Governance', *Islamic Finance News*, vol. 15, no. 2, pp. 22-67.

Iqbal, Z & Mirakhor, A 2011, *An Introduction to Islamic Finance: Theory and Practice*, John Wiley & Sons, Singapore.

Ismail, AG, Possumah, BT & Ali, MaM 2018, 'What You Sell Is What You Lend? Revealing Complexity of Riba in Loan Contract', *European Journal of Law and Economics*, vol. 45, no. 3, pp. 591-609.

Janor, H, Yakob, R, Hashim, NA, Zanariah, Z & Wel, C 2017, 'Financial Literacy and Investment Decisions in Malaysia and United Kingdom: A Comparative Analysis', *Geografia-Malaysian Journal of Society and Space*, vol. 12, no. 2, pp. 106-18.

Jappelli, T & Modigliani, F 1998, *The Age-Saving Profile and the Life-Cycle Hypothesis*, 9, Centre for Studies and Finance Fisciano viewed 4 May 2018, <https://d1wqtxts1xzle7.cloudfront.net/30675420/wp9.pdf>.

Jarque, CM & Bera, AK 1980, 'Efficient Tests for Normality, Homoscedasticity and Serial Independence of Regression Residuals', *Economics Letters*, vol. 6, no. 3, pp. 255-9.

Kadivar, M 2018, 'Islam and Democracy: Perspectives from Reformist and Traditional Islam', in *The Politics of Islamism*, Springer, pp. 23-45.

Kahneman, D & Tversky, A 2013, 'Prospect Theory: An Analysis of Decision under Risk', in *Handbook of the Fundamentals of Financial Decision Making: Part I*, World Scientific, pp. 99-127.

Kammer, A, Norat, M, Pinon, M, Prasad, A, Towe, C & Zeidane, Z 2015, *Islamic Finance: Opportunities, Challenges, and Policy Options*, International Monetary Fund, USA.

Kayed, RN 2008, 'Appraisal of the Status on Research on Labor Economics in the Islamic Framework', *King Abdulaziz University*, vol. 1, no. 1, pp. 183-98.

Keister, LA 2000, *Wealth in America: Trends in Wealth Inequality*, Cambridge University Press, USA.

Kerkmann, BC, Lee, TR, Lown, JM & Allgood, SM 2000, 'Financial Management, Financial Problems and Marital Satisfaction among Recently Married University Students', *Journal of Financial Counseling and Planning*, vol. 11, no. 2, p. 55.

Khan, MA 1984, 'Islamic Economics: Nature and Need', *Journal of King Abdulaziz University: Islamic Economics*, vol. 1, no. 2, pp. 51-5.

King, M & Dicks-Mireaux, LL 1982, 'Asset Holdings and the Life-Cycle', *The Economic Journal*, vol. 15, no. 1, pp. 247-67.

Kiros, GH 2017, 'Bayesian Regression Analysis of Correlates of Modern Contraceptive Method Usage: A Case Study in Hawassa City, Ethiopia', *J Biom Biostat*, vol. 8, no. 330, p. 2.

Kittleson, MJ 1997, 'Determining Effective Follow-up of E-Mail Surveys', *American Journal of Health Behavior*, vol. 21, no. 3, pp. 193-6.

Klapper, L, Lusardi, A & Van Oudheusden, P 2015, *Financial Literacy around the World*, 15, McGraw Hill Financial Inc., USA, viewed 10 June 2020, <https://responsiblefinanceforum.org/wp-content/uploads/2015/12/2015-Finlit_paper_17_F3_SINGLES.pdf>.

Klapper, L & Panos, GA 2011, 'Financial Literacy and Retirement Planning: The Russian Case', *Journal of Pension Economics & Finance*, vol. 10, no. 4, pp. 599-618.

Kleinbaum, D, Kupper, L & Ke, M 1988, *Applied Regression Analysis and Other Multivariable Methods* PWS-Kent, Boston, USA.

Kolk, A 2016, 'The Social Responsibility of International Business: From Ethics and the Environment to Csr and Sustainable Development', *Journal of World Business*, vol. 51, no. 1, pp. 23-34.

Konana, P & Balasubramanian, S 2005, 'The Social–Economic–Psychological Model of Technology Adoption and Usage: An Application to Online Investing', *Decision Support Systems*, vol. 39, no. 3, pp. 505-24.

Kotlikoff, LJ & Summers, LH 1981, 'The Role of Intergenerational Transfers in Aggregate Capital Accumulation', *Journal of Political Economy*, vol. 89, no. 4, pp. 706-32.

Kotrlik, J & Higgins, C 2001, 'Organizational Research: Determining Appropriate Sample Size in Survey Research Appropriate Sample Size in Survey Research', *Information Technology, Learning, and Performance Journal*, vol. 19, no. 1, p. 43.

Kraska, PB & Neuman, WL 2011, *Criminal Justice and Criminology Research Methods*, Pearson Higher Ed, USA.

Kumar, NS, Haque, MI & Venugopal, K 2019, 'Employment Challenges in Saudi Arabia: An Attitudinal Study', *Entrepreneurship and Sustainability Issues*, vol. 6, no. 4, pp. 1637-46.

Kumar, R 2019, *Research Methodology: A Step-by-Step Guide for Beginners*, Sage Publications Limited, London, UK.

Lalonde, K & Schmidt, A 2011, 'Credit Cards and Student Interest: A Financial Literacy Survey of College Students', *Research in Higher Education Journal*, vol. 10, no. 1, pp. 10-9.

Lamba, S & Mace, R 2010, 'People Recognise When They Are Really Anonymous in an Economic Game', *Evolution and Human Behavior*, vol. 31, no. 4, pp. 271-8.

Lambert, R 2012, *Financial Literacy for Managers: Finance and Accounting for Better Decision-Making*, Wharton Digital Press, USA.

Lane, PR & Milesi-Ferretti, GM 2007, 'The External Wealth of Nations Mark Ii: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970–2004', *Journal of international Economics*, vol. 73, no. 2, pp. 223-50.

Lanzante, JR 1996, 'Resistant, Robust and Non-Parametric Techniques for the Analysis of Climate Data: Theory and Examples, Including Applications to Historical Radiosonde Station Data', *International Journal of Climatology: A Journal of the Royal Meteorological Society*, vol. 16, no. 11, pp. 1197-226.

Lee, R, Mason, A & Miller, T 2000, 'Life Cycle Saving and the Demographic Transition: The Case of Taiwan', *Population and Development Review*, vol. 26, no. 1, pp. 194-219.

Lewis, MK 2007, 'Comparing Islamic and Christian Attitudes to Usury', PhD thesis, Edward Elgar Publishing Limited Cheltenham.

Luo, X 2018, 'Theoretical Study on the Hypothesis Testing P Value', in *2018 2nd International Conference on Education Science and Economic Management (ICESEM 2018)*.

Lupton, JP 2003, 'Marriage, Assets, and Savings Joseph P. Lupton and James P. Smith', *Marriage and the economy: Theory and evidence from advanced industrial societies*, vol. 129.

Lusardi, A 2008a, *Financial Literacy: An Essential Tool for Informed Consumer Choice?*, 14084, National Bureau of Economic Research, USA, viewed 2 February 2019, <https://www.nber.org/system/files/working_papers/w14084/w14084.pdf>.

Lusardi, A 2008b, *Household Saving Behavior: The Role of Financial Literacy, Information, and Financial Education Programs*, 13824, National Bureau of Economic Research, USA, viewed 22 January 2017, <https://www.nber.org/system/files/working_papers/w13824/w13824.pdf>.

Lusardi, A 2012, *Numeracy, Financial Literacy, and Financial Decision-Making*, 17821, National Bureau of Economic Research, USA, viewed 22 July 2017, <https://www.nber.org/system/files/working_papers/w17821/w17821.pdf>.

Lusardi, A & Mitchell, OS 2006, 'Baby Boomer Retirement Security: The Roles of Planning, Financial Literacy, and Housing Wealth', *Journal of Mentary Economics*, vol. 54, no. 1, pp. 205-24.

Lusardi, A & Mitchell, OS 2007, *Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel*, 2007/33, Center for Financial Studies, USA, viewed 12 May 2020, <https://www.econstor.eu/bitstream/10419/25534/1/559754582.PDF>.

Lusardi, A & Mitchell, OS 2008, 'Planning and Financial Literacy: How Do Women Fare?', *American Economic Review*, vol. 98, no. 2, pp. 413-17.

Lusardi, A & Mitchell, OS 2011a, *Financial Literacy and Planning: Implications for Retirement Wellbeing*, 17078, National Bureau of Economic Research, USA, viewed 26 April 2020, <https://www.nber.org/system/files/working_papers/w17078/w17078.pdf>.

Lusardi, A & Mitchell, OS 2011b, 'Financial Literacy around the World: An Overview', *Journal of Pension Economics & Finance*, vol. 10, no. 4, pp. 497-508.

Lusardi, A & Mitchell, OS 2014, 'The Economic Importance of Financial Literacy: Theory and Evidence', *Journal of Economic Literature*, vol. 52, no. 1, pp. 5-44.

Lusardi, A & Mitchell, OS 2017, *How Ordinary Consumers Make Complex Economic Decisions: Financial Literacy and Retirement Readiness*, 15350, National Bureau of Economic Research, USA, viewed 11 May 2019, <https://www.nber.org/system/files/working_papers/w15350/w15350.pdf>.

Lusardi, A, Mitchell, OS & Curto, V 2009, 'Financial Literacy among the Young: Evidence and Implication for Consumer Policy', *Center for Research on Pensions and Welfare Policies*, vol. 91, no. 9, pp. 1-34.

Lusardi, A, Mitchell, OS & Curto, V 2010, 'Financial Literacy among the Young', *Journal of Consumer Affairs*, vol. 44, no. 2, pp. 358-80.

Lusardi, A & Mitchelli, OS 2007, 'Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education', *Business economics*, vol. 42, no. 1, pp. 35-44.

Lusardi, A, Schneider, DJ & Tufano, P 2011, *Financially Fragile Households: Evidence and Implications*, 17072, National Bureau of Economic Research, USA, viewed 15 May 2017, <https://www.nber.org/system/files/working_papers/w17072/w17072.pdf>.

Madhi, ST & Barrientos, A 2003, 'Saudisation and Employment in Saudi Arabia', *Career Development International*, vol. 8, no. 2, pp. 70-7.

Mahmood, H & Alkahtani, NS 2018, 'Human Resource, Financial Market Development and Economic Growth in Saudi Arabia: A Role of Human Capital', *Economic Annals-XXI*, vol. 169, no. 1-2, pp. 31-4.

Mallin, C, Farag, H & Ow-Yong, K 2014, 'Corporate Social Responsibility and Financial Performance in Islamic Banks', *Journal of Economic Behavior & Organization*, vol. 103, pp. 21-38.

Mandell, L 2008, 'Financial Literacy of High School Students', in *Handbook of Consumer Finance Research*, Springer, pp. 163-83.

Mandell, L & Hanson, KO 2009, 'The Impact of Financial Education in High School and College on Financial Literacy and Subsequent Financial Decision Making', in *American Economic Association Meetings, San Francisco, CA*, vol. 51.

Mandell, L & Klein, LS 2007, 'Motivation and Financial Literacy', *Financial Services Review*, vol. 16, no. 2, pp. 105-16.

Mandurah, S, Khatib, J & Al-Sabaan, S 2012, 'Corporate Social Responsibility among Saudi Arabian Firms: An Empirical Investigation', *Journal of Applied Business Research (JABR)*, vol. 28, no. 5, pp. 1049-58.

Markus, HR & Kitayama, S 1991, 'Culture and the Self: Implications for Cognition, Emotion, and Motivation', *Psychological Review*, vol. 98, no. 2, pp. 224-53.

Mason, CH & Perreault Jr, WD 1991, 'Collinearity, Power, and Interpretation of Multiple Regression Analysis', *Journal of marketing Research*, vol. 28, no. 3, pp. 268-80.

Mayoral, RM & Vallelado, E 2017, 'Beyond Rational Behaviour: The Non-Financial Variables That Condition Shareholder Action During a Takeover', *Journal of Economic Policy Reform*, vol. 20, no. 3, pp. 254-70.

Mchugh, ML 2013, 'The Chi-Square Test of Independence', *Biochemia Medica*, vol. 23, no. 2, pp. 143-9.

Mclanahan, SS & Kelly, EL 2006, 'The Feminization of Poverty', in *Handbook of the Sociology of Gender*, Springer, pp. 127-45.

Mcnamara, C 1999, *General Guidelines for Conducting Interviews*, Authenticity Consulting (LLC), Minnesota, USA.

Mellor, N, Rinnawi, K, Dajani, N & Ayish, MI 2011, *Arab Media: Globalization and Emerging Media Industries*, vol. 1, Polity, Cambridge, UK.

Merdad, H, Hassan, MK & Alhenawi, Y 2010, 'Islamic Versus Conventional Mutual Funds Performance in Saudi Arabia: A Case Study', *Journal of King Abdulaziz University: Islamic Economics*, vol. 362, no. 3061, pp. 1-75.

Meyer, KE, Van Witteloostuijn, A & Beugelsdijk, S 2017, 'What's in a P? Reassessing Best Practices for Conducting and Reporting Hypothesis-Testing Research', *Journal of International Business Studies*, vol. 48, no. 1, pp. 535-51.

Mian, TS 2014, 'Examining the Level of Financial Literacy among Saudi Investors and Its Impact on Financial Decisions', *International Journal of Accounting and Financial Reporting*, vol. 4, no. 2, p. 312.

Michael, RT 1975, 'Education and Consumption', in *Education, Income, and Human Behavior*, NBER, pp. 233-52.

Miller, RK & Mcnamee, SJ 1998, 'The Inheritance of Wealth in America', in *Inheritance and Wealth in America*, Springer, pp. 1-22.

Mireku, K 2015, 'Financial Literacy among University Students: Evidence from Ghana', PhD thesis, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

Mitchell, OS & Moore, JF 1998, 'Can Americans Afford to Retire? New Evidence on Retirement Saving Adequacy', *Journal of Risk and Insurance*, vol. 65, no. 3, pp. 371-400.

Modigliani, F 1966, 'The Life Cycle Hypothesis of Saving, the Demand for Wealth and the Supply of Capital', *Social Research*, vol. 33, no. 2, pp. 160-217.

Modigliani, F & Brumberg, R 1954, 'Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data', *Franco Modigliani*, vol. 1.

Mohan, A & Prasad, A 2016, 'A Comparative Study among Private and Public Sector Employees About Retirement Financial Literacy, Kerla', *CLEAR International Journal of Research in Commerce & Management*, vol. 7, no. 1, pp. 52-7.

Monticone, C 2010, 'How Much Does Wealth Matter in the Acquisition of Financial Literacy?', *Journal of Consumer Affairs*, vol. 44, no. 2, pp. 403-22.

Moon, C, Ohk, K & Choi, C 2014, 'Gender Differences in Financial Literacy among Chinese University Students and the Influential Factors', *Asian Women*, vol. 30, no. 2, pp. 3-25.

Moore, DL 2003, *Survey of Financial Literacy in Washington State: Knowledge, Behavior, Attitudes, and Experiences*, Washington State Department of Financial Institutions, USA.

Mottola, GR 2013, 'In Our Best Interest: Women, Financial Literacy, and Credit Card Behavior', *Numeracy*, vol. 6, no. 2, pp. 4-17.

Mudholkar, GS, Srivastava, DK & Thomas Lin, C 1995, 'Some P-Variate Adaptations of the Shapiro-Wilk Test of Normality', *Communications in Statistics-Theory and Methods*, vol. 24, no. 4, pp. 953-85.

Murtaza, G, Abbas, M, Raja, U, Roques, O, Khalid, A & Mushtaq, R 2016, 'Impact of Islamic Work Ethics on Organizational Citizenship Behaviors and Knowledge-Sharing Behaviors', *Journal of Business Ethics*, vol. 133, no. 2, pp. 325-33.

Mutahharî, M 1986, 'The Role of Ijtihad in Legislation', *Trans. Mahliqâ Qarâ'î. Al-Tawhîd*, vol. 4, no. 2, pp. 1-14.

Naceur, SB & Ghazouani, S 2007, 'Stock Markets, Banks, and Economic Growth: Empirical Evidence from the Mena Region', *Research in International Business and Finance*, vol. 21, no. 2, pp. 297-315.

Naderifar, M, Goli, H & Ghaljaie, F 2017, 'Snowball Sampling: A Purposeful Method of Sampling in Qualitative Research', *Strides in Development of Medical Education*, vol. 14, no. 3, pp. 1-6.

Naoyuki, Y & Flore-Anne, M 2016, *Promoting Better Lifetime Planning through Financial Education*, 1 edn, World Scientific, USA.

Navickas, M, Gudaitis, T & Krajnakova, E 2014, 'Influence of Financial Literacy on Management of Personal Finances in a Young Household', *Business: Theory and Practice*, vol. 15, no. 1, pp. 32-40.

Nayebzadeh, S, Taft, MK & Sadrabadi, M 2013, 'The Study of University Professors' Financial Literacy', *International Journal of Academic Research in Accounting, Finance and Management Sciences*, vol. 3, no. 3, pp. 111-7.

Nemati, HR, Steiger, DM, Iyer, LS & Herschel, RT 2002, 'Knowledge Warehouse: An Architectural Integration of Knowledge Management, Decision Support, Artificial Intelligence and Data Warehousing', *Decision Support Systems*, vol. 33, no. 2, pp. 143-61.

Noël, P 2016, 'The New Oil Regime', *Survival*, vol. 58, no. 5, pp. 71-82.

Nurunnabi, M 2017, 'Transformation from an Oil-Based Economy to a Knowledge-Based Economy in Saudi Arabia: The Direction of Saudi Vision 2030', *Journal of the Knowledge Economy*, vol. 8, no. 2, pp. 536-64.

O'brien, RM 2007, 'A Caution Regarding Rules of Thumb for Variance Inflation Factors', *Quality & Quantity*, vol. 41, no. 5, pp. 673-90.

Ogundari, K & Awokuse, T 2018, 'Human Capital Contribution to Economic Growth in Sub-Saharan Africa: Does Health Status Matter More Than Education?', *Economic Analysis and Policy*, vol. 58, no. 1, pp. 131-40.

Okruhlik, G 2009, 'State Power, Religious Privilege, and Myths About Political Reform', in *Religion and Politics in Saudi Arabia: Wahhabism and the State*, Lynne Rienner, Colorado, USA, pp. 91-107.

Onwuegbuzie, AJ & Leech, NL 2005, 'On Becoming a Pragmatic Researcher: The Importance of Combining Quantitative and Qualitative Research Methodologies', *International Journal of Social Research Methodology*, vol. 8, no. 5, pp. 375-87.

Osborne, JW & Waters, E 2002, 'Four Assumptions of Multiple Regression That Researchers Should Always Test', *Practical Assessment, Research, and Evaluation*, vol. 8, no. 1, pp. 2-6.

Owens, A, Green, DR, Bailey, C & Kay, AC 2006, 'A Measure of Worth: Probate Valuations, Personal Wealth and Indebtedness in England, 1810–40', *Historical Research*, vol. 79, no. 205, pp. 383-403.

Pallant, J 2001, *Spss Survival Manual: A Step by Step Guide to Data Analysis Using Spss for Windows (Versions 10 and 11): Spss Student Version 11.0 for Windows*, Open University Press, USA.

Petty, R & Guthrie, J 2000, 'Intellectual Capital Literature Review: Measurement, Reporting and Management', *Journal of intellectual capital*, vol. 1, no. 2, pp. 155-76.

Pinto, LE & Coulson, E 2011, 'Social Justice and the Gender Politics of Financial Literacy Education', *Journal of the Canadian Association for Curriculum Studies*, vol. 9, no. 2, pp. 54-85.

Plakalović, N 2012, 'Financial Literacy and Resultant Stability of the Financial System', *Zbornik radova Ekonomskog fakulteta u Istočnom Sarajevu*, vol. 1, no. 6, pp. 135-44.

Potrich, A, Vieira, KM & Kirch, G 2015, 'Determinants of Financial Literacy: Analysis of the Influence of Socioeconomic and Demographic Variables', *Revista Contabilidade & Finanças*, vol. 26, no. 69, pp. 362-77.

Presse, N, Shatenstein, B, Kergoat, M & Ferland, G 2008, 'Low Vitamin K Intakes in Community-Dwelling Elders at an Early Stage of Alzheimer's Disease', *Journal of the American Dietetic Association*, vol. 108, no. 12, pp. 2095-9.

Priyadharshini, SH 2017, 'From Financial Literacy to Financial Well Being; a Study of the Level of Financial Literacy of Women Teaching Faculty in Educational Institutions in Coimbatore Region', PhD thesis, Bharathiar University, Coimbatore.

Quinn, JF 1982, 'Pension Wealth of Government and Private Sector Workers', *The American Economic Review*, vol. 72, no. 2, pp. 283-7.

Raimi, L, Aljadani, A & Mear, FC 2018, 'Management of Value-Added Tax System in Saudi Arabia: Issues, Economic Benefits, Operational Constraints and Policy Recommendations', in *ICPESS (International Congress on Politic, Economic and Social Studies)*, USA, vol. 2.

Rajkhan, S 2014, 'Women in Saudi Arabia: Status, Rights, and Limitations', Master degree thesis, University of Washington Bothell, USA.

Rashad, M, Paul, K, Shamseddine, R, Arnold, T, Aswad, C & Barbuscia, D 2016, *Saudi Chops Wage, Benefit Bill in Delicate Pursuit of Austerity*, Retuters, viewed 22 April 2020, <http://www.cnbc.com/2016/09/27/reuters-america-saudi-chops-wage-benefit-bill-in-delicate-pursuit-of-austerity.html>.

Rehman, J 2007, 'The Sharia, Islamic Family Laws and International Human Rights Law: Examining the Theory and Practice of Polygamy and Talaq', *International Journal of Law, Policy and the Family*, vol. 21, no. 1, pp. 108-27.

Remund, DL 2010, 'Financial Literacy Explicated: The Case for a Clearer Definition in an Increasingly Complex Economy', *Journal of Consumer Affairs*, vol. 44, no. 2, pp. 276-95.

Reykowski, J 1994, 'Collectivism and Individualism as Dimensions of Social Change', *Cross Cultural Research and Methodology Series*, vol. 18, no. 1, pp. 276-.

Ricciardi, V 2004, 'A Risk Perception Primer: A Narrative Research Review of the Risk Perception Literature in Behavioral Accounting and Behavioral Finance', paper presented to International Association for Research in Economic Psychology conference, USA.

Rice, S, Winter, SR, Doherty, S & Milner, M 2017, 'Advantages and Disadvantages of Using Internet-Based Survey Methods in Aviation-Related Research', *Journal of Aviation Technology and Engineering*, vol. 7, no. 1, p. 5.

Richardson, C 2006, 'Islamic Finance Opportunities in the Oil and Gas Sector: An Introduction to an Emerging Field', *Texas International Law Journal*, vol. 42, no. 1, pp. 119-53.

Romozyan, A 2016, 'Islamic Finance: Current Position and Its Future on the Traditional Finance Market', Master degree thesis, Lapland University of Applied Sciences.

Rooij, M, Lusardi, A & Alessie, R 2011a, 'Financial Literacy and Stock Market Participation', *Journal of Financial Economics*, vol. 101, no. 2, pp. 449-72.

Rooij, M, Lusardi, A & Alessie, RJ 2011b, 'Financial Literacy, Retirement Planning, and Household Wealth', *Economic Journal, Royal Economic Society*, vol. 122, no. 560, pp. 449-78.

Rooij, MC, Lusardi, A & Alessie, RJ 2011c, 'Financial Literacy and Retirement Planning in the Netherlands', *Journal of Economic Psychology*, vol. 32, no. 4, pp. 593-608.

Rosen, HS & Wu, S 2004, 'Portfolio Choice and Health Status', *Journal of Financial Economics*, vol. 72, no. 3, pp. 457-84.

Rosen, S 1972, 'Learning and Experience in the Labor Market', *Journal of Human Resources*, vol. 7, no. 3, pp. 326-42.

Rossman, GB & Wilson, BL 1985, 'Numbers and Words: Combining Quantitative and Qualitative Methods in a Single Large-Scale Evaluation Study', *Evaluation review*, vol. 9, no. 5, pp. 627-43.

Sabri, MF, Macdonald, M, Hira, TK & Masud, J 2010, 'Childhood Consumer Experience and the Financial Literacy of College Students in Malaysia', *Family and Consumer Sciences Research Journal*, vol. 38, no. 4, pp. 455-67.

Sabri, MS & Thomas, K 2019, 'Psycho-Attitudinal Features: A Study of Female Entrepreneurs in Saudi Arabia', *International Journal of Gender and Entrepreneurship*, vol. 2, no. 2, pp. 1-22.

Saccenti, E, Hoefsloot, HC, Smilde, AK, Westerhuis, JA & Hendriks, MM 2014, 'Reflections on Univariate and Multivariate Analysis of Metabolomics Data', *Metabolomics*, vol. 10, no. 3, pp. 361-74.

Sagia 2008, *The Saudi Responsible Competitiveness Index - Accountability*, Saudi Arabian General Investment Authority, viewed 8 November 2020, <https://www.yumpu.com/en/document/read/49567106/the-saudi-responsible-competitiveness-index-accountability>.

Sahlberg, P 2007, 'Education Policies for Raising Student Learning: The Finnish Approach', *Journal of Education Policy*, vol. 22, no. 2, pp. 147-71.

Saleh, W & Ajaj, A 1992, *Unlawful Gain and Legitimate Profit in Islamic Law: Riba, Gharar and Islamic Banking*, vol. 7, Brill, USA.

Salkind, N 2006, 'Methods of Measuring Behavior', in *Exploring Research*, 8 edn, Pearson Prentice Hall, Upper Saddle River, NJ, pp. 123-44.

Samad, A 2004, 'Performance of Interest-Free Islamic Banks Vis-À-Vis Interest-Based Conventional Banks of Bahrain', *International Journal of Economics, Management and Accounting*, vol. 12, no. 2, pp. 2-15.

Santos, JRA 1999, 'Cronbach's Alpha: A Tool for Assessing the Reliability of Scales', *Journal of Extension*, vol. 37, no. 2, pp. 1-5.

Schillewaert, N, Langerak, F & Duharnel, T 1998, 'Non-Probability Sampling for Www Surveys: A Comparison of Methods', *Market Research Society. Journal.*, vol. 40, no. 4, pp. 1-13.

Scholz, JK, Seshadri, A & Khitatrakun, S 2006, 'Are Americans Saving "Optimally" for Retirement?', *Journal of Political Economy*, vol. 114, no. 4, pp. 607-43.

Schwab, C, Iannicola Jr, D, Beck, T, Hira, T, Bryant, JH, Parker, J, Levine, L & Dawson, C 2009, *President's Advisory Council on Financial Literacy*, 13455, The department of the treasury, Washington, viewed 20 August 2020, <https://www.academia.edu/6708140/Presidents_Advisory_Council_on_Financial_Literacy_2008_Annual_Report_to_the_President>.

Sekaran, U & Bougie, R 2016, *Research Methods for Business: A Skill Building Approach*, 8 edn, John Wiley & Sons, London, UK.

Sen, A & Srivastava, M 2012, *Regression Analysis: Theory, Methods, and Applications*, 9 edn, Springer Science & Business Media, USA.

Servon, LJ & Kaestner, R 2008, 'Consumer Financial Literacy and the Impact of Online Banking on the Financial Behavior of Lower-Income Bank Customers', *Journal of Consumer Affairs*, vol. 42, no. 2, pp. 271-305.

Setyawati, I & Suroso, S 2016, 'Sharia Financial Literacy and Effect on Social Economic Factors (Survey on Lecturer in Indonesia)', *International Journal of Scientific & Technology Research*, vol. 5, no. 2, pp. 92-102.

Sevim, N, Temizel, F & Sayılır, Ö 2012, 'The Effects of Financial Literacy on the Borrowing Behaviour of T Urkish Financial Consumers', *International Journal of Consumer Studies*, vol. 36, no. 5, pp. 573-9.

Shafik, N 1996, *Big Spending, Small Returns: The Paradox of Human Resource Development in the Middle East*, 2, Egyptian Center for Economic Studies, Egypt, viewed 23 March 2020, <http://www.eces.org.eg/cms/NewsUploads/Pdf/2019_1_5-8_49_1918.pdf>.

Shen, KN & Khalifa, M 2010, 'Facebook Usage among Arabic College Students: Preliminary Findings on Gender Differences', *International Journal of e-Business Management*, vol. 4, no. 1, pp. 53-65.

Shusha, AA 2017, 'Does Financial Literacy Moderate the Relationship among Demographic Characteristics and Financial Risk Tolerance? Evidence from Egypt', *Australasian Accounting, Business and Finance Journal*, vol. 11, no. 3, pp. 67-86.

Siddiqi, MN 2006, 'Islamic Banking and Finance in Theory and Practice: A Survey of State of the Art', *Islamic Economic Studies*, vol. 13, no. 2, pp. 1-48.

Sidoti, F, Piralla, A, Costa, C, Scarasciulli, ML, Calvario, A, Conaldi, PG, Paba, P, Perno, CF, Gaeta, A & Antonelli, G 2019, 'Collaborative National Multicenter for the Identification of Conversion Factors from Copies/Ml to International Units/Ml for the Normalization of Hcmv DNA Load', *Diagnostic microbiology and infectious disease*, vol. 95, no. 2, pp. 152-8.

Sierminska, E & Takhtamanova, YF 2007, *Wealth Effects out of Financial and Housing Wealth: Cross Country and Age Group Comparisons*, 2007-01, Board of Governors of the Federal Reserve System, USA, viewed 27 April 2020, <https://www.frbsf.org/economic-research/files/wp07-01bk.pdf>.

Singh, T 2010, 'Does Domestic Saving Cause Economic Growth? A Time-Series Evidence from India', *Journal of Policy Modeling*, vol. 32, no. 2, pp. 231-53.

Sinkovics, N, Sinkovics, RR, Hoque, SF & Czaban, L 2015, 'A Reconceptualisation of Social Value Creation as Social Constraint Alleviation', *critical perspectives on international business*, vol. 11, no. 3/4, pp. 340-63.

Smith, BA & Stewart, F 2009, 'Learning from the Experience of Organisation for Economic Co-Operation and Development Countries: Lessons for Policy, Programs, and Evaluations', in

Lusardi, A (ed.), *Overcoming the Saving Slump: How to Increase the Effectiveness of Financial Education and Saving Programs*, The University of Chicago Press, USA, vol. 1, pp. 345-67.

Smithson, M & Merkle, EC 2013, *Generalized Linear Models for Categorical and Continuous Limited Dependent Variables*, vol. 7, CRC Press, USA.

Solmon, LC 1975, 'The Relation between Schooling and Savings Behavior: An Example of the Indirect Effects of Education', in *Education, Income, and Human Behavior*, NBER, pp. 253-94.

Sothan, S 2014, 'Causal Relationship between Domestic Saving and Economic Growth: Evidence from Cambodia', *International Journal of Economics and Finance*, vol. 6, no. 9, p. 213.

Stampfl, RW 1978, 'The Consumer Life Cycle', *Journal of Consumer Affairs*, vol. 12, no. 2, pp. 209-19.

Stango, V & Zinman, J 2007, 'Fuzzy Math and Household Finance: Theory and Evidence', *Review of Financial Studies*, vol. 24, no. 2, pp. 506-34.

Statista 2018, *Saudi Arabia's Population by Gender and Nationality 2018*, Satista, viewed 7 April 2020, <https://www.statista.com/statistics/616737/saudi-arabia-population-by-gender-and-nationality/>.

Statista 2020, *Saudi Arabia: Age Structure from 2009 to 2019*, viewed 16 October 2020, <https://www.statista.com/statistics/262478/age-structure-in-saudi-arabia/#:~:text=Age%20structure%20in%20Saudi%20Arabia%202019&text=In%202019%2C%20approximately%2024.87%20percent,were%20aged%20between%2065%20years.>.

Stats, GaFSISA 2016, *Population by Sex, Administrative Area and Nationality (Saudi/ Non-Saudi)* viewed 16 October 2020, <https://www.stats.gov.sa/en/854-0>.

Stats, GaFSISA 2020a, *Labor Market, Second Quarter of 2020*, viewed 17 October 2020, <https://www.stats.gov.sa/sites/default/files/LM_2Q2020%20%28Press%20release_AR%20%29.pdf>.

Stats, GaFSISA 2020b, *Labor Market, Second Quarter of 2020*, viewed 16 October 2020, <https://www.stats.gov.sa/en/815-0>.

Stats, GaFSISA 2020c, *Population by Age Groups ,and Gender*, viewed 16 October 2020, <https://www.stats.gov.sa/sites/default/files/population_by_age_groups_and_gender_en.pdf>.

Stats, GaFSISA 2020d, *Total Employed Persons by Sex, Nationality and Type of Sector* viewed 16 October 2020, <https://www.stats.gov.sa/en/814>.

Stewart, DA 2010, *Canadians and Their Money: Building a Brighter Financial Future : Report of Recommendations on Financial Literacy*, Department of Finance Canada.

Subha, M & Priya, PS 2014, 'A Study on the Factors Determining Financial Literacy of Households', *International Journal of Advanced Information Science and Technology (IJAIST)*, vol. 22, no. 22, pp. 15-20.

Sucuahi, WT 2013, 'Determinants of Financial Literacy of Micro Entrepreneurs in Davao City', *International Journal of Accounting Research*, vol. 42, no. 826, pp. 1-8.

Sulphey, M & Faisal, S 2017, 'Does Demographics Influence 'Orientation Towards Finances'(Ortofin): A Study in the Saudi Arabian Context', *International Journal of Applied Business and Economic Research*, vol. 15, no. 4, pp. 291-9.

Tariq, AA & Dar, H 2007, 'Risks of Sukuk Structures: Implications for Resource Mobilization', *Thunderbird International Business Review*, vol. 49, no. 2, pp. 203-23.

Tashakkori, A, Teddlie, C & Teddlie, C 1998, *Mixed Methodology: Combining Qualitative and Quantitative Approaches*, vol. 46, Sage, London, UK.

Tatsuoka, MM & Lohnes, PR 1988, *Multivariate Analysis: Techniques for Educational and Psychological Research*, 2 edn, Macmillan Publishing Co, Inc, USA.

Taylor, C & Albasri, W 2014, 'The Impact of Saudi Arabia King Abdullah's Scholarship Program in the Us', *Open Journal of Social Sciences*, vol. 2, no. 10, p. 109.

Teddlie, C & Tashakkori, A 2009, *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences*, 2 edn, Sage Publications, Inc, USA.

Thaler, RH & Shefrin, HM 1981, 'An Economic Theory of Self-Control', *Journal of political Economy*, vol. 89, no. 2, pp. 392-406.

Tisdell, EJ, Taylor, EW & Forté, KS 2013, 'Community Based Financial Literacy Education in a Cultural Context a Study of Teacher Beliefs and Pedagogical Practice', *Adult Education Quarterly*, vol. 63, no. 4, pp. 338-56.

Triandis, HC 1996, 'The Psychological Measurement of Cultural Syndromes', *American psychologist*, vol. 51, no. 4, p. 407.

Tversky, A & Kahneman, D 1981, 'The Framing of Decisions and the Psychology of Choice', *Science*, vol. 211, no. 4481, pp. 453-8.

Ulus, S 2013, 'Fixed Income Investment (Sukuk) in Islamic Finance', *Afro Eurasian Studies*, vol. 2, no. 1-2, pp. 298-305.

Valiente, C, Swanson, J & Eisenberg, N 2012, 'Linking Students' Emotions and Academic Achievement: When and Why Emotions Matter', *Child development perspectives*, vol. 6, no. 2, pp. 129-35.

Van Ophem, H 1993, 'A Modified Switching Regression Model for Earnings Differentials between the Public and Private Sectors in the Netherlands', *The Review of Economics and Statistics*, vol. 75, no. 2, pp. 215-24.

Varshney, D 2019, 'The Strides of the Saudi Female Workforce: Overcoming Constraints and Contradictions in Transition', *Journal of International Women's Studies*, vol. 20, no. 2, pp. 359-72.

Violi, S 2017, 'Saudi Arabia Faced with Modernity: From the Demographic Transition To'vision 2030", Master degree thesis, Università Ca'Foscari Venezia.

Vissing-Jorgensen, A 2004, ' Perspectives on Behavioral Finance: Does "Irrationality" Disappear with Wealth? Evidence from Expectations and Actions', *NBER Macroeconomics Annual 2003*, vol. 18, no. 1, pp. 139-94.

Volpe, RP, Kotel, JE & Chen, H 2002, 'A Survey of Investment Literacy among Online Investors', *Journal of Financial Counseling and Planning*, vol. 13, no. 1, pp. 1-16.

Wagland, SP & Taylor, S 2009, 'When It Comes to Financial Literacy, Is Gender Really an Issue?', *Australasian Accounting, Business and Finance Journal*, vol. 3, no. 1, pp. 13-25.

Wakita, S, Fitzsimmons, VS & Liao, TF 2000, 'Wealth: Determinants of Savings Net Worth and Housing Net Worth of Pre-Retired Households', *Journal of Family and Economic Issues*, vol. 21, no. 4, pp. 387-418.

Waldfogel, J 1997, 'The Effect of Children on Women's Wages', *American Sociological Review*, vol. 62, no. 2, pp. 209-17.

Wang, A 2011, 'Effects of Gender, Ethnicity, and Work Experienceon College Students' Credit Card Debt: Implications for Wealth Advisors', *The Journal of Wealth Management*, vol. 14, no. 2, pp. 85-100.

Warschauer, T & Sciglimpaglia, D 2012, 'The Economic Benefits of Personal Financial Planning: An Empirical Analysis', *Financial services review*, vol. 21, no. 3, pp. 195-209.

Welman, C & Kruger, M 2009, *Research Methodology*, Oxford University Press, Cape Town.

White, H 1980, 'A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity', *Econometrica: journal of the Econometric Society*, vol. 48, no. 4, pp. 817-38.

Wiechman, DJ, Kendall, JD & Azarian, MK 1996, 'Islamic Law: Myths and Realities', *Crime and Justice International*, vol. 12, no. 3, pp. 9-13.

Wiig, A 2015, 'Ibm's Smart City as Techno-Utopian Policy Mobility', *City*, vol. 19, no. 2-3, pp. 258-73.

Wilkinson, D & Birmingham, P 2003, *Using Research Instruments: A Guide for Researchers*, Psychology Press, USA.

Williams, MN, Grajales, CaG & Kurkiewicz, D 2013, 'Assumptions of Multiple Regression: Correcting Two Misconceptions', *Practical Assessment, Research, and Evaluation*, vol. 18, no. 1, pp. 2-14.

Wilson, TA 2012, 'Supporting Social Enterprises to Support Vulnerable Consumers: The Example of Community Development Finance Institutions and Financial Exclusion', *Journal of consumer policy*, vol. 35, no. 2, pp. 197-213.

Woods, H, Makino, W, Cotner, JB, Hobbie, SE, Harrison, J, Acharya, K & Elser, J 2003, 'Temperature and the Chemical Composition of Poikilothermic Organisms', *Functional Ecology*, vol. 17, no. 2, pp. 237-45.

World Economic Forum 2015, *The Global Gender Gap Report* World Economic Forum, Switzerland, viewed 10 April 2017, <http://www3.weforum.org/docs/GGGR2015/cover.pdf>.

Worthington, AC 2006, 'Predicting Financial Literacy in Australia', *University of Wollongong*, vol. 1, no. 15, pp. 59-79.

Worthington, AC 2016, 'Financial Literacy and Financial Literacy Programmes in Australia', in *Financial Literacy and the Limits of Financial Decision-Making*, Springer, pp. 281-301.

Xue, R, Gepp, A, O'neill, TJ, Stern, S & Vanstone, BJ 2019, 'Financial Literacy Amongst Elderly Australians', *Accounting & Finance*, vol. 59, pp. 887-918.

Yadav, VN 2018, 'A Study on Financial Literacy Amongcollege Students of Mira-Bhyander', *Emerging Trends In Management–New Perspectives And Practices*, vol. 5, no. 48, pp. 68-71.

Yamokoski, A & Keister, LA 2006, 'The Wealth of Single Women: Marital Status and Parenthood in the Asset Accumulation of Young Baby Boomers in the United States', *Feminist Economics*, vol. 12, no. 1-2, pp. 167-94.

Yasin, J 2008, 'Demographic Structure and Private Savings: Some Evidence from Emerging Markets', *African Review of Money Finance and Banking*, vol. 9, no. 1, pp. 7-21.

Yates, D & Ward, C 2011, 'Financial Literacy: Examining the Knowledge Transfer of Personal Finance from High School to College to Adulthood', *American Journal of Business Education* vol. 4, no. 1, pp. 65-74.

Yilmaz, K 2013, 'Comparison of Quantitative and Qualitative Research Traditions: Epistemological, Theoretical, and Methodological Differences', *European Journal of Education*, vol. 48, no. 2, pp. 311-25.

Zaher, TS & Kabir Hassan, M 2001, 'A Comparative Literature Survey of Islamic Finance and Banking', *Financial Markets, Institutions & Instruments*, vol. 10, no. 4, pp. 155-99.

Zakaria, Z, Nor, SMM & Ismail, MR 2017, 'Financial Literacy and Risk Tolerance Towards Saving and Investment: A Case Study in Malaysia', *International Journal of Economics and Financial Issues*, vol. 7, no. 4, pp. 507-14.

Zaman, A 2012, 'An Islamic Critique of Neoclassical Economics', *Pakistan Business Review*, vol. 14, no. 1, pp. 9-62.

Zellner, A, Keuzenkamp, HA & Mcaleer, M 2001, *Simplicity, Inference and Modelling: Keeping It Sophisticatedly Simple*, vol. 7, Cambridge University Press, USA.

Zhang, Z 2016, 'Univariate Description and Bivariate Statistical Inference: The First Step Delving into Data', *Annals of Translational Medicine*, vol. 4, no. 5, pp. 91-102.

Zissimopoulos, JM, Karney, BR & Rauer, AJ 2015, 'Marriage and Economic Well Being at Older Ages', *Review of Economics of the Household*, vol. 13, no. 1, pp. 1-35.

Zohrabi, M 2013, 'Mixed Method Research: Instruments, Validity, Reliability and Reporting Findings', *Theory & Practice in Language Studies*, vol. 3, no. 2, pp. 254-62.

APPENDICES

Appendix 1 Informed Consent

This survey is limited to full-time, part-time or self-employed Saudi Arabian citizens. If you are not a Saudi citizen, please do not complete this survey.

Doctor of Business Administration (DBA) Research Project

THE IMPACT OF FINANCIAL LITERACY ON HOUSEHOLD WEALTH IN THE KINGDOM OF SAUDI ARABIA

INFORMATION TO PARTICIPANTS INVOLVED IN THIS RESEARCH

You are invited to participate in a survey conducted to collect data for my DBA research project. This project is being conducted by a student researcher, Mr Saber, as part of a Doctor of Business Administration program at the College of Business, Victoria University.

Project explanation

The purpose of this survey is to investigate the role of financial literacy in household wealth in Saudi Arabia.

What will I be asked to do?

Fill out this survey based on your knowledge.

What will I gain from participating?

Participating in this survey will increase you awareness about financial literacy.

How will the information I give be used?

The survey information will remain anonymous and will be used only for this research project.

What are the potential risks of participating in this project?

There are no risks associated with this research project

How will this project be conducted?

An online survey will be used to collect data. Only aggregated data will be used in the analysis to maintain the anonymity of participants.

Who is conducting the study?

Mr Saber (Abo-lamar10@hotmail.com).

College of Business, Victoria University.

Any queries about your participation in this project may be directed to the Chief Investigator listed above.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, University Human Research Ethics Committee.

☐ **I indicate that I have carefully read the information on this page and authorise the researcher to collect data from me for analysis in their research project.**

Appendix 2 Survey Questionnaire

CONFIDENTIALITY: Your individual answers to this survey are confidential and will not be released. Your responses will be summarised and aggregated with those of others to form an overall result.

1 DEMOGRAPHIC AND GENERAL INFORMATION

Select the most appropriate response to each of the following questions:

1. **What is your gender?**
    a) Male
    b) Female
2. **What is your age?**
    a) 18–22 years
    b) 23–29 years
    c) 30–39 years
    d) 40–59 years
    c) 60 or older
3. **What is your marital status?**
    a) Single
    b) Married
    c) Divorced
    d) Separated
4. **How many children do you have?**
    a) None
    b) 1–3
    c) 4–6
    d) 6+
5. **Where do you live in Saudi Arabia?**
    a) Northern Region
    b) Southern Region
    c) Western Region
    d) Central Region
    e) Eastern Region
6. **What is your highest level of education?**

a) Less than high school
b) High school or equivalent
c) Diploma or equivalent
d) Bachelor degree
e) Post-graduate degree and above

7. **In what sector do you work?**
   a) Public sector
   b) Private sector
   c) Self-employed
8. **What is your major field of study?**
   a) Business
   b) Agriculture and life sciences
   c) Education and arts
   d) Human sciences and law
   e) Science
   f) Engineering
   g) Medicine
   h) Other, please specify …
9. **For how many years have you been employed?**
   a) None
   b) <2
   c) 2–5
   d) 5–10
   e) >10
10. **What was your average monthly income during the last year?**
    a) <5,000 SAR
    b) 5,001–10,000 SAR
    c) 10,001–20,000 SAR
    d) 20,001–40,000 SAR
    e) >40,000 SAR

11. **I live in …**

a) A rented residence

b) My own residence

c) My parents' residence

2 FINANCIAL KNOWLEDGE

This part of the research aims to measure the level of financial literacy and is not a test of your knowledge. Please respond to the following questions based on your understanding.

12. **Select the correct definition of net wealth.**

a. The difference between income and expenditure

b. The difference between assets and liabilities

c. The difference between cash inflows and outflows

d. The difference between borrowings and savings

e. None of the above

13. **Assume you are in your early twenties and you would like to build your wealth for a secure retirement in 30 years' time. Which of the following approaches would best meet your needs?**

a) Start to build up your bank savings account gradually

b) Invest in certificates of deposit

c) Put monthly savings in a diversified growth mutual fund

d) Invest in the stock market

e) Invest in real estate

f) Accumulate money in a safe box located in a bank or at home

14. **Which of the following investment strategies has the highest investment risk?**

a) A mutual fund containing 80% stocks and 20% bonds

b) A mutual fund containing 80% bonds and 20% stocks

c) A mutual fund containing 100% stocks

d) Stock in a single company

15. **A couple that had a baby received 10,000 SAR as a baby gift. Which of the following actions would you recommend to them?**
    a) Spend the gift money on the baby's needs
    b) Invest in stocks and mutual funds
    c) Deposit in a savings account
    d) Deposit in a current account
    e) Keep it as cash at home
16. **Some people save money to take care of unexpected expenses. In which of the following forms would it be of least benefit to them if they needed it right away?**
    a) A savings account
    b) A house
    c) Stocks
    d) A current account
17. **Suppose you had 100 SAR in a savings account and the profit rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow:**
    a) <102 SAR
    b) >102 SAR
    c) Exactly 102 SAR
18. **The holder of a debit card that is lost or stolen is legally responsible for …**
    a) Any unauthorised charges
    b) Any unauthorised charges until the loss or theft is reported
    c) Only the first 50 SAR of any unauthorised charges
    d) Only the first 500 SAR of any unauthorised charges
    e) No unauthorised charges

19. **What is your main motive for saving/investment?**
    a) For unexpected expenses
    b) For retirement
    c) To receive a capital gain
    d) To leave something for children to inherit
    e) To improve my living standards in the future
    f) To be independent and be able to make choices
    g) To support my children's future education needs
    h) No particular reason, this is a family tradition
20. **Suppose that the rate of profit on your savings account was 2% per year and the rate of inflation was 3% per year. After 1 year with the money in this account would you be able to buy …?**
    a) More than what you can buy today
    b) Exactly the same as what you can buy today
    c) Less than what you can buy today
21. **Which of the following group of people would have the greatest problem during periods of high inflation?**
    a) Older working couples saving for retirement
    b) Older people living only on fixed retirement income
    c) Young couples with no children who both work
    d) Young working couples with children
22. **Assume your salary is 3,000 SAR per month. You have to pay 1,000 SAR for rent and 300 SAR for food each month. You also spend 200 SAR per month on transport. If you budget 250 SAR each month for clothing, 200 SAR for dining out and 250 SAR for everything else, how long will it take for you to save SAR 1,600?**
    a) 3 months
    b) 4 months
    c) 1 month
    d) 2 months

3 FINANCIAL DECISIONS

23. **What is your ability to manage your own finances?**

a) Not sure at all

b) Somewhat sure—I understand some of what I need to know

c) Very sure—I understand money management very well

24. **How interested are you in increasing your financial knowledge?**

a) Very uninterested

b) Somewhat uninterested

c) Not sure

d) Somewhat interested

e) Very interested

25. **Who is responsible for daily decisions about money in your home?**

a) You

b) You and your partner

c) You and another family member

d) Your partner

e) Another family member

s) You and all family members

f) Don't know

26. **Which of the following statements describes your monthly financial position?**

a) Sometimes we face financial difficulties to cover our necessary monthly expenses.

b) We have enough money to cover our necessary expenses, but purchasing necessary durable goods is problematic.

c) We have no trouble buying necessary durable goods, but purchase of a really expensive thing like a car is hard for us.

d) We can afford to buy everything we need.

27. **Read the following statements and rate them on a scale from 1 to 5 (1 means very true of me and 5 means not at all true of me).**

	1	2	3	4	5
a. I think credit cards are safe and risk free.					
b. I feel happy when I purchase what I want.					
c. I think putting money aside each month for savings or investments is important.					
d. It is important to read rental contracts and loan agreements before I sign them.					

4 PERSONAL FINANCIAL ATTITUDES

28. **There are two groups of people. Some of them tend to be very economical, saving money whenever they have the chance while the second group is spending oriented, buying whenever they can and even borrowing to consume more. How would you classify yourself?**
    a) Very economical, often saving money
    b) Somewhat economical, saving money whenever I can
    c) Neither economical nor spending oriented
    d) Somewhat spending oriented, seldom saving money
    e) Very spending oriented, hardly ever saving money
29. **What kind of assets do you own? Check all the answers below that are applicable.**
    a) Cash in a savings account
    b) Cash in a current account
    c) Stocks
    d) Real estate
    e) Mutual funds
    f) Precious metals
    g) Other investments
30. **What is the estimate of your current borrowings (include the total of credit card debts, housing loans, the other loans from financial institutions and loans from friends and relatives)?**
    a) None
    b) 1–10,000 SAR
    c) 10,001–50,000 SAR
    d) 50,001–100,000 SAR
    e) 100,001–500,000 SAR
    f) 500,001–3,000,000 SAR
    g) 3,000,001–10,000,000 SAR
31. **How many credit cards do you have?**
    a) I don’t have any
    b) One
    c) Two
    d) More than two
32. **What is the combined total balance owed on your credit cards?**

a) 0–1,000 SAR
b) 1,001–5,000 SAR
c) 5,001–20,000 SAR
d) 20,001–50,000 SAR
e) 50,000 SAR or more
f) Don’t know

33. **How do you usually pay your monthly credit card bills?**

a) I pay the minimum
b) I pay credit card bills in full
c) My parents pay my credit card bills
d) I don’t use them at all

34. **Do you record your income and expenditure?**

a) Yes, I do.
b) No, but I know in general how much money is received and spent during a month.
c) No, I do not know in general how much money is received and spent during a month.

5 FINANCIAL PLANNING AND WEALTH ACCUMULATION

35. **From whom have you learned about managing your income? Check all the answers that are applicable.**

a) From parents
b) From friends
c) From books
d) From the media
e) From the internet
f) From experience
g) From financial training
h) Learned nothing about managing my income

36. **Comparing yourself to your parents, would you say that you are …**

a) Much more likely to save
b) About as likely to save/spend
c) Much more likely to spend

37. **Which of the following did you learn in your home while growing up? Check all the answers that are applicable.**

a) Loans
b) Investing
c) Debit cards
d) Credit cards
e) Saving
f) Budgeting
g) Interest rates
h) Automobile Insurance
i) Keeping financial records

5 FINANCIAL PLANNING AND WEALTH ACCUMULATION

38. **What are your total assets worth (the total for real state, stocks, valuables, bank deposits and cash)?**

a) <5,000 SAR
b) 5,001–50,000 SAR
c) 50,001–100,000 SAR
d) 100,001–500,000 SAR
e) 500,001–3,000,000 SAR
f) 3,000,001–10,000,000 SAR
g) >10,000,001 SAR

39. **Select the most dominant asset in your wealth.**

a) Real estate
b) Cash (including bank deposits)
c) Stocks and mutual funds
d) Valuables (jewellery and precious metals, etc.)
e) They are all about equal

40. **Have you ever planned for retirement?**

a) Yes I have
b) No I have not

Appendix 3 Questionnaire Items Sources

No.	Question	Sources
SECTION 1: DEMOGRAPHIC AND GENERAL INFORMATION		
1	What is your gender?	(Agarwal et al. 2010; ANZ 2015; ASICS 2018; INFE 2011; Lalonde & Schmidt 2011; Lusardi & Mitchell 2006; Lusardi et al. 2010; Volpe et al. 2002; Yamokoski & Keister 2006)
2	What is your age?	(ANZ 2015; ASICS 2018; Chen & Volpe 2002; INFE 2011; Lalonde & Schmidt 2011; Rooij et al. 2011b)
3	What is your marital status?	(ANZ 2015; ASICS 2018; Bucher-Koenen & Lusardi 2011; INFE 2011; Lalonde & Schmidt 2011; Yamokoski & Keister 2006)
4	How many children do you have?	(ASICS 2018; INFE 2011)
5	Where do you live in Saudi Arabia?	(ANZ 2015; ASICS 2018; INFE 2011)
6	What is your highest level of education?	(ANZ 2015; ASICS 2018; Bucher-Koenen & Lusardi 2011; INFE 2011; Lalonde & Schmidt 2011; Yamokoski & Keister 2006)
7	In what sector do you work?	(Mohan & Prasad 2016)
8	What is your major field of study?	(ASICS 2018; Chen & Volpe 2002; Lalonde & Schmidt 2011)
9	For how many years have you been employed?	(Lalonde & Schmidt 2011; Wang 2011; Yates & Ward 2011)
10	What was your average monthly income during the last year?	(ANZ 2015; ASICS 2018; Bucher-Koenen & Lusardi 2011; Lalonde & Schmidt 2011)
11	I live in …	(ASICS 2018)
SECTION 2: FINANCIAL KNOWLEDGE		
12	Select the correct definition of net wealth.	(Lalonde & Schmidt 2011)
13	Assume you are in your early twenties and you would like to build your wealth for a secure retirement in 30	(Lalonde & Schmidt 2011)

	years' time. Which of the following approaches would best meet your needs?	
14	Which of the following investment strategies has the highest investment risk?	(Lalonde & Schmidt 2011; Lusardi et al. 2009)
15	A couple that had a baby received 10,000 SAR as a baby gift. Which of the following actions would you recommend to them?	(Lalonde & Schmidt 2011)
16	Some people save money to take care of unexpected expenses. In which of the following forms would it be of least benefit to them if they needed it right away?	(Lalonde & Schmidt 2011)
17	Suppose you had 100 SAR in a savings account and the profit rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?	(INFE 2011; Lusardi et al. 2009)
18	The holder of a debit card that is lost or stolen is legally responsible for …	(Lalonde & Schmidt 2011)
19	What is your main motive for saving/investment?	(Lalonde & Schmidt 2011)
20	Suppose that the rate of profit on your savings account was 2% per year and the rate of inflation was 3% per year. After 1 year with the money in this account would you be able to buy …?	(INFE 2011; Lusardi et al. 2009)
21	Which of the following group of people would have the greatest	(Lalonde & Schmidt 2011)

	problem during periods of high inflation?	
22	Assume your salary is 3,000 SAR per month. You have to pay 1,000 SAR for rent and 300 SAR for food each month. You also spend 200 SAR per month on transport. If you budget 250 SAR each month for clothing, 200 SAR for dining out and 250 SAR for everything else, how long will it take for you to save SAR 1,600?	(Lalonde & Schmidt 2011)
SECTION 3: FINANCIAL DECISIONS		
23	What is your ability to manage your own finances?	(Lalonde & Schmidt 2011)
24	How interested are you in increasing your financial knowledge?	(Lalonde & Schmidt 2011)
25	Who is responsible for daily decisions about money in your home?	(ANZ 2015; ASICS 2018; INFE 2011; Lalonde & Schmidt 2011)
26	Which of the following statements describes your monthly financial position?	(INFE 2011; Lalonde & Schmidt 2011)
27	Read the following statements and rate them on a scale from 1 to 5 (1 means very true of me and 5 means not at all true of me). I think credit cards are safe and risk free. I feel happy when I purchase what I want. I think putting money aside each month for savings or investments is important.	(Lalonde & Schmidt 2011)

	It is important to read rental contracts and loan agreements before I sign them.	
28	There are two groups of people. Some of them tend to be very economical, saving money whenever they have the chance while the second group is spending oriented, buying whenever they can and even borrowing to consume more. How would you classify yourself?	(Lalonde & Schmidt 2011)
29	What kind of assets do you own? Check all the answers below that are applicable.	(Lalonde & Schmidt 2011)
30	What is the estimate of your current borrowings (include the total of credit card debts, housing loans, the other loans from financial institutions and loans from friends and relatives)?	(ANZ 2015; Lalonde & Schmidt 2011)
31	How many credit cards do you have?	(Lalonde & Schmidt 2011)
32	What is the combined total balance owed on your credit cards?	(ANZ 2015; ASICS 2018)
33	How do you usually pay your monthly credit card bills?	(Lalonde & Schmidt 2011)
34	Do you record your income and expenditure?	(ANZ 2015; Lalonde & Schmidt 2011)
SECTION 4: PERSONAL FINANCIAL ATTITUDE		
35	From whom have you learned about managing your income? Check all the answers that are applicable.	(Lalonde & Schmidt 2011)
36	Comparing yourself to your parents, would you say that you are …	(Lalonde & Schmidt 2011)

37	Which of the following did you learn in your home while growing up? Check all the answers that are applicable.	(Lalonde & Schmidt 2011)
SECTION 5: FINANCIAL PLANNING AND WEALTH ACCUMULATION		
38	What are your total assets worth (the total for real state, stocks, valuables, bank deposits and cash)?	(ANZ 2015)
39	Select the most dominant asset in your wealth.	(Lalonde & Schmidt 2011)
40	Have you ever planned for retirement?	(ANZ 2015; Lalonde & Schmidt 2011)

Appendix 4 Victoria University Ethics Approval Details

Application for Ethical Review of Research Involving Human Participants

ResearchMaster
Human Ethics Application

Application ID :	HRE17-093
Application Title :	The Role of Financial Literacy in Household Wealth in Saudi Arabia
Date of Submission :	09/05/2017
Primary Investigator :	DR GUNERATNE WICKREMASINGHE (Chief Investigator)
Other Personnel :	DR SENARATH SEELANATHA (Associate Investigator)
	MR Abdullatef Saber (Student)