FACTORS INFLUENCING PERCEIVED RETIREMENT SAVING ADEQUACY AMONG PUBLIC UNIVERSITY EMPLOYEES IN SAUDI ARABIA

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FACTORS INFLUENCING PERCEIVED RETIREMENT SAVING ADEQUACY AMONG PUBLICH UNIVERSITY EMPLOYEES IN SAUDI ARABIA

ABSTRACT

The ultimate aim of this research is to investigate the measurable variables that could influence employees in their perceived retirement saving adequacy. These factors comprise the employee's capacity (basic and advanced financial literacy, financial self-efficacy), psychological (retirement goal clarity and financial risk tolerance), and economic (assets ownership and debt) factors. To carry out this task, this study employs the Capability, Willingness, and Opportunity (CWO) Model to comprehend the factors that influence retirement saving and planning behavior, which was tested on public university employees in Saudi Arabia. The study also examines the moderating effects of culture and government policies affecting these theoretical factors given the unique Arabs culture as well as the Saudi Arabia 2030 Strategic Vision. The analysis is based on data collected via questionnaires involving 558 staff working at 29 Saudi public universities. The study employs Structural Equation Modelling-Smart-PLS (SEM-PLS) methodology to analyze the relationships among the variables. This methodology is chosen as it is the only quantitative method that can simultaneously process a complex relationship between latent variables, enabling this research to analyze more than one layer of relationships between variables under study. The research contributed significantly to the body of knowledge in relation to retirement saving adequacy by examining two theoretical models: the Life Cycle Hypothesis (LCH) and Intentional Change Theory (ICT), on individuals' awareness of PRSA practices. LCH provides the conceptual framework to explain, analyze, and predict the interaction and relationships between planning and

saving on one side and investing for retirement on the other side among individuals. Meanwhile, ICT explains how employees intentionally start changing their consumption and saving behavior before reaching retirement age. An examination through the LCH and ICT lens gives a better understanding of financial planning processes and related retirement behaviors. The study found that, directly and indirectly, capacity, psychological, and external variables influence perceived retirement saving adequacy behavior. In the Saudi context, this thesis has found that only basic financial literacy, financial self-efficacy, retirement goal clarity, and asset ownership (other asset ownership) influenced perceived retirement saving adequacy among the sample respondents. This result suggests that several variables have assisted the respondents in planning and saving for their future and saving money, particularly for their retirement. Surprisingly, this thesis has found that asset ownership (homeownership) negatively influenced perceived retirement saving adequacy. The culture was found to affect the relationship between retirement goal clarity, asset ownership (homeownership), and perceived retirement saving adequacy. Meanwhile, government policy has affected the relationship between retirement goal clarity and debt (credit card loans). The diverse effects of each variable indicate the multi-throng responsibility of government agencies or policies like the Public Pension Agency (PPA) or Vision 2030 in developing a pension system that is deemed to be in accordance with the best interests of retirees.

Keywords: Perceived retirement saving adequacy, CWO model, Capacity, Psychological, External variables.

ABSTRAK

Objektif utama kajian ini adalah untuk mengkaji pemboleh ubah boleh diukur yang boleh mempengaruhi pekerja dalam persepsi kecukupan simpanan persaraan mereka. Faktor-faktor ini terdiri daripada faktor kognitif (celik kewangan secara asas dan lanjutan, kecekapan kendiri kewangan), psikologi (kejelasan matlamat persaraan dan toleransi risiko kewangan), dan faktor ekonomi (pemilikan aset dan hutang). Bagi melaksanakan tugasan ini, kajian ini menggunakan Model Keupayaan, Kesediaan, dan Peluang (CWO) untuk memahami faktor-faktor yang mempengaruhi tingkah laku simpanan dan perancangan persaraan yang telah diuji ke atas kakitangan universiti awam di Arab Saudi. Kajian ini juga mengkaji kesan penyederhanaan budaya dan dasar kerajaan yang mempengaruhi faktor teori ini melihat kepada budaya Arab yang unik serta Wawasan Strategik 2030 Arab Saudi. Analisis adalah berdasarkan data yang dikumpul menerusi soal selidik yang melibatkan 558 kakitangan yang bekerja di 29 universiti awam Arab Saudi. Kajian ini menggunakan kaedah Pemodelan Persamaan Struktural-Pintar-PLS (SEM-PLS) untuk menganalisis hubungan antara pemboleh ubah. Metodologi ini dipilih kerana ia merupakan satu-satunya kaedah kuantitatif yang boleh memproses secara serentak hubungan kompleks antara pemboleh ubah terpendam yang membolehkan kajian ini menganalisis lebih daripada satu lapisan perhubungan antara pemboleh ubah. Kajian ini menyumbang secara signifikan kepada badan pengetahuan berhubung dengan kecukupan simpanan persaraan dengan mengkaji dua model teori: Hipotesis Kitaran Hayat (LCH) dan Teori Perubahan Sengaja (ICT), mengenai kesedaran individu terhadap amalan PRSA. LCH menyediakan rangka kerja konsep untuk menerangkan, menganalisis dan meramalkan interaksi dan perhubungan antara perancangan dan simpanan pada satu sudut dan pelaburan untuk persaraan pada sudut yang lain dalam kalangan individu. Sementara itu, ICT menerangkan bagaimana pekerja dengan sengaja mula mengubah

tingkah laku penggunaan dan menabung sebelum mencapai umur persaraan. Pemeriksaan melalui lensa LCH dan ICT memberikan pemahaman yang lebih baik tentang proses perancangan kewangan dan tingkah laku persaraan yang berkaitan. Kajian mendapati pemboleh ubah kapasiti, psikologi dan luaran, secara langsung dan tidak langsung, mempengaruhi persepsi kecukupan simpanan persaraan. Dalam konteks Arab Saudi, tesis ini mendapati hanya celik kewangan asas, kecekapan kendiri kewangan, kejelasan matlamat persaraan, dan pemilikan aset (pemilikan aset lain) yang mempengaruhi persepsi kecukupan simpanan persaraan dalam kalangan responden sampel. Keputusan ini menunjukkan bahawa beberapa pemboleh ubah telah membantu responden dalam merancang dan menabung untuk masa depan mereka dan menyimpan wang, terutamanya untuk persaraan mereka. Anehnya, tesis ini mendapati bahawa pemilikan aset (pemilikan rumah) memberi kesan negatif terhadap persepsi kecukupan simpanan persaraan. Budaya tersebut didapati mempengaruhi hubungan antara kejelasan matlamat persaraan, pemilikan aset (pemilikan rumah), dan persepsi kecukupan simpanan persaraan. Sementara itu, dasar kerajaan telah menjejaskan hubungan antara kejelasan matlamat persaraan dan hutang (pinjaman kad kredit). Kesan kepelbagaian setiap pemboleh ubah menunjukkan tanggungjawab pelbagai agensi atau dasar kerajaan seperti Agensi Pencen Awam (PPA) atau Wawasan 2030 dalam membangunkan sistem pencen yang disifatkan mengikut kepentingan terbaik pesara.

Kata kunci: Persepsi kecukupan simpanan persaraan, model CWO, Kapasiti, Psikologi, Pemboleh ubah luaran.

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LIST OF ABBREVIATIONS

AFL	Advanced Financial Literacy
AO	Assets Ownership
AVE	Average Variance Extracted
BFL	Basic Financial Literacy
CFA	Confirmatory Factor Analysis
CMB	Common Method Bias
CR	Composite Reliability
CTA	Confirmatory Tetrad Analysis
CWO	Capability, Willingness, and Opportunity
EFA	Exploratory Factor Analysis
PRSA	Perceived Retirement Saving Adequacy
FRT	Financial Risk Tolerance
FSE	Financial Self-Efficacy
GCC	Gulf Cooperation Council
GOSI	General Organization for Social Insurance
HCMs	Hierarchical Component Models
HOM	Higher-Order Models
HRS)	Health and Retirement Study
ICT	Intention Change Theory
I-CVI	Content Validity Index
IMF	International Monetary Fund
LCH	Life Cycle Hypothesis
LCS	Living Conditions Survey
LTO	Long-Term Orientation
MGA	Multigroup Analysis
OECD	The Organization for Economic Co-operation and Development

PFP	Personal Financial Planning
GP	Government policy
PLS-SEM	Partial Least Square-Structural Equation Modeling
PPA	Public Pension Agency
PRISMA	The Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols
RGC	Retirement Goal Clarity
rho_A	Reliability of Common Factor Models
SLR	Systematic Literature Review
SPSS	Statistical Package for the Social Sciences
TPB	Theory of Planned Behavior
UAI	Uncertainty Avoidance
VIF	Variance Inflation Factor
WB	World Bank
WHO	World Health Organization

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CHAPTER 1

AN OVERVIEW

1.1 Introduction

This exploratory study investigates the factors impacting the Perceived Retirement Savings Adequacy (PRSA) among university employees in Saudi Arabia. More specifically, it looks at the extent to which their financial literacy, financial self-efficacy, retirement goal clarity, financial risk tolerance, asset ownership, and debt affect PRSA in terms of financial planning and psychological theories. At the same time, it examines the moderating roles of culture and government policy in retirement on the relationship between the determinants and PRSA. This chapter covers the background of the ongoing research and the reasons that motivated it. The background of the study, problem statement, research questions, the research objectives, the study's significance, the scope of the study, and the definition of key terms are respectively presented next. This chapter ends with an explanation of the organization of the remaining chapters of this study.

1.2 Background of the Study

The Oxford Dictionary defines retirement as the moment when a person stops and definitively leaves the workplace later in life. For many, retirement is the ideal time to transition from serious working life to a life of rest and recreation (Jose, 2014; S. E. Sullivan & Al Ariss, 2019). It has become a critical phase in a person’s life cycle, as seen

from the introduction of the mandatory retirement age in America's 1930s (Warner, Hayward, & Hardy, 2010), which was also recognized at about the same time in Europe. Since then, retirement has become a social institution, a standard and predictable event in people's life cycle. Due to this, a public pension system was found much earlier in the late 19th century to enable viable wealth distribution where employers contributed to funds that support retired laborers (Atchley, 1982; Warner et al., 2010). Since that time, preparing and planning for retirement has become a foundation stone for successful post-retirement in industrialized countries (Hershey, Jacobs-Lawson, & Austin, 2012), especially when the bulk of their laborers are nearing their retirement age (Noone, Stephens, & Alpass, 2010).

Recently, the global community has been concerned about a number of difficulties that individuals encounter both before and after they leave their workplaces. First, not everyone is supported by a pension system, and some even exist with barely adequate daily wages. Those who have pensions, on the other hand, will no longer be the same as their formal income in their golden years after leaving the workforce. According to Social Security Administration (2020), employees' pension income is reduced to 40% of wages earned while employed. This is unlikely to be sufficient for many retirees if they wish to continue the lifestyle they had after retirement.

Second, it is the uncertainty of when individuals expect their retirement. Many reasons, such as health issues or work-related staff layoffs, have reduced financial resources for the post-retirement period (Tan & Folk, 2011). Third, the pension benefit burden moved slowly from defined benefits (provided by the government and employers) to defined contributions (provided by individuals) (Berger, 2012). This puts more of a burden on employees' shoulders. Many individuals between the ages of fifty and early

sixtieth had discovered that their financial resources were insufficient for their expected retirement age (Berriheim, B. Douglas, & Scholz, 1993; Lusardi, 1999) as a result of a steady increase in the cost of living and the economic impact of retirement.

Fourth, those laborers face financial, psychological, and social challenges in their working life. Among these challenges, for example, are that most of them are unaware and unprepared for the future because of the complexity of retirement planning processes. These challenges become the primary concern of governments and residents alike. If these challenges are expected to worsen further, workers cannot predict their financial requirements after retirement. Likewise, they influence the well-being of retired workers and their retirement-saving decisions (Ettner & Grzywacz, 2003). The impact will also be staggering, especially for those with low pre-retirement income (Brucker & Leppel, 2013; Kumar et al., 2019b). As a result, laborers should make vital financial decisions before retirement age and leave the workforce (Hershey, Jacobs-Lawson, & Neukam, 2002; Hershey et al., 1998) for themselves and their families.

Of late, PRSA has received more attention, given volatile changes in demographic and economic factors. These changes have demanded a comprehensive and exacting process in determining retirement income that involves financial and non-financial related actions and decisions such as identifying sources of income, assessing expenditures, and managing assets (Jiménez et al., 2019; Klapper & Panos, 2011; Mutembei & Elly, 2017; Topa, Lunceford, & Boyatzis, 2018a) and non-financial action such as the psychological factors side (Hershey & Mowen, 2000; Zaniboni, Topa, & Balducci, 2020). For example, economic scholars noticed the importance of a group of explanatory variables in psychology in retirement (García-Gallego, Ibáñez, & Georgantzis, 2017). In the same vein, psychologists acknowledged the significance of finance (Taylor & Geldhauser,

2007; Topa et al., 2011) in improving the explanatory scope of theoretical frameworks for PRSA.

Generally, PRSA has been the subject of numerous discussions: economics, accounting, finance, health care, housing, social and interpersonal relationships, post-retirement work, and recreation (Gutierrez & Hershey, 2016). Extant literature showed that PRSA was influenced by leisure and entertainment opportunities (Scherger, Nazroo, & Higgs, 2011), financial freedom (Neukam & Hershey, 2003), life satisfaction (Wang & Shultz, 2010), financial security (Miron-Shatz, 2009), quality of housing and property (Gibler & Taltavull, 2010), gender differences (Topa, Segura, & Pérez, 2018b) and propensity to spend more time on financial plans (Ameriks, Caplin, & Leahy, 2003). Therefore, PRSA is seen as a complex, multidisciplinary task, which makes its study even more important financially, economically, psychologically, socially, and personally (Muratore & Earl, 2015; Topa, Moriano, & Moreno, 2012).

Therefore, the lack of PRSA became a worrying phenomenon (Lusardi & Mitchell, 2007c, 2011c), especially with numerous changes in lifestyle and standard of living and the removal of additional supports such as medical insurance provided by employers (SAMA Cares, 2018). In short, PRSA plays a significant role in steering and fostering their financial well-being after they stop working, as their retirement income will more likely not be the same as during their working time (Schuabb, França, & Amorim, 2019).

1.3 Problem Statement

Planning for saving and investing adequate funds after retirement is a challenge for employees (Baker & Ricciardi, 2014). Research has recently shown that a number of issues have arisen in financial decision-making, especially in perceived retirement saving adequacy (Brüggen et al., 2017), as a result of the aging population, workforce, financial illiteracy, debt, and so on. Hence, the need for PRSA in order to ensure a financially secured post-retirement becomes eminent as the birth rate decreases (Poole & Wheelock, 2005) and population aging increases.

Many industrialized and developing countries are worried about aging populations (Henkens, 2022; Scharn et al., 2018; Yeung & Lee, 2022). The United Nations Department of Economic and Social Affairs/Population Division (2017) indicated that over 13% of the world's population would be 60 or older by 2017. The number is expected to reach 1.4 billion by 2030 and 2.1 billion by 2050. Similarly, the World Health Organization (WHO) in 2015 reported that the increasing numbers in the labor force and the aging population had caused a spike in retirees (Schuabb et al., 2019). According to Tan and Singaravelloo (2020), declining birth rates and growing life expectancies result in an ever-increasing proportion of older people.

To be more specific, the median age of people living in developed economies, as well as developing economies, has been rising steadily over the past few decades. In 2003, it was 29 and 24 years old; by 2050, it is expected to be 45 and 36 years old, respectively (Bongaarts, 2004). From 1960 to 2017, the average life expectancy in the United States rose from 69 years to almost 79, while in Saudi Arabia, it rose from around 45 years to nearly 75. The life expectancy of various developed and developing nations is shown in

Table 1.1, with developed economies having a higher life expectancy than developing economies.

Table 1.1 Life Expectancy at Birth

	Life Expectancy			Life Expectancy	
Industrialized Countries	**1960**	**2019**	**Emerging Countries**	**1960**	**2019**
Australia	70.82	82.90	Argentina	65.00	76.67
Canada	71.13	82.05	Brazil	54.14	75.88
Germany	69.31	80.94	China	43.73	76.91
Denmark	72.18	81.20	Algeria	46.14	76.88
Spain	69.11	83.49	Mexico	57.08	75.05
United States	69.77	78.79	Malaysia	59.99	76.16
Italy	69.12	83.20	Saudi Arabia	45.64	75.13

- Source: World Bank (2022)

What makes the situation even worse is that long-term life expectancy significantly affects the retirement saving adequacy of individuals and policymakers. Individuals living longer could put their pensions at risk and hurt their chances of having enough money and a good life after they retire. As more employees who contributed to pension funds become retirees, a reduction of the funds is expected. Such reductions in the pension funds have resulted in a gradual transition of retirement pension provision of individuals from the government to individual workers instead (Fuente & Domenech, 2013; Lytle, Clancy, Foley, & Cotter, 2015; Topa & Herrador-Alcaide, 2016).

Another worrying trend due to long-term life expectancy is an individual's lower average real income over time (Chetty et al., 2016; Y. Li et al., 2018), implying insufficient financial resources when one decides to retire (Schuabb et al., 2019). Such a situation has been observed by the Living Conditions Survey (LCS) conducted among the Spanish, which revealed that contribution to individual retirement accounts between 2008-2015 declined by almost seven percent due to the minimization or cessation of

payments to retirement accounts by the low and middle-income groups(Vivel-Búa, Rey-Ares, Lado-Sestayo, & Fernández-López, 2019).

Tables 1.2 and 1.3 below reveal individuals' income and inflation rates for several developed and undeveloped countries. The tables show that the annual income per capita kept increasing in Argentina, the USA, and China. However, income peaked and went down in other countries such as Australia and Canada. A different trend was observed in Saudi Arabia, where the annual individuals' income and inflation rate fluctuated from year to year. Saudi households' disposable income increased from 2011 to 2014, primarily due to a rise in oil prices, which caused a positive impact on household income and increased the availability of jobs in both the government and private sectors. During the same period, the inflation rate fluctuated. Data released by the General Authority for Statistics on the average prices of goods and services in the Saudi market for September 2019 showed a decline in the prices of 65 goods and services, while the rise in the prices of 94 commodities and other services out of a total of 166 goods and services. The following year, the inflation rate has risen dramatically, leading to a rise in some goods and services. This rise in prices could influence individuals' ability to purchase in the future, especially for poor and retired people.

Although financial institutions have introduced financial instruments and services that help individuals bridge the gap between working-life income and future post-retirement income, these instruments remain illusory to many. Individuals have avoided these instruments due to the difficulty and computational complexity associated with financial instruments, which expect a priori financial knowledge and experience (Hershey et al., 2012). Studies showed that high financial knowledge is a prerequisite to keeping

an individual safe and more assured about the PRSA he carries out (Lusardi & Mitchell, 2014; Palací, Jiménez, & Topa, 2018).

Aside from the fact that people are living longer after they retire, there are other factors that are making it harder for pension fund managers and policymakers to come up with an acceptable plan. A known obstacle pension fund managers face is finding ways to advise retirees and employees who lack confidence in their financial literacy (Kramer, 2016). The pension institutions' economies have also been shown to become weaker over time due to the increasing number of retirees (Helman, Copeland, & VanDerhei, 2011; Palací et al., 2018), forcing the designing of pension financing systems a challenge (Hershey et al., 2012) and putting more burden on the individuals to plan and save for their own.

In Saudi Arabia, the Public Pension Agency (PPA), for example, reported a deficit in the military retirement account amounting to SR 13.63 billion in 2017 (Shahin, 2018). While in 2016, the deficit in the civil retirement account amounted to SR 2.41 billion for the first time. The deficits forced the Saudi government to sell assets to pay back the debt; the total existing assets were expected to be consumed by 2021 if the military account remained unchanged (Shahin, 2018).

Table 1.2 Adjusted Net National Income Per Capita (Current US$)

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Australia	26280	27559	30843	37366	32979	39980	47843	52881	52930	48159	43915	38660	41489	43345
Canada	29560	32804	36272	37736	32884	38427	42190	42696	42650	41308	35162	34201	36802	37653
Denmark	40328	43126	47964	52149	47491	47972	51244	48825	51809	53772	45664	45928	48267	52641
Italy	27098	28290	31685	33639	30490	29460	31386	28361	28810	28875	24511	25361	26537	28832
USA	37620	39791	40673	40434	39399	40912	42551	44822	45735	47838	49173	49478	51485	53497
Argentina	3794	4894	6112	7608	6956	8810	11009	11250	11255	10607	12003	11006	12366	9631
Brazil	3970	4890	6113	7246	7271	9337	10987	10327	10415	10187	7447	7406	8397	7483
China	1409	1679	2132	2652	3012	3459	4124	4771	5263	5754	6092	6164	6568	7709
Mexico	6510	7160	7598	7807	6277	7363	7857	7887	8243	8516	7592	6872	7217	7447
Malaysia	4045	4605	5469	6332	5535	6805	7940	8140	8371	8612	7572	7531	7804	8180
KSA	*10518*	*11769*	*12905*	*15287*	*13360*	*15775*	*18570*	*19716*	*19475*	*19451*	*16862*	*16349*	*17074*	*18798*

- Source: World Bank (2018)

Table 1.3 Inflation Rate (%) Based on Average Consumer Prices [1]

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia	2.7	3.6	2.4	4.3	1.8	2.9	3.4	1.7	2.5	2.5	1.5	1.3	2	1.9	1.6	0.9	2.8
Canada	2.2	2.0	2.1	2.4	0.3	1.8	2.9	1.5	0.9	1.9	1.1	1.4	1.6	2.3	1.9	0.6	1.3
Denmark	1.7	1.8	1.7	3.6	1	2.2	2.7	2.4	0.5	0.4	0.2	0	1.1	0.7	0.7	0.3	1.9
Italy	2.2	2.2	2	3.5	0.8	1.6	2.9	3.3	1.2	0.2	0.1	-0.1	1.3	1.2	0.6	0.1	0.6
USA	3.4	3.2	2.9	3.8	-0.3	1.6	3.1	2.1	1.5	1.6	0.1	1.3	2.1	2.4	1.8	1.5	2.8
Argentina	9.6	10.9	8.8	8.6	6.3	10.5	9.8	10	10.6	no data	no data	no data	25.7	34.3	53.5	42	48.4
Brazil	6.9	4.2	3.6	5.7	4.9	5	6.6	5.4	6.2	6.3	9	8.7	3.4	3.7	3.7	3.2	8.3
China	1.8	1.5	4.8	5.9	-0.7	3.3	5.4	2.6	2.6	2	1.4	2	1.6	2.1	2.9	2.4	0.9
Mexico	4.0	3.6	4.0	5.1	5.3	4.2	3.4	4.1	3.8	4.0	2.7	2.8	6.0	4.9	3.6	3.4	3.3
Malaysia	3	3.6	2.0	5.4	0.6	1.7	3.2	1.7	2.1	3.1	2.1	2.1	3.8	1.0	0.7	-1.1	2.4
KSA	0.6	2.3	4.1	9.9	5	5.4	3.9	2.9	3.6	2.2	1.2	2	-0.8	2.5	-2.1	3.6	3.7

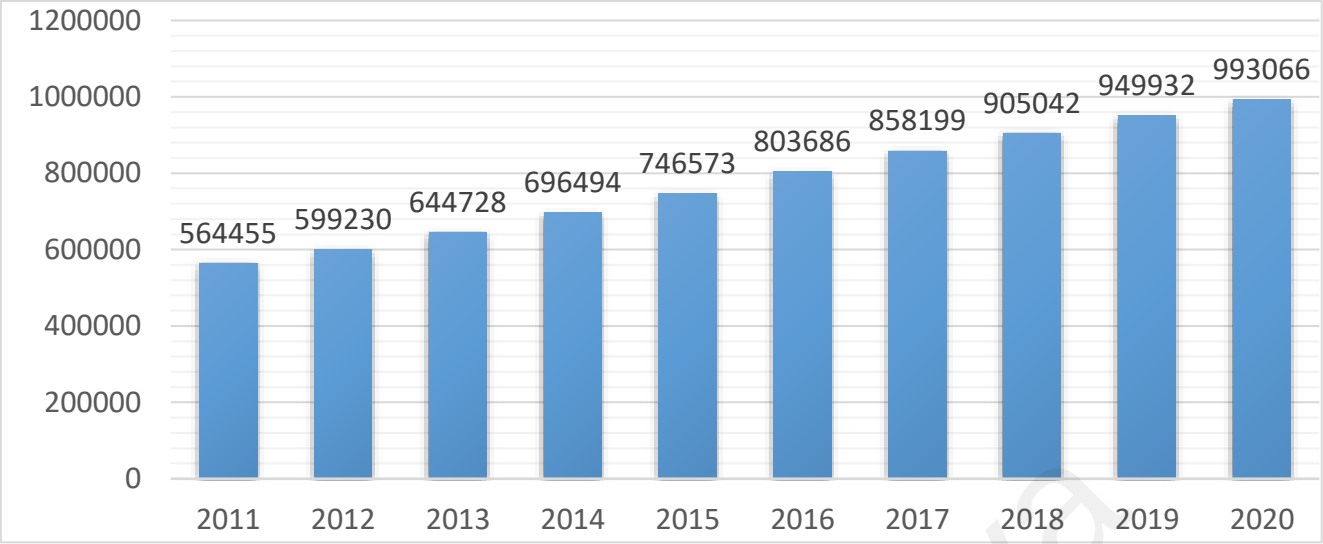
- Source: *International Monetary Fund* (2021)

[1] Annual percentages of average consumer prices are year-on-year changes.

Besides the impending aging population, the need for PRSA to be financially secure post-retirement becomes more eminent with the increase in the number of retirees due to the hike in workforce numbers. This trend is significant for a country such as Saudi Arabia, which is becoming one of the fastest-growing economies in the Middle East (Barbuscia, 2018). According to the General Authority for Statistics (GAS), the workforce in Saudi has increased tremendously from 4,456,467 to 6,086,786 workers between 2010 to 2018. Further, around 46% of Saudi Arabia employees retire early, between 45 and 55, while 10.8% of employees retire between 40 and 45 (Public Pension Agency, 2019). Similarly, according to the annual report released by PPA (2020), the number of retirees had reached 993 thousand by the end of 2020, compared with 950 thousand by the end of 2019, an increase of 44.9 thousand. Table 1.4 and Figure 1.1 below illustrate how the number of retirees in Saudi Arabia changed between 2011 and 2020. According to the Australian Bureau of Statistics (2020), a similar trend has been observed in other nations, the number of retirees has increased to 3.9 million at the end of 2019, up from 3.6 million at the end of 2017.

Table 1.4 Retirees Number between 2011 to 2020 in Saudi Arabia

Year	Number of Retirees	Change	
		Number	Ratio
2011	30,128	-2,871	%-8.7
2012	34,775	4,647	%15.42
2013	45,498	10,723	%30.84
2014	51,766	6,268	%13.78
2015	50,079	-1,687	%-3.26
2016	57,113	7,034	%14.05
2017	54,513	-2,600	%-4.55
2018	46,843	-7,670	%-14.07
2019	44,890	-1,953	%-4.17
2020	43,134	-1,756	%-3.91



Source: Public Pension Agency (2020)

Figure 1.1 Total Retirees Numbers in Saudi Arabia

This growth expectedly will raise those in the retirement bracket in the near future compared to the past (Jacobs-Lawson & Hershey, 2003) and the time employees spend in the post-retirement period (Henkens et al., 2018). In other words, there will be a massive number of retirees in the future. This growth in the number of retirees raises a multitude of challenges. One of these challenges is increased government spending on retirees. According to the literature, expenditures on retirees in Saudi Arabia are expected to rise from 2.2% to 7% of the GDP by 2050 (Diaw, 2017a) in light of the decline in revenues of the Public Pension Agency (Shahin, 2018). According to the PPA annual report (2020), the total amount spent on retirees by the end of 2020 was approximately SAR 936 billion. Table 1.5 below highlights the total amount paid by PPA to retirees during the last years.

Table 1.5 Cumulative Total Expenditures by PPA on Retirees

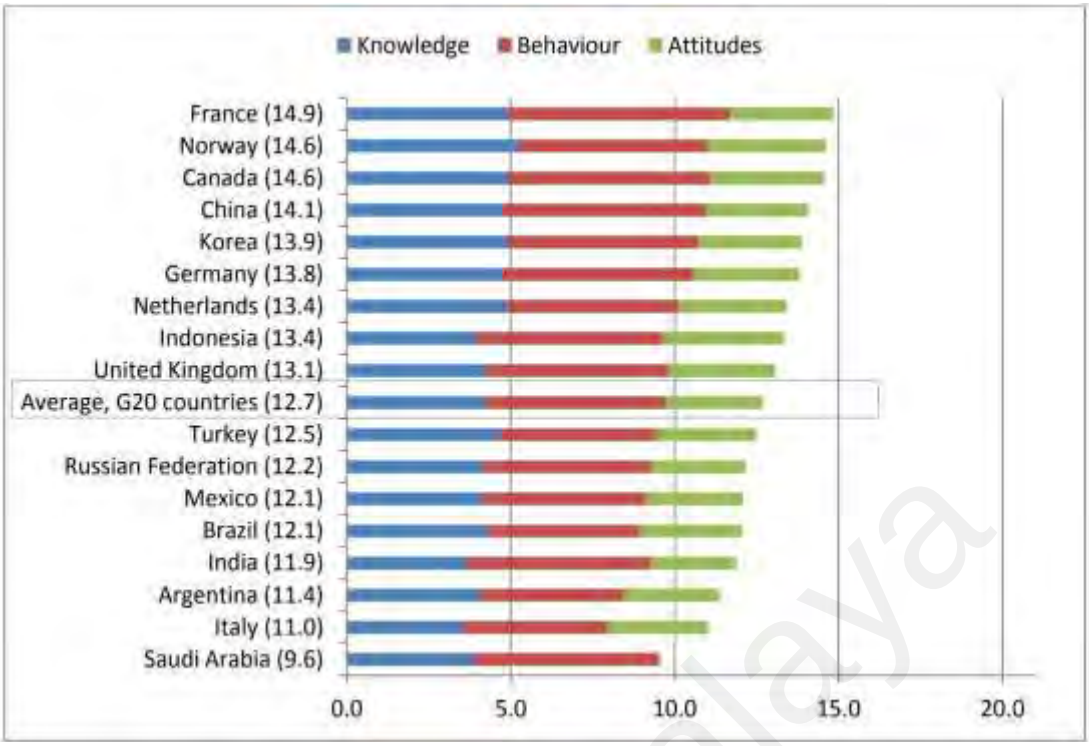
Year	Cumulative Total Expenditures in Saudi Riyal	Change	
		Number	Growth Rate (%)
2012	410,829	44,588	15.5
2013	456,141	45,312	1.6
2014	506,288	50,147	10.7
2015	561,185	54,898	9.5
2016	627,103	65,914	20.1
2017	694,928	67,825	2.9
2018	774,538	79,610	14.4
2019	852,768	78,230	-1.7
2020	935,980	83,212	6.4

Besides the increase in the number of future pensioners, anecdotal evidence also showed that changes in demographic factors (e.g., less-educated individuals and growing social inequalities) (Rooij, Lusardi, & Alessie, 2011a; Schuabb et al., 2019)of the workers further exaggerate the issue faced by the government in providing financial security to the working and aged residents (Jacobs-Lawson & Hershey, 2003). Similarly, changing psychological (e.g., less financial risk tolerance) (Neelakantan, 2010) and economic factors (e.g., low income and saving) (Hershey et al., 2012; Palací et al., 2018) also increase the burden on policymakers on how to improve the financial well-being of employees. This results from respondents being less likely to plan and save for retirement. These increase an additional layer of uncertainty and challenge the effectiveness of retirement financial planning.

The low level of financial literacy is another reason for supporting PRSA's need to provide financial security after retirement (Hershey et al., 2010). This has been demonstrated to be frequent among workers worldwide (Boisclair et al., 2017; Klapper & Lusardi, 2020). Among the G20s, according to the Organization for Economic Co-operation and Development (OECD) (2017), Saudi Arabia had a low degree of financial literacy, as shown in Figure 1.2 below. Likewise, among the Middle Eastern countries, Saudi adults were ranked lowest (31%) among high-income economies (Lyons & Kass-Hanna, 2021) compared to Israel (68%), Kuwait (44%), Bahrain (40%), and UAE (38%).

This outcome is matched by other research that looked at financial literacy among young adults (R. Z. Khan & Tayachi, 2021), undergraduate students (Alyahya, 2017; Hamdan Alghamdi, McGregor, & El-Hassan, 2021), and investors (Mian, 2014) in Saudi.

An earlier study found that only 11% of adults make a plan for how they will spend their money, despite the fact that 75% of young people have access to information on how to manage their financial resources (Al-Ghabri, 2013) properly. Another study showed that only 39% of Saudi respondents knew flat rates (LLC, 2015), which is an essential aspect to consider when choosing a mortgage or a personal loan from a financial institution. Moreover, an earlier local study by Mashari (2011) noted that planning for retirement in all aspects was low. He proposed new plans and programs to reduce retirees' problems, including raising awareness among staff about the importance of retirement planning and its role in securing their future and training employees on retirement planning skills.



- Source: OECD (2017)

Figure 1.2 Financial knowledge, Attitudes, and Behavior

Notwithstanding longevity and widespread financial illiteracy around the world, the need for PRSA to financially secure life after retirement is also due to too much debt among workers, low level of mortgage decisions, and other financial problems (Kumar et al., 2019b). Butrica and Karamcheva (2020) and Bédard and Michaud (2021) discovered that household debt, mortgage debt, and student loan debt as income ratios had increased significantly in recent decades. Similarly, according to the Central Bank of Saudi Arabia, while the country's average per capita income has increased by 170% over the past 19 years, the average annual debt per capita has significantly increased by 1500% (Amri, 2018; SAMA, 2017). This outcome has indicated a considerable increase among individuals in indebtedness during the years that have been recorded. This increase in debt levels may financially impact retirees; thus, employees must be mindful of debt risk to prevent being indebted in the future.

A report by the International Monetary Fund in 2019 highlighted that besides a high household debt, loans, and debt securities as a percentage of GDP among developed countries, statistics also indicated that the Saudis were the highest borrowers for personal loans than Gulf Cooperation Council (GCC) countries. Banks' borrowings to Saudi individuals dramatically increased from 19,571 billion S.R. in 1998 (SAMA, 2017) to 464 Billion S.R. in Dec 2017 (Amri, 2018). In other words, the average annual debt per capita increased from SR 1,379 to SR 22,176 between 1998 and 2017. Analogous indebtedness cases were also revealed in developed and undeveloped countries (Barba & Pivetti, 2008; Betti et al., 2007; Debelle, 2004; Girouard et al., 2006).

In addition to the challenges individuals face regarding their retirement discussed earlier, the staff at Saudi public universities face another obstacle. Based on the Saudi Vision 2030, despite the fact that the private sector in Saudi Arabia plays a crucial role in the gross domestic product (GDP), it only accounts for less than 40% of GDP in Saudi Arabia, which is questionable. The Saudi government is intended to create new investment possibilities and competition in education and remove any barriers that impede the private sector from contributing more to the development of education in the long run. In this way, the private sector can offer services currently provided by the public sector in the field of education. Through this action, the government can lower the expenditures on a pension and enhance the economy's GDP to expand the private sector's contribution. The effect would extend to the Saudi public universities and their employees, who would experience a wide change in their pension retirement planning.

According to the Saudi Vision 2030 report, the education sector, which employs over 48% of Saudi Arabians subject to pension retirement planning, is undergoing privatization rather than remaining part of the Saudi public sector. Consequently, the rules

subject to employees in the education sector, particularly for academic and non-academic staff, are expected to affect employees' pension retirement planning. Yet, it is unclear how the change in the education sector would be affected in terms of the defined benefits planning provided by the public sector and the defined contribution planning, usually provided by the private sector. When universities specify some retirement payments under the government's control for the benefits of employees (academic or non-academic), the defined-contribution plan allows employees to contribute and invest in funds or securities over time to save some amounts for retirement. The problem statement configuration is illustrated in Figure 1.3 below.

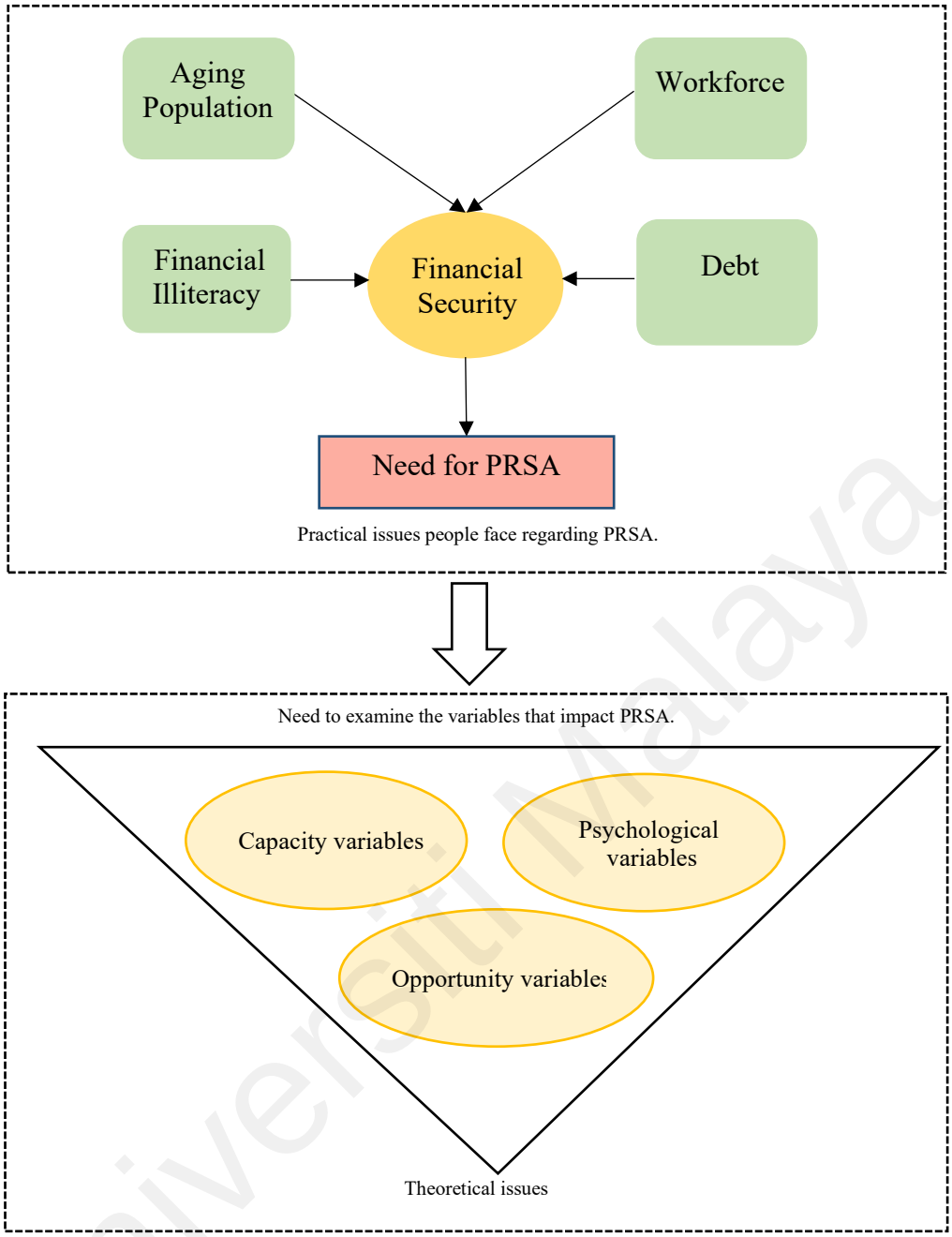


Figure 1.3 Problem Statement Configurations

1.4 Research Questions

The discussion above shows that understanding the variables outlined above is essential in understanding the factors that shape employees' perceived retirement saving adequacy in Saudi Arabia. Therefore, the subsequent study questions are formed:

RQ_1: Do basic financial literacy, advanced financial literacy, and self-efficacy influence PRSA among staff at Saudi government universities?

RQ_2: Do retirement goal clarity and financial risk tolerance influence PRSA among staff at Saudi government universities?

RQ_3: Do assets ownership and debt influence PRSA among staff at Saudi government universities?

RQ_4: Does culture moderate the relationship between capacity, willingness, opportunity variables, and PRSA?

RQ_5: Does government policy moderate the relationship between capacity, willingness, opportunity variables, and PRSA?

1.5 Research Objectives

The study's principal objective is to examine the potential driving variables that shape employees' perceptions in Saudi government universities regarding PRSA practices. In particular, the aims of this research are as follows:

RO_1. To examine the impact of basic financial literacy, advanced financial literacy, and financial self-efficacy on PRSA among staff at Saudi government universities.

RO_2. To examine the impact of financial risk tolerance & retirement goal clarity on PRSA among staff at Saudi government universities.

RO_3. To examine the impact of assets ownership and debt on PRSA among staff at Saudi government universities.

RO4. To determine the moderating effect of culture on the relationship between capacity, willingness, opportunity variables, and PRSA.

RO5. To determine the moderating effect of government policy on the relationship between capacity, willingness, opportunity variables, and PRSA.

1.6 Significance and Motivation of the Study

The current study focuses on determinants of perceived retirement saving adequacy, which entail better life quality for retirees. It examines whether capacity, psychological, and economic variables influence employees' retirement saving decisions. Examining and projecting the determinants are essential because perceived retirement saving adequacy offers obvious and compelling benefits in a worker's life. The overall significance is to provide policymakers with information that may help Saudi individuals plan and save adequately for their future. Furthermore, the present study examines the moderation roles of culture and government policy on the relationship between the variables and PRSA. This section sheds light on the benefits and significance of this research, organized into three categories: theoretical, contextual, and practical significance.

1.6.1 Theoretical Significance

This research aims to broaden the existing literature on PRSA by assessing factors that could affect individuals' perceived retirement saving adequacy from a multi-perspective (Topa et al., 2018a). In particular, the study enhances the knowledge about

how capacity, psychological, and economic variables would affect retirement saving adequacy. This can be done by incorporating variables from various fields into a single model to study workers' preparation for retirement savings. When this is done, it is simple to see how these factors motivate the respondents to plan and save for retirement, which in turn helps to ease the difficulty they face before and after leaving their jobs (Palací et al., 2018).

This study examines two theoretical models: Life Cycle Hypothesis (LCH) and Intentional Change Theory (ICT), for evaluating individuals' perceptions regarding retirement saving adequacy. Scholars applied each theory independently to investigate different behaviors in various previous studies (Scott, Shoven, Slavov, & Watson, 2020; Yuliani & Adiandari, 2020). Combining LCH and ICT will give a more comprehensive understanding of retirement saving processes and related behaviors to retirement than each theory considered alone. LCH, in this case, provides the ideas, sensations, and instruments to explain, analyze, and predict interaction and relationships between planning and saving from one side and investing for retirement on the other side among individuals.

Meanwhile, ICT explains how employees intentionally change their consumption and saving behavior before retirement age. It has been adopted to examine leadership studies (Boyatzis, 2008; Boyatzis et al., 2015; Taylor et al., 2019), coaching studies (Jack, Boyatzis, Khawaja, Passarelli, & Leckie, 2013; Topa et al., 2018b) and is yet to be widely tested in personal financial planning.

Applying ICT in the retirement context predicts and comprehends the process of intentional change necessary for the employees to attain adequate financial preparedness

for their retirement. Recognition of the individuals' strengths and weaknesses cognitively and psychologically can be known by exploring their current behaviors, lifestyles, attitudes, and beliefs before or after retirement. Knowing these behaviors creates a "learning agenda" to align realism with Vision 2030. Once individuals are heading in the right direction to achieve their goals, they can apply their financial knowledge and skills to have new habits and attitudes. Based on the findings, a community can also encourage individuals to go through the intentional change process. In fact, ICT helps individuals determine the gap between who they are and what they want to be. In other words, do they have the financial knowledge and skills to achieve their financial hopes and aspirations in the future?

This theoretical approach provides excellent reasons and motives for researchers to apply multivariate interdisciplinary models to better understand the retirement saving process. This relationship may have considerable explanatory power in predicting future retirement preparedness behavior from a financial perspective.

Earlier studies illustrated that the relationship between financial literacy and retirement financial planning had been examined either based on basic (Boisclair et al., 2017; Moure, 2016; Ricci & Caratelli, 2017; Sekita, 2011) or advanced topics in finance (Almenberg, Säve-Söderbergh, & Save-Soderbergh, 2011; Brahmana, Puah, Hla, & Lestari, 2016; Crossan, Feslier, & Hurnard, 2011) or both (Rooij et al., 2011b). The results of these studies, however, were non-conclusive. This research contributes to the literature by adding four measurements: two for basic and two for advanced financial literacy, to determine which dimension impacts PRSA. Such measures would help future surveys assess the basic and advanced financial literacy relevant to retirement

preparation. Further, some of the questions for financial literacy were contextualized to conform to the knowledge regarding PRSA.

Recent literature focused on the moderating role of financial literacy (Bongomin, Ntayi, Munene, & Malinga, 2017; Tomar et al., 2021a) and psychological factors (Hoffmann & Plotkina, 2021) on the relationship between financial behavior and its antecedents across countries. The current research contributes to the literature by showing how culture moderates the relationship between them. Even though cultural values have been extensively researched in literature, most Personal Financial Planning (PFP) theories and studies ignore the possible influence of cultural values. Incorporating cultural values as a moderator could enhance PFP theories and the CWO model for PRSA.

Governments generally take action through legislation and regulations to address the impacts of financial and economic system deficiencies (Hao & Lu, 2018), like those that affect people's wealth and pensions (Fisher & Willis, 2012). Studies examining the impact of government policy are limited in assessing the impact on retirement age (OECD, 2015). This study examines government policy in terms of adequacy and guidelines. Based on the researcher's knowledge, this is the first study that has attempted to examine the moderation effect of culture and government policy in the relationship between psychological, economic, and capacity variables regarding perceived retirement saving adequacy among Saudi government university staff.

1.6.2 Contextual Significance

This study seeks to find empirical measurement among the employees of public education institutions in the financial planning of their retirement savings. In particular, it is expected that the grasp of the impact of capacity, psychological, and opportunity variables on individuals' attitudes and behaviors could be generalized to other workers that rely on a pension or similar retirement plans.

This study provides new insight into capacity, financial, psychological, and external factors that might determine the workers' PRSA behaviors. Previous research assessing the PRSA initial acceptance model is relatively recent and concentrated in developed countries (França & Hershey, 2018; Jiménez et al., 2019; Palaci, Jiménez, & Topa, 2017; Palací et al., 2018; Schuabb et al., 2019). Specifically, much has been written about retirement among government employees in developed countries. As detailed in Chapter 2, there is a lack of research in developing countries to understand how PRSA behaves financially, economically, psychologically, and socially. To the researcher's knowledge, there is a lack of studies on PRSA in Saudi Arabia. Only a few researchers (Diaw, 2017b; R. Z. Khan & Tayachi, 2021; Mian, 2014) examined financial planning activities, not retirement saving adequacy, among Saudi individuals. These studies tested it from a specific perspective.

Psychologically, for example, Diaw (2017b) examined the relationship between risk tolerance and retirement planning. Meanwhile, Alagran and BaSabrain (2004), Al-Mashari (2011), and Diaw (2017a) studied retirement preparation among individuals socioeconomically. Finally, what applies to Saudi Arabia could also be applied to other

Arab Muslim countries, given that they share the same belief, language, culture, customs, and traditions.

1.6.3 Practical Significance

The results of this study have indicated the influence of capacity (basic financial literacy and financial self-efficacy), psychological (retirement goal clarity), and economic partial of asset ownership (others) variables. Improving these variables enhances behavior savings among individuals. It is also seen as crucial for best practices and positive financial behaviors. For example, having financial knowledge and self-efficacy strengthens the need to promote planning among workers, pay down their debts to cover their post-retirement living expenses, and prepare them for a comfortable retirement.

These outcomes will be beneficial to decision-makers, particularly in two areas that affect employee preparation for retirement savings: structured finances for retirement and financial education related to retirement well-being. The results of this study could guide PPA to develop a pension system in accordance with the interests of retirees, particularly those who consider their level of financial preparedness to retire comfortably. Also, this framework is helpful for PPA in order to obtain insights into particular practices in promoting positive behavior that affects personal financial planning. Furthermore, the finding of this study could serve Saudi Vision 2030 by yielding information that is the foundation for the government to analyze and develop pension programs that allow employees to plan and make well-informed decisions regarding their retirement. Also,

the outcomes may indicate the level of reliance of the workers on government-related retirement policies for their later life well-being.

Simultaneously, the output of this study shall indicate the adequacy of the current financial education pertaining to retirement planning and savings. This shall not be limited to the knowledge and skills to plan for retirement savings but also the related psychological and economic preparedness to plan for future financial well-being after working properly. Also, the result can help construct courses for students and develop programs for employees that incorporate PRSA knowledge and motivation to clarify their future well-being goals. These encourage and stimulate future employees to have early and influential retirement saving adequacy.

1.7 Scope of the Study

This dissertation is a quantitative study that explores several variables from different areas that affect perceived retirement saving adequacy, including financial, economic, and psychological variables. Examining such variables made it possible to assess perceived retirement saving adequacy through two underlying theories: The Life Cycle Hypothesis (LCH), which is a financial planning theory, and the Intentional Change Theory (ICT), which is a psychological theory.

1.8 Definition of the Key Terms

The operational conceptual definitions are discussed below.

Perceived Retirement Saving Adequacy (PRSA)

The term "retirement saving adequacy" is used to describe whether or not the predicted amount of money available for retirement spending (including personal savings, private pensions, and Social Security) is sufficient to cover retirement expenses (Montalto, 2000). Meanwhile, “perceived retirement saving adequacy” refers to how much people have saved for retirement and is measured by the term "retirement saving adequacy." (Chou et al., 2015; Kemp, Rosenthal, & Denton, 2005). It provides a framework for how people view their financial freedom and limitations.

This study evaluates perceived retirement savings adequacy by inquiring about respondents' post-employment resource income. Likewise, it assesses PRSA by asking respondents how they intend to spend their retirement income and whether it is sufficient for their future personal needs.

Basic Financial Literacy (BFL)

It refers to the five core financial competencies as a prerequisite for daily financial operations: inflation, numeracy, money illusion, interest compounding, and time value of money (Rooij et al., 2011b). Current research aims to examine basic financial literacy from a similar perspective. Additionally, two items for basic financial literacy were adopted from the Public Pension Agency (2019) to measure basic financial literacy.

Advanced Financial Literacy (AFL)

This study deals only with knowledge regarding risk diversification, financial stocks and bonds, the function of the stock market, and the trade-off between risk and return. It explores awareness of complex financial instruments (Rooij et al., 2011b). Moreover, two advanced retirement financial literacy items that incorporated the pension practices of the Public Pension Agency (2019) were also included.

Financial Self-Efficacy (FSE)

This refers to a self-assessment of one's capacity to effectively manage one's own financial resources (Lown, 2011). This variable is calculated by combining a 10-item broad-scale adopted from (Schwarzer & Jerusalem, 1995) and a 2-item scale adapted from Health and Retirement Study (HRS) (2004, 2018a).

Retirement Goal Clarity (RGC)

This refers to the assessment of an individual's quality of life expectation beyond retirement, as defined by Zhu and Chou (2018). This study is intended to examine the clarity of retirement objectives from a similar perspective.

Financial Risk Tolerance (FRT)

Financial risk tolerance means "the maximum amount of uncertainty that someone is willing to accept when making a financial decision" (Grable, 2000).

Assets Ownership (AO)

This study assesses asset ownership by examining tangible assets (homeownership and transportation) because taking multiple measurements can yield more comprehensive results. According to Doss et al. (2017), asset ownership refers to

resources controlled by persons, households, or formal or informal groups. The tangible assets are identified by the value of the respondent's homeownership and transportation, which reflect the effect of the financial resources on retirement-decision.

Debt

Personal debt can take many forms, such as mortgages, banking, credit cards, or borrowing from friends and family members. The debt variable was measured by determining if the amount of a mortgage and only having a credit card loan taken out by an employee throughout their working years affects retirement savings adequacy.

Culture

Hofstede and Bond (1984) identified six dimensions of cultural values: individualism-collectivism, power distance, uncertainty avoidance, masculinity-femininity, short-term vs. long-term orientation, and restraint vs. indulgence. While research across cultures has focused on meaningful traits that distinguish societies and ethnic groups (Eckhardt, 2002), uncertainty avoidance and long-term orientation are essential for understanding how other cultures manage retirement savings adequacy.

Government Policy (GP)

According to OECD, government policies are rules supported by sanctions that aim to change the economic behavior of individuals and private-sector businesses. This study evaluates GP by asking respondents about the clarity and suitability of retirement regulations. In addition, GP is assessed by questioning them about the efficacy and sufficiency of the PPA regulations that stimulate PRSA among government workers.

1.9 Thesis Outline

This thesis contains six chapters. The introductory chapter presents the background of perceived retirement saving adequacy and the issues that made the study pertinent, more precisely, in Saudi Arabia. Next, the study explains the research questions and objectives and their significance. Lastly, a summary of this chapter is provided.

Chapter 2 reviews the literature on PRSA as well as ruminates on the theories that underlie this study. The chapter begins examining two theories: the life cycle hypothesis and intentional change theory, as the essential underpinnings that support this study's conceptual framework. The discussion of the CWO model comes after that. Next, the chapter reviews Saudi Arabia's pension system and Vision 2030. After that, it discusses the prior studies that investigated the study's variables in order to arrive at the hypothesis for the study. Finally, research gaps and conceptual framework are presented.

Chapter 3 presents the research methodology that comprises the research design, sampling design process, measurement scale development, quality control of research instruments, data collection process, data analysis process, and the final extent of researcher interference with the study. It also illustrates both the criteria for analyzing the measurement and the structural model for this research. The chapter elucidates the study population, the inclusion and exclusion criteria, the sample size, the unit of analysis, and the sampling techniques this study follows. Also, it exhibits how this study has developed its instruments as well as how they were validated. This includes adapting and adopting the proper research survey questionnaires, following back-back translation, conducting expert panels, and conducting the pilot study, which are the most necessary steps to develop the research measurements. In addition, it highlights the process for collecting

the required information. Likewise, it sheds light on the SEM technique and Smart-PLS software used for analysis.

Chapter 4 presents how this study analyzes the gathered data and obtains the outcomes. This chapter is split into four main sections: 1) preliminary data analysis, 2) descriptive data analysis, 3) assessment of the reflective and formative measurement model, and 4) assessing the structural model. The first section reveals the process of data preparation, which includes data screening, coding, and cleaning. Moreover, it reports the assessment process for normality, outliers, common method bias, and exploratory factor analysis. Section two focuses on assessing the profiles of respondents, determination of sampling weights, age of retirement and intention to work after retirement, and source of income for retirement. Section three focuses on assessing the reflective measurement model, which displays internal consistency reliability, convergent validity, and discriminant validity results. Likewise, it focuses on the assessment of the formative measurement model, which shows the finding of collinearity issues and the significance and relevance of formative indicators. Lastly, the last section concentrates on evaluating the structural model, which presents the results of lateral collinearity, path coefficient, effect size, predictive power, moderating effect, and multigroup analysis.

Chapter 5 reviews and summarizes the results and findings from chapter four.

Chapter 6 states the study's implications academically and practically. Likewise, it shows the limitations as well as provides recommendations for future investigations.

CHAPTER 2

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Introduction

This chapter provides an overview of the theoretical frameworks that underpin the models: the Life Cycle Hypothesis and Intentional Change Theory relative to retirement planning and saving studies. An overview of the primary research model, the Capacity-Willingness-Opportunity (CWO), is also presented. It then discusses the Saudi pension system and its Vision 2030, followed by study variables based on literature from a variety of domains, such as finance, economics, psychology, and social studies. The chapter concludes with research gaps, an overview of the conceptual framework, and a summary of the chapter.

2.2 Theoretical Framework

Retirement decisions affect many aspects of someone's life, from planning and saving for the future to consuming the financial resources available in retirement. Given the complexity of retirement planning, the researchers have approached it from various angles resulting in many theories underpinning their studies. This section starts with a summary of the leading theory underlying this study, the Life Cycle Hypothesis. Following this, the section discusses the Intentional Change Theory, which serves as the theoretical foundation for the CWO model that the study employs to examine the PRSA

among Saudi government employees. Additionally, hypothesis development is discussed accordingly.

2.2.1 Life Cycle Hypothesis (LCH)

The primary theoretical support for the existing research is the Life Cycle Hypothesis (LCH). During the 1950s, Franco Modigliani and Richard Brumberg collaborated on the development of this economic theory to explain a better way to spend and save money during a lifetime. It explains how debt increases among individuals and families over time and how people may ultimately plan for their future financial affairs to consume their financial resources over their lives (Modigliani, 1963) that extend beyond working years. The key concept behind this theory related to PRSA is that it elucidates the significance of spending and saving for retirement at various ages in order to provide a higher quality of life in retirement (Lyons & Neelakantan, 2008; Wolff, 1981).

This theory assumes that a person lives through three periods: young (school phase), adulthood (work phase), and old age (retirement phase) (Pistaferri, 2009; Tan & Folk, 2011), and it summarises the future results of the behavior of these three groups. During youth age, incentives and motives for saving and planning for retirement are almost non-existent due to a lack of ability to generate financial resources. It indicates that adults borrow money to fund their current spending, assuming that future financial resources will cover their debt. As wealth grows through the working phase, they start repaying the debt and saving for retirement once the loan is paid off. In old age, without the ability to work, individuals use the savings made during their middle-aged years. With

these assumptions, the hypothesis recommends that people reduce and pay off their debt as they approach retirement to ensure ample savings after leaving the workforce.

Consistent with the LCH, the literature highlights the relationship between credit card holders and PRSA. For instance, Pottow (2012) discovered that aged borrowers used credit cards more than 50 percent compared to younger borrowers, leading aged borrowers to bankruptcy filings compared to the younger ones. However, Lee et al. (2007) noticed a positive relationship between credit card holders and young people, while negative relationships were with those aged 65 and over. This result is clearly explained by Baek and Hong (2004), who maintained that aged people were less consumer debt and credit card debt holders than young participants in the relationship between age and debt. This trend (Lusardi et al., 2019) offers significant consequences for retirement security.

Likewise, the literature highlights some studies that have examined related psychological determinants in relation to retirement savings. Al-Ajmi (2008), testing the assumption of LCH on adults, found that due to risk aversion, they can recover financial losses through time by increasing working hours to compensate for the losses they faced. Other studies by Jianakoplos and Bernasek (2006), Faff et al. (2009), and Gilliam et al. (2010) also concluded that aged participants were less risk-tolerant than younger ones.

The theory has been employed to explain the determinants of retirement savings among people. Lin (2007), Fitri Mansor et al. (2015), Ekici and Koydemir (2016), and Jiménez et al. (2019) revealed that the relationship between age and PRSA was positive, where older people were more interested in financial planning than adults as they had more opportunities to plan with the available savings. Another reason behind this interest

among older people in PRSA could be the differences in the level of workers' awareness about the strength of pension systems (Budowski et al., 2016) or disparities in education levels among groups (O'Shea et al., 2014), which distinguishes each group on how to manage financial assets. A study by Kotlikoff and Summers (1981) examined saving behavior among participants and recommended them to save in early life by achieving lifetime needs through saving and consumption practices. The authors found that social security was positive with financial welfare among aged people.

Even if the evaluation of one's life needs in retirement is often based on LCH (Yuh, Montalto, & Hanna, 1998), undoubtedly, there are increasing discounted utilities throughout the life cycle, given the uncertainty of the market and the economy as a whole. Thus, based on these assumptions, these hypotheses predict that any unexpected change in financial resources made during one's lifetime will affect the future outcomes of his or her life (Begley & Chan, 2018). For instance, in situations where the expected future income is not able to provide the expected money flow during retirement due to living too long, being laid off, or experiencing poor health. In this case, households may be forced to be out of the labor market, resulting in retirement earlier than expected. This means they have to save extra money to deal with adverse events after retirement.

2.2.2 Intentional Change Theory (ICT)

If the Life-Cycle Hypothesis (LCH) describes changes in a person's behavior during a person's whole life, Intentional Change Theory (ICT) explains the process by which people move easily from undesirable to desired behavior. ICT was developed by Boyatzis (2006) and described the five steps necessary for the desired change of

behaviors, thoughts, feelings, and perceptions in individuals' actions, behaviors, or competencies. The five steps are determining the ideal self, discovering the real self, creating a learning agenda by identifying one's strengths and weaknesses and recognizing the disparities between their ideal and actual self, practicing the new skills to become adapt to ideal situations, and having resonant supportive relationships with others who can assist them with fostering their new skill sets and behaviors (Boyatzis, 2019).

Since sustainable behavioral change is often intentional, a solid foundation in ICT helps understand the critical processes that encourage changes in a person's perceptions, thoughts, and behaviors (Boyatzis & Cavanagh, 2018). The theory excels in explaining sustained and desired change by elucidating the stated intent of adaptation, learning, and change (Boyatzis, 2006). According to the author, the ICT framework has been frequently used to explain the desired change in individuals (Baranski et al., 2020; Zampetakis et al., 2009) and social organization levels (Forcadell & Aracil, 2021; Van Oosten, 2006).

In the context of PRSA, the ICT framework can be elucidated by an example of someone who intends to have a desired financial well-being during retirement. After assessing expectations and capabilities, it is essential that he specifically prepares for several sustained desired changes and makes several decisions necessary to achieve the desired goal (Topa et al., 2018a). As evidenced by the literature, the CWO model is subject to change because individuals' lives alter through time, which adaptation, awareness, and modification can be explained intentionally.

In the context of the CWO model, the ICT framework is a multi-level model that encourages researchers to investigate a sustainable change in one's behavior (Boyatzis, 2006) based on capacity, psychological, and economic variables. ICT explains this evolution of individual life (Boyatzis, 2006). ICT and its components clarify the crucial first discovery on the path to sustained. Other significant ICT components are resonant relationships and trust that help an individual find an update in a way that replicates their dream and progress towards it (Topa et al., 2018a). This study posits that combining ICT with the CWO model (Hershey et al., 2012) will improve knowledge of the PRSA process, antecedents, and results (Boyatzis, 2019; Topa et al., 2018a). Hence, it will increase the ability of individuals to plan and save for a decent life after retirement.

Undeniably, many studies have examined retirement planning. A few of them investigated retirement intention (Kerr & Armstrong-Stassen, 2011), employing the Theory of Planned Behavior (TPB), a renowned theory on behavioral intention. In the financial behavior context, TPB has been applied, for example, to the behavioral intention of investment decisions (Pascual-Ezama et al., 2014), credit card and saving management (Kimiyaghalam et al., 2017; Shim et al., 2009), mortgage behavior (Bansal & Taylor, 2002), and debt management (Xiao & Wu, 2006).

Notably, the studies that have applied the ICT examining behavior on PRSA studies will not fail to examine vital points in behavioral change. First, the ICT framework considers psychological, environmental, or economic variables that are part of behavioral intention that could impact individuals' intention to do financial planning (Topa et al., 2018a). Moreover, the authors proved that ICT considered the change in behavior over time and did not ignore the time between a person's intention and actual behavior. However, TPB did not consider these points (LaMorte, 2019).

2.3 Capacity-Willingness-Opportunity (CWO) Model

Hershey et al. (2012) developed a revised version of the model called the "Capacity-Willing-Opportunity Model" (CWO) for work performance, as developed by Blumberg and Pringle (1982), for use in financial planning for retirement investigations. This model is the only one that, from a theoretical standpoint, takes into account the primary components identified in empirical research (Hershey et al., 2007b; Hershey & Mowen, 2000). The CWO model is made up of three different dimensions. First is capability, which comprises perceptual characteristics and retirement planning (Topa et al., 2018a), such as an individual's knowledge, experience, and skills (Hershey et al., 2012). These factors assist in differentiating people's capacities in terms of the knowledge and skills necessary for retirement planning, including saving and investing.

The second dimension is willingness, which includes the motivational, psychological, and emotional factors that push individuals to plan and save for retirement. Financial risk tolerance, perception of social customs and norms, level of retirement anxiety, and retirement goal clarity are some of the variables that constitute this dimension. The opportunity is considered the third dimension, which includes external factors that impact retirement financial planning behavior (Topa et al., 2018a). Financial planners, social support, and the retirement savings program are all examples of environmental opportunity variables that impact PRSA for people, as illustrated in Figure 2.1 (Topa et al., 2018a). Empirically, only Palací et al. (2017; 2018) and Jiménez et al. (2019) applied the CWO model in Spain.

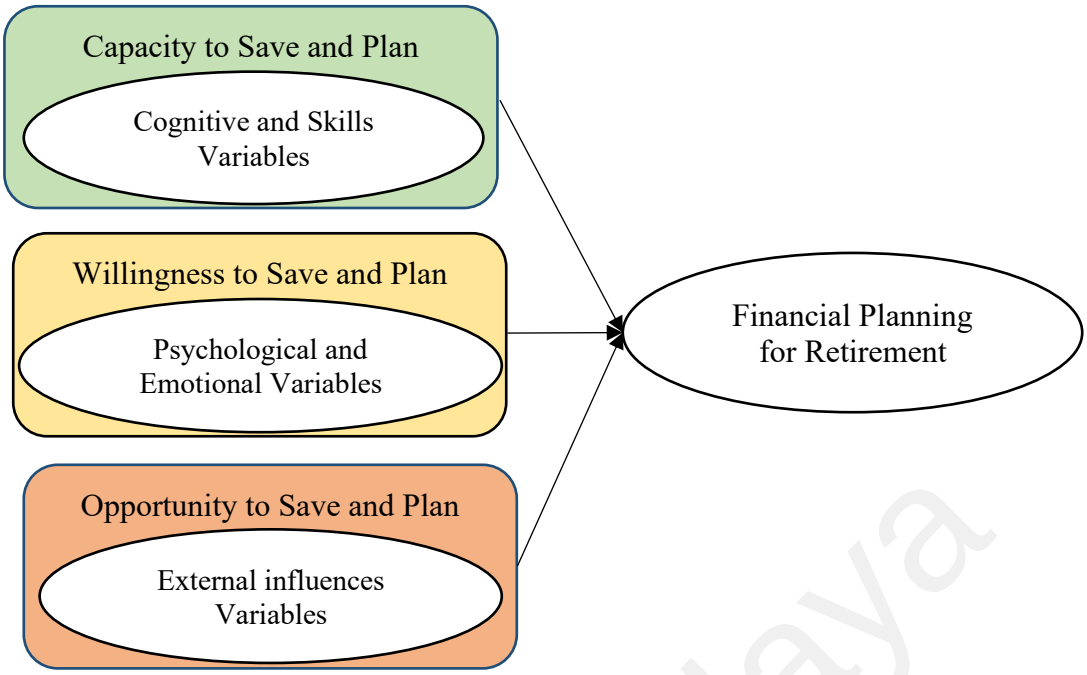


Figure 2.1 CWO Conceptual Model for Hershey Developed by Blumberg and Pringle 1982 (Topa et al., 2018a)

Palací et al. (2017) examined the CWO model in two different studies to see the influence of parental economic socialization on PRSA directly and indirectly mediated through financial literacy, a decision about PRSA, and financial management. The findings showed that the relationship between parental economic socialization and PRSA directly was significant. In the same vein, it highlights the role of mediation between the three variables. Palací et al. (2018), on the other hand, employed a longitudinal data analysis to examine PRSA in two different periods. The findings confirmed that financial literacy, confidence in retirement, and financial well-being are positive and significant with PRSA. The study by Jiménez et al. (2019) on PRSA among Spanish workers examined the influence of capacity, psychological, and external variables on PRSA practice. They found that all variables under model dimensions – capacity, willingness, and opportunity – were predictors of retirement financial planning, except investment advice was nonsignificant but positive with PRSA. The authors came to the conclusion that the CWO model is one of the finest conceptual models to evaluate financial planning

for retirement after doing research on a variety of variables pertaining to retirement saving habits from a variety of fields. The model allows them to analyze the PRSA behavior, particularly the interplay of numerous factors (Topa et al., 2018a) at one point in time.

There are a number of reasons that contribute to the CWO model's greater compatibility with PRSA research. To begin, it was developed with the express purpose of analyzing PRSA. Second, the model's three dimensions make it possible to learn more about how workers act in their PRSA by adding more variables that help them figure out how the motivating effects of the determinants work (Topa et al., 2018a). This model is also procedural because it analyses age, stage of retirement, temporal dimension, and how these interact with other model variables (Topa et al., 2018a). In addition, because this model is able to adapt to the shifting circumstances of individuals' lives over the course of their lifetimes, it is suitable for analyzing a variety of economies that exist in distinct cultural, social, and political settings (Hershey et al., 2012). This is because the model represents the continuity of individuals' predispositions to change from childhood into adulthood.

Finally, this model overcomes the constraints of conventional PRSA models and analyses the connection between factors originating from a variety of disciplines and retirement financial planning. However, much theoretical and practical research on retirement planning focused on the economic or financial domains, often at the expense of a broader range of domains, such as health, social relationships, and psychology (Petkoska & Earl, 2009). Consequently, very little is known about the behavior associated with retirement financial planning (Kerry, 2018), especially in the psychological realm.

Although a wide range of variables was applied in the Hershey model (2004; 2000), as well as answered many questions (Hershey, Jacobs-Lawson, et al., 2007; Hershey & Mowen, 2000; Hershey et al., 1998), the CWO model is still relevant to uncover new topics and variables (Hershey et al., 2012). In this instance, Topa et al. (2018a) referred to several affective aspects that expand the future literature on PRSA practices, such as one's retirement identity, personality traits, and social support. This section will showcase some of the CWO model's features.

Regarding the role of age, the CWO model is complex and supports a significant assumption concerning the model's essential characteristic: continuity during midlife for individuals (Topa et al., 2018a). However, this pattern of continuity does not mean that this model is immutable because there are at least more than two types of effects that may cause a change in PRSA: age-related normative influence, normative history-related influence, and non-normative life events (Blumberg & Pringle, 1982; Jiménez et al., 2019; Topa et al., 2018a).

Practical studies referred to that age has a significant role in PRSA (Barnhoorn et al., 2016). Regarding normative history-related influence, the reformed pension system in Europe raised awareness among communities about the future state of pension sustainability (Jiménez et al., 2019; Topa et al., 2018a) and caused a change in PRSA among individuals. As an illustration of normative age-related influences, employees in the latter stages of working age, after 30 years in services, usually start planning for their retirement more than newly recruited staff. In contrast, health issues are an example of an event for non-normative life that may change PRSA among individuals (Assari & Lankarani, 2017).

2.4 Saudi Arabia Pension System and Vision 2030

According to the General Organization for Social Insurance (GOSI) (2021), the Council of Ministers issued a decision to incorporate the Public Pension Agency (PPA) into GOSI to carry out all the functions and powers of the PPA. It is a matter of uniting the work so as to generate a suitable environment and the necessary way to achieve the optimal application of the pension insurance systems. The GOSI is overseen by a Board of Directors led by the Minister of Finance and headquartered in Riyadh. It is responsible for social security and insurance protection for Saudi Civil, private-sector workers, Military employees, as well as a group of public servants to ensure that they and their families have a decent life after they depart from work because of retirement, disability, or death. This coverage includes medical care, which provides compensation to a person in the event of an accident at work or occupational disability through the Occupational Risk Centre. In addition, these laws provide care to employees who are Saudi nationals leaving their jobs due to conditions beyond their control by paying remuneration (Saned), providing training, and seeking for a job. Further, it provides its services to the beneficiaries of the benefits exchange and insurance protection schemes for nationals of the GCC States.

Saudi Arabia is experiencing considerable social transformation and economic diversification in the transition process toward the Kingdom's 2030 Vision (Sarabdeen et al., 2020). The ground-breaking Vision 2030 agenda is built on three pillars: a dynamic society, a prosperous economy, and an aspiring nation that depends on its inherent strengths to help Saudi citizens achieve their aspirations. In fact, the vision focuses on creating an environment that expands the economic base to create jobs for all Saudis by creating professional councils for each development sector to determine the knowledge

and abilities it needs. It extends and develops vocational education and training, provides scholarships to prominent international universities to individuals in fields that serve the national economy and concentrates on cutting-edge technologies and entrepreneurship innovation. For example, the government is currently working toward localizing the renewable energy sources and industrial equipment sectors in manufacturing. The tourism and leisure sector creates global attractions, improving visitor visa procedures and developing our historical and heritage sites. Technology also increases digital economy investments. More specifically, it uses its leadership and expertise in the oil and petrochemical sector to invest in and develop other sectors that help diversify income sources and raise individuals' standard of living. By doing so, the Saudi Arabia government will enhance its unique standing and potential, attract the best talent and increase global investment.

2.5 Variables Under Study

This section reviews the following variables in depth. First is the capacity to plan and save, represented by financial literacy and self-efficacy. Second is the willingness to plan and save, represented by retirement goal clarity and financial risk tolerance. The third is the opportunity to plan and save as represented by assets ownership and debt of the individual worker. The section also reviews the literature on culture and government policy on the relationship between PRSA and the following variables. Lastly, based on this review, the study develops the hypotheses that became the basis for further investigation.

2.5.1 Perceived Retirement Savings Adequacy (PRSA)

Research on personal financial planning reveals that researchers use different alternative expressions for retirement planning, such as retirement preparation, financial planning for retirement, financial preparedness for retirement, retirement savings adequacy, and perceived retirement savings adequacy.

According to Investopedia, financial planning is a written document that details a individuals' current financial standing, their long-term financial goals, and the steps they will take to reach those goals. In a simplified way, it is a way to plan for and reach a desired financial goal in the future. In the context of retirement, financial planning is a process to determine an individual's financial needs for life following a work stoppage (Kumar et al., 2019b). More specifically, it is a series of actions and activities that commonly goes through multiple self-data collection stages (Gutierrez & Hershey, 2016; McCarthy, 1996) undertaken by employees to raise money in order to meet their personal needs after they are no longer employed (Kumar et al., 2019b; Topa et al., 2018a). These stages determine the financial position, definition of personal and financial goals, identification of current obstacles, and constraints to determine short-term influences. Also, they chart actions essential to understand and undertake, perform periodic reviews, and modify and monitor the plan. Further, these stages necessitate different capacities, motives, and opportunities to make the process of financial planning easy and straightforward for life after retirement (Hershey et al., 2012).

As a result of the significance of retirement financial planning, a number of developed nations place a greater emphasis on research that investigates the factors that have an impact on an individual's financial preparation for retirement (Hershey, Mowen,

& Jacobs-Lawson, 2003; Liu, Bai, & Knapp, 2022). However, in developing countries, there is a lack of literature on retirement planning and saving (Tomar, Baker, et al., 2021; Vieira, Rosenblum, & Matheis, 2022). Hershey et al. (2007a) claimed various advantages to saving for retirement expenses in advance. From a financial perspective, individuals who have adequately prepared for their retirement may be able to retire earlier than the conventional or mandatory age of retirement if they so want. According to Dan (2004), preparation for retirement savings is the most critical factor in ensuring a happy retirement. Planning for retirement can provide individuals with peace of mind and guidance on how to maximize their wealth over their lifetime.

Recently, the topic of perceived retirement savings adequacy and the factors that influence it has been the subject of an expanding amount of research that predominantly focuses on developed and developing countries. Retirement savings adequacy is part of a complicated personal financial planning behavior. It calls for a multidimensional model that requires people to act by putting some of their current income aside for future needs (Yusof & Sabri, 2017). Retirement saving adequacy can also be voiced as the disparity between an individuals' savings for retirement and their expenditure levels during retirement, which is what "retirement saving adequacy" refers to, Stiles (2010). Meanwhile, perceived retirement savings adequacy refers to the degree to which individuals believe they are putting away enough money for a comfortable (Hershey et al., 2010).

Examining perceived retirement saving adequacy among individuals is an important extension of their retirement savings (Blank, 1999; Jacobs-Lawson & Hershey, 2005), especially in nations whose pension system is defined contribution. This is due to the fact that a significant portion, if not the majority of future retirees, will need to rely

on their savings in order to guarantee a suitable level of replacement income. Previous studies showed that factors beyond an individual's knowledge, personality traits, and sociodemographics influence their perception of their ability to save adequately for retirement (Adams & Rau, 2011; Dalen, Henkens, & Hershey, 2010; Reyers, 2018). The studies have looked at how different factors were related to perceived retirement saving adequacy based on an interdisciplinary psycho-motivational model of financial planning created by Hershey et al. (2010). To yet, only Spain has conducted research on retirement financial planning applying the CWO model, leaving room for its application to other societies.

Numerous researchers measure financial planning for retirement in a variety of ways. The most widely used measure to assess it is planning activities (Hershey et al., 2007b), estimates of the percentage of salary saved (Hershey et al., 2002), and the amount of money people had saved for retirement as a whole (Onduko, Gweyi, & Nyawira, 2015). Similarly, there are many approaches to measure perceived retirement saving adequacy. Authors looked at retirement saving adequacy through the lens of a person's standard of living since retirement saving adequacy determines a person's income and spending so that they can keep up the same level of consumption after they retire (Hong & Jensen, 2004). Other researchers employed demographic information (Yao, Hanna, & Montalto, 2003; Yuh, 1998), psychological aspects (Hershey et al., 2007a), income replacement ratio (Burnett et al., 2018), perceptions of financial engagement (Stoller & Stoller, 2003), retirement saving efforts (Koposko et al., 2015), to measure the perceived retirement saving adequacy of individuals.

From a psychological point of view, measuring individuals' perceived retirement saving adequacy refers to determining whether individuals believe they are saving enough

to retire in comfort. Hershey et al. (2007b) elaborated that people's confidence in the adequacy of their retirement savings is a direct result of their own retirement planning and saving for old life. This study will measure the perceived retirement saving adequacy by utilizing a psychological perspective - Health and Retirement Study (2012, 2018b) and Uppal (2016) - because they are a part of the conceptual framework for this study.

2.5.2 Capacity to Plan and Save

Capacity is the first dimension in the CWO model. It takes into account a wide variety of cognitive and individual difference variables that set an individual apart from others in the level of education and training, skills, and abilities (Hershey et al., 2012). Studies like Rudi et al. (2020) and Lusardi (2019) concluded that factors influencing financial decisions before, during, and after retirement include personal finance understanding, financial literacy, and self-efficacy. Other studies employing the CWO model measured this dimension through knowledge-related variables and skills represented by capacity variables, such as financial self-efficacy and financial literacy (Crossan et al., 2011; Kiso & Hershey, 2017; Lusardi & Mitchell, 2007b).

As noted in the Intentional Change Theory (ICT) above, an individual is assumed to desire to achieve a specific behavior, which could be accomplished by giving oneself the essential skills and knowledge. In the context of PRSA, the theory predicts that a sustainable change toward perceived retirement saving adequacy can be achieved with financial knowledge and skills (Topa et al., 2018a), which is known simply by many works of literature, like financial literacy and financial self-efficacy.

2.5.2.1 Financial Literacy (FL)

Financial literacy is difficult to define and quantify accurately (Bernheim, 1996; Rooij et al., 2007b). Financial literacy is one of the essential elements to consider while planning and saving for retirement (Hershey et al., 2010). Finance is a term that refers to managing, creating, and studying the components of financial systems, such as financial assets, financial institutions, and financial instruments (Paramasivan & Subramanian, 2009). Meanwhile, literacy means a person's reading and writing skills (Mouna & Jarboui, 2013). According to OECD (2017), financial literacy is a capacity variable consisting of knowledge, behavior, attitudes, and skills in the finance area. This definition is supported by Lusardi and Mitchell (2007c), who considered financial literacy vital to creating welfare. Throughout the literature on personal finance, the term "financial literacy" is synonymous with "financial knowledge" and "financial education" (Howlett et al., 2008; Huston, 2010). Both are frequently implied to lack of financial education and have been associated with different financial decisions, such as saving, investing, and debt (Tan & Singaravelloo, 2020).

In general, having a solid foundation in financial literacy is particularly important in the long run. Studies over the years confirm the importance of financial literacy due to the ever-changing financial services industry that has made financial literacy a critical component of the decision-making process (Lusardi & Mitchell, 2007a). This suggests that individuals should place a greater emphasis on improving their financial literacy for a variety of reasons as time goes on. First, financial decisions require individuals who have a high degree of financial literacy due to the inherent complexity of savings and investment options, the growing complexity of financial markets and their products,

various financial instruments, weak government support, and the changing economic environment.

Second, knowledgeable individuals usually make effective and sensitive financial decisions daily (Aren, Aydemir, & Dinç Aydemir, 2014; Lusardi, 2008). For example, those can manage their funds and participate in the capital market, purchase stocks and bonds (Nga & Yeoh, 2018), diversify their portfolio, and avoid excessive borrowing (Fornero & Monticone, 2011; Lusardi & Tufano, 2009). Fornero and Monticone (2011) indicated that mortgage holders were generally financially well-informed; as a result, they were more aware of how to manage interest rates and inflation policies. Moreover, they were more likely to announce that they would be able to generate over $1,500 in a month (Hasler et al., 2018).

In terms of retirement, individuals who know more about personal financial planning are expected to plan for retirement better (Lusardi & Mitchell, 2011a) because they know more about the power of interest compounding and how to do the math (Clark et al., 2015; Hutabarat & Wijaya, 2020; Moure, 2016; Niu & Zhou, 2017; Topa et al., 2018b; van Rooij et al., 2012). Also, they can better use banking services and influence banking behavior (Cole, Sampson, & Zia, 2011) and are more likely to comprehend national and international pension systems. Individuals who have mastered these abilities and knowledge are better able to comprehend and efficiently manage their financial assets, which must be reflected in their overall level of well-being. Sarigul (2014) proved that knowing how to manage financial resources will help individuals handle their income and spending with the help of different financial tools and instruments to increase their wealth and financial security. In other words, financial literacy enables a person to generate income from sources other than social security and pensions., which will

improve their economic well-being in the future (Palací et al., 2018; Rudzinska-Wojciechowska, 2017). Therefore, determinants of the financial literacy level for individuals become ever more essential for planning, investing, and spending financial assets across their lifetimes (Lusardi, 2019).

On the other hand, low financial literacy has been associated with sub-optimal behaviors among people and is more likely to affect an early retirement age, a challenge to the securities system and pension funds over the long term (Fairfax, 2018; Jaafar et al., 2019; Ltaifa et al., 2018). Without financial knowledge and skills, people cannot adequately plan for their retirement (Jiménez et al., 2019). It is not only a precursor to insufficient resources in the post-retirement period (Lusardi & Mitchell, 2011a) but also other future unhealthy economic behaviors, such as low levels of savings and mortgages, that lead to an increase in debt (Kumar et al., 2019b). Likewise, inadequate financial literacy leads to bad mortgage decisions, low financial stability among seniors, and considerable debt, especially at later ages (Lusardi, Mitchell, & Oggero, 2020).

Insufficient knowledge and skills in wealth management to prepare for retirement would lead to a high long-term financial cost that could harm themself, their family, and the nation as a whole (Annink et al., 2016; Whitley et al., 2016). Likewise, people with little knowledge of financial products and procedures were less likely to participate in mutual fund investments (Hastings & Tejeda-Ashton, 2008) in the financial market (Rooij, Lusardi, & Alessie, 2011b) to manage wealth more efficiently (Stango & Zinman, 2009). However, they were more likely to face indebtedness issues (Lusardi & Tufano, 2009). Those are the reasons for low financial well-being levels (Ali, Rahman, & Bakar, 2013). Hence, pension providers, policymakers, and employers are responsible for raising awareness among individuals on planning and saving for their retirement (Aegon, 2014).

Due to the significance of financial literacy, its impact on retirement planning in industrialized and developing nations has been examined. Among developed countries, the USA (Lusardi, 2008; Lusardi & Mitchell, 2011b), Italy (Fornero & Monticone, 2011), Germany (Bucher-Koenen & Lusardi, 2011), Japan (Sekita, 2011), New Zealand (Crossan et al., 2011b), Sweden (Almenberg et al., 2011), Poland (Swiecka et al., 2020) and Canada (Boisclair et al., 2017) are included. Meanwhile, UAE (Al-Tamimi & Kalli, 2009; Ibrahim & Alqaydi, 2013), Saudi Arabia (Alyahya, 2017; R. Z. Khan & Tayachi, 2021; Mian, 2014), Kenya (Githui & Ngare, 2014), Bahrain (Abdeldayem, 2016), Chile (Moure, 2016), Tunisia (Mouna & Anis, 2017), Brunei (Salleh & Baha, 2020), along with Malaysia (Selamat et al., 2020; Tan & Singaravelloo, 2020) are the developing countries. These and other studies have underlined the need for financial literacy in financial and other areas.

In the same vein, financial literacy was associated with a variety of related financial behavior studies. According to past studies, financial literacy was linked to mortgages (Moore, 2003), financial planning (Bucher-Koenen & Lusardi, 2011; Castro-González, 2014), financial planning for retirement (Jiménez et al., 2019; Palaci et al., 2017; Palací et al., 2018) saving and investing (Lusardi & Mitchell, 2010) and health financial management (Zaimah et al., 2013). Similarly, financial literacy has been applied to financial planning for retirement models with different roles. These and other studies have underlined the need for financial literacy in financial and other areas.

Likewise, previous studies have demonstrated that despite the significance of financial literacy and its impact on a number of other variables, its contribution can take on various roles. França and Hershey (2018), Palací et al. (2017), Hershey (2004), and Hershey and Mowen (2000) utilized financial literacy as a mediator, in addition to

psychological factors, in order to understand the association that existed between the variables in the research. On the other hand, Jiménez et al. (2019) and Palací et al. (2018) applied financial literacy as the independent variable. However, Nga and Yeoh (2018) and Koposko and Hershey (2014) applied financial literacy as the mediator and predictor variable. Even though the function of financial literacy in each research was varied, the findings of the studies suggested that financial literacy is an effective predictor of participants' perception of retirement financial planning. Moreover, several retirement planning studies had shown that financial literacy interacted with different factors, such as the influence of their parents when they were teenagers (Gutierrez & Hershey, 2014) and university students (Thung et al., 2012). Also, it was discovered that financial literacy interacts with income and education level (Bucher-Koenen & Lusardi, 2011; Hastings & Mitchell, 2020) and gender (Kumar, Shukla, & Sharma, 2019a). According to these research findings, financial literacy is vital in making financial decisions (Koposko & Hershey, 2014) since it provides information and numeracy abilities, leading to improved retirement planning and savings.

After highlighting the definition, the significance of financial literacy, and the investigation of the link between it and other variables, the measurements of financial literacy should be outlined. Measuring financial literacy to increase prosperity via wiser choices is the subject of a wide range of publications. There are several ways that financial literacy has been measured in the existing literature (Aren et al., 2014). The first way uses objective financial literacy scales to determine the extent to which individuals are knowledgeable about their personal finance (Cole et al., 2011; Lusardi, Mitchell, & Curto, 2010; Robb & Woodyard, 2011). The second way is that some researchers create their questionnaire from afresh, putting forward fresh inquiries to gauge the FL level. As an example, Finke et al. (2017) assessed 89 questions on objective financial literacy.

Sixteen items were identified following an examination of the responses. Naturally, the number of questions may have changed based on the study's design.

The third approach to measuring financial literacy assesses the perceptions of the target respondents (Perry & Morris, 2005; Rooij et al., 2007a). The fourth method for determining the level of financial literacy is to explore the level of financial literacy of participants using objective and subjective metrics to gauge their level of financial literacy. To be more precise, participants are required to self-evaluate their level of financial literacy on a Likert scale that varies between a set of specified numbers.

Although the relationship between financial literacy and retirement preparation has been examined as outlined above, so far, studies have not determined whether basic or advanced financial literacy impacts retirement planning. Generally, they indicated that the relationship between financial literacy and retirement financial planning was positively significant (Hutabarat & Wijaya, 2020; Kimiyagahlam, Safari, & Mansori, 2019). Meanwhile, others did not point to any link between financial literacy and retirement planning (S. Tan & Singaravelloo, 2020).

Several studies have shown in the literature that basic financial literacy is adequate and has a substantial beneficial link with retirement planning (Boisclair et al., 2017; Fornero & Monticone, 2011; Lusardi & Mitchell, 2008; Moure, 2016; Ricci & Caratelli, 2017; Sekita, 2011). Based on Lusardi (2008), numeracy, compound interest, the time value of money, inflation, and the money illusion are all part of the fundamentals of personal finance that everyone should be aware of. Like basic financial literacy, advanced financial literacy covers a wide range of topics, including but not limited to

mutual funds, the risk-return relationship, stocks and bonds, financial institutions, and the impact of interest rates on securities.

However, other researchers showed that retirement planning was significantly and positively correlated with only high levels of financial literacy (Almenberg et al., 2011; Baker, Tomar, Kumar, & Verma, 2021; Brahmana et al., 2016; Rooij et al., 2011a). While others (Baker et al., 2021; Brahmana et al., 2016; Crossan et al., 2011; Rooij et al., 2011a) found no significant correlation between having a basic understanding of financial literacy and preparing for retirement. This suggests that there is a lack of consistency in the results found in the research on financial literacy. The following assumptions are made for this review based on the research that shows a positive link between financial literacy and PRSA:

H 1: *Basic financial literacy has a significant positive relationship with perceived retirement saving adequacy.*

H 2: A*dvanced financial literacy has a significant positive relationship with perceived retirement saving adequacy.*

2.5.2.2 Financial Self-Efficacy (FSE)

Financial literacy and of itself is not sufficient to manage its financial resources. So, people need financial literacy and a sense of confidence in their ability to make the right financial decision. This sentiment is known in the psychological literature as self-efficacy (Farrell, Fry, & Risse, 2016). Self-efficacy has been defined as a feeling of individual competence to control, manage, and assign multiple aspects of life to achieve

objectives (Bandura, 2006) in a wide variety of assignments and topics (Stajkovic & Luthans, 1998). Consumer behaviors are affected by self-efficacy (Lown, 2011), and it is considered a significant ingredient in stress management (Robb, 2017).

Scales measuring one's financial self-efficacy have been developed over a long time and through numerous phases (Nguyen, 2019). In a proactive step, Dietz, Carrozza, and Ritchey (2003) made a Financial Self-Efficacy Scale (FSES), which included three items derived from the Pearlin Mastery Scale (Pearlin & Schooler, 1978), to see if financial self-efficacy could explain why men and women save for retirement in different ways. Weaver et al. (2009) developed the Domestic Violence-Related Financial Issues Scale (DV-FI) with 24 indicators, including a five-indicator subscale for financial self-efficacy. These five indicators cover a variety of topics like employment, credit scores, and credit card debt. Two years later, a six-item financial self-efficacy was developed and validated by Lown (2011) based on Schwarzer and Jerusalem (1995); the items were distributed to educated people, such as academicians and advisors. One recent research in Canada has resulted in the development of a five-item scale to assess financial self-efficacy; this work was conducted by Rothwell et al. (2016).

With regard to financial self-efficacy, both Gamst-Klaussen et al. (2019) and Asebedo and Seay (2018) draw a connection between financial self-efficacy, general self-efficacy, and financial and saving practices. On the one hand, Bandura (1977) demonstrated that self-efficacy motivates people to promote the desired behavior in several areas of life and cope with adversity without being overwhelmed. It has been suggested that the higher an individual's self-efficacy, the more likely he or she is to overcome difficulties in achieving efficiency goals. On the other hand, financial self-efficacy refers to the confidence one has in one's ability to meet one's financial goals

(Forbes & Kara, 2010; Glenn, 2018; Hu et al., 2021). It is a vital factor influencing financial behavior (Nguyen, 2019). It also enables people to achieve their financial goals, manage their assets, and improve their quality of life (Mindra et al., 2017) to build self-confidence in their ability to carry out financial planning activities.

Financial self-efficacy is crucial in financial planning and saving for retirement. It helps individuals conduct their financial activities needed for retirement saving and planning (Asebedo & Payne, 2019), such as assessing risk investment. Also, it prepares individuals to be ready for post-retirement (Wöhrmann et al., 2013). Those who are confident in their financial abilities tend to be financially secure (Robb, 2017) and have a low level of financial stress (Heckman et al., 2014). Farrell et al. (2016) showed that those increase their self-assuredness in managing their financial assets and decrease their debt. When markets become unpredictable, the investors who control their long-term financial situation are high financial self-efficacy (Asebedo & Payne, 2019) and tend to make low-risk investment decisions (Cho & Lee, 2006). At the same time, they have become more capable of managing different investments and savings products.

Moreover, increasing the level of financial self-efficacy among individuals has several benefits. Asebedo and Payne (2019) indicated that a high level of financial self-efficacy supports the financial behaviors needed for financial planning and retirement savings. People with a high level of financial self-efficacy have been associated with being more professional in evaluating the investment risks associated with their pensions (Dulebohn, 2002), preparing for early retirement (Wöhrmann et al., 2013), and more likely to put their knowledge into practice. This indicates that financial self-efficacy positively impacts investment decision-making (Husnain et al., 2019; Lunceford, 2017).

These studies highlighted the positive relationship between FSE with retirement savings and planning behaviors. Thus, the following hypothesis is proposed:

H 3: *Financial self-efficacy has a significant positive relationship with perceived retirement saving adequacy.*

2.5.3 Willingness to Plan and Save

The second dimension of the CWO model represents factors that motivate and encourage individuals to plan and save for retirement, including behavioral and emotional variables. More specifically, this dimension is represented by psychological variables, such as retirement goal clarity and financial risk tolerance (Hershey et al., 2010; Jiménez et al., 2019). According to Topa et al. (2018a), this model combined with intentional change theory to comprehend the entire PRSA process. As stated in the ICT above, an individual's intention motivates him or her to change particular behavior in several stages.

Notwithstanding that prior studies have examined psychological variables and demonstrated a significant relationship with financial planning for retirement, Kumar et al. (2019b) demonstrated that they were still in the initial stage. In the context of PRSA, the theory assumes that increased motivation increases people's ability to plan, invest, and save effectively for post-retirement. Hence, the success of retirement depends on how one is willing to plan and take steps to plan and save for the future. Earlier studies showed that psychological variables, such as personality traits, affect, goals, and attitudes, affect PRSA and make it easier to predict savings trends (Yusof & Sabri, 2017). This study examines two psychological variables: retirement goal clarity and financial risk tolerance.

2.5.3.1 Retirement Goal Clarity (RGC)

Goal clarity has been defined as a method of measuring individual goals (Kerry, 2018) through the explicit provision of guidance and coherence and meaning to activities and practices (Jiménez et al., 2019). It is considered an essential variable that is vital to retirement life. Retirement goal clarity shapes individuals' retirement plans based on expectations of future requirements (Jiménez et al., 2019; Zhu & Chou, 2018). Having an obvious and realistic goal increases people's intent and savings levels (Stawski, Hershey, & Jacobs-Lawson, 2007). Also, it motivates individuals to start planning and saving at their golden age before it is too late, giving workers the confidence to retire without having to face any financial problems. Apart from this, it improves financial planning practices and savings behaviors over the long term (Hershey et al., 2010). Setting up specific retirement objectives enables prospective retirees to comprehend their planning expectations and reasons more fully, that in turn affects savings behavior and retirement confidence (Stawski et al., 2007). Among the most important steps older employees may take while starting a formal retirement plan is creating specific retirement goals (Clark et al., 2006).

When individuals have a set of clear and specific retirement goals, they usually use several tools to reformulate their tasks (Bavelas & Lee, 1978) to perform learning strategies under a variety of circumstances. In addition, they provide better opportunities to meet their retirement needs (Lusardi & Mitchell, 2011a; Rasiah et al., 2020). According to the literature, those people were categorized as simple, serious, and successful planners. A serious planner assesses and plans for retirement savings, while a successful planner is one who assesses, plans for retirement, and then follows and implements the

plan made. Lusardi and Mitchell (2008, 2011b) and Zhu (2018) considered a simple planner who only assesses the needs in the post-retirement stage.

Prior research has found that RGC influences both indirectly (Koposko & Hershey, 2014) and directly (França & Hershey, 2018; Hershey et al., 2010; Hershey et al., 2007a) retirement savings adequacy, showing that the interaction between them had a considerably favorable effect in the planning activities. The review also found that future time perspective and age were the most common, but not consistently accurate, predictors of how clear a retirement goal is (França & Hershey, 2018; Hershey et al., 2010; Hershey et al., 2007b). The scholars showed that young people did not have well-defined retirement objectives in the same way that adults did but that these goals would grow over time and become more evident as the individuals grew older (Hershey et al., 2010). Because of this, it is reasonable to assume that people's retirement plans are evolving as they become older (Zhu & Chou, 2018).

While numerous studies have evaluated retirement goal clarity with diverse variables, only a small number of studies have attempted to develop retirement goal clarity measurements (Hershey et al., 2002; Jacobs-Lawson & Hershey, 2003; Neukam & Hershey, 2003). Stawski, Hershey, and Jacobs-Lawson (2007) produced one of the most trustworthy scales currently developed. The five questions were utilized in this study to assess retirement goal clarity.

The overall results of the literature indicate a positive relationship between retirement goal clarity and PRSA. Theoretically, Stawski et al. (2007), Mo Wan and Shultz (2010), and Aluodi and Njuguna (2017) showed a significant relationship between retirement goal clarity and retirement preparation. Specifically, it was found that

retirement goal clarity performed positively in PRSA (França & Hershey, 2018; Hershey et al., 2010; Jiménez et al., 2019; Schuabb et al., 2019; Tomar et al., 2021a). However, Chou et al. (2015) found no direct relationship between retirement goal clarity and planning activities among older participants. Given this gap, the following hypothesis is suggested:

H 4: *Retirement goal clarity has a significant positive relationship with perceived retirement saving adequacy.*

2.5.3.2 Financial Risk Tolerance (FRT)

Although financial risk tolerance and risk aversion concepts are antonyms, they are interchangeable. Risk tolerance has been defined from a variety of perspectives. Psychologically, it is defined as the degree of risk-taking or uncertainty an investor can afford (Davies, 2017), as the degree of tolerance differs by age, income, and financial objectives. Risk tolerance has been studied in various cases, such as drug and alcohol use in men, high mountain climbing, and high-risk driving (Byrnes et al., 1999).

One of the most crucial steps in determining a client's eligibility is assessing their willingness to take on risk, as outlined in the CFA Institute's Standard of Practice Handbook (2011). However, it is challenging to quantify clients' risk attitudes due to the subjective nature of risk definition, the fact that clients' risk attitudes toward money are likely to shift throughout their lives, and the wide variety of personal psychological factors that influence clients' risk attitudes toward money (Grable, Britt, & Webb, 2008). Having the client fill out a risk tolerance questionnaire is a frequent practice (Faff,

Mulino, & Chai, 2008). Those who complete the questionnaire will receive a score representing their willingness to take financial risks. A five-item scale developed by Jacobs-Lawson and Hershey (2005) to evaluate one's readiness to tolerate risk in connection to long-term financial investment is used in this study to gauge financial risk tolerance. This scale has been demonstrated to indicate retirement savings inclinations in earlier studies (Gutierrez & Hershey, 2014).

Financial risk tolerance is the most important and challenging aspect to assess when managing financial operations (Cooper et al., 2014). Findings from a recent study highlighted the significance of financial risk tolerance in personal financial preparation and financial counseling (Bayar et al., 2020). According to Ryack et al. (2016), the more individuals are comfortable with the uncertainty associated with making a financial decision, the more they tolerate financial risk and the less risk they are averse.

Individuals' willingness to take on financial risk varies widely depending on their age, degree of education, marital status, profession, cultural background, and economic aspirations, as discovered by Grable (1999, 2000). Hence, individuals' ability to manage their financial futures through prudent portfolio investment decisions is directly related to their level of financial risk tolerance (Bayar et al., 2020). In terms of age, for example, research showed that financial risk-taking has a positive relationship to age, suggesting that financial risk tolerance increases as the person ages (Grable, 2000; Kumar et al., 2019b). In other words, seniors who are willing to take financial risks in their investments will obtain a higher rate of return in a market by investing their money in risky financial tools, such as equities (Fisher & Anong, 2012; Jamaludin & Gerrans, 2015; Munnell et al., 2001). This is because individuals, as adults, may have skills and knowledge that will eventually help them make riskier investments.

On the other hand, a recent study from Ostrovsky-Berman and Litwin (2019) confirmed that the relationship between age and financial risk-taking was negative. This means that youth have less risk aversion, as they have ample time to recoup their losses due to risky investments. Meanwhile, seniors are reluctant to take risks and have a tendency to save for their post-retirement (Hershey et al., 2017) and invest their money in safe financial tools, such as bonds. However, Joo and Grable (2005) indicated that risk-averse individuals were less inclined to prepare, invest and save for retirement.

Regarding educational background, Faff et al. (2009) and Grable and Joo (2004) indicated that education had a positive relationship with financial risk-taking from the perspective of other demographic variables, such as household income. Also, investigations have indicated that marital status could influence FRT (Ostrovsky-Berman & Litwin, 2019). The authors concluded that married investors were more minor than singles in risk-taking. Nonetheless, other scholars proved the opposite results (Clark & Strauss, 2008; Nobre et al., 2016). Thus, studies assure the importance of assessing the FRT, but the evaluation process is not easy because of the nature of an individual and the love of adventure (Grable, 2000).

There appears to be a negative and positive correlation between financial risk tolerance and retirement financial planning, as indicated by the research cited in the literature. Larson et al. (2016) and Jacobs-Lawson and Hershey (2005) provided evidence that higher levels of a person's tolerance for financial risk are significantly associated with increased levels of savings behavior, while Tomar et al. (2021a) came to the conclusion that their connection was negative. Meanwhile, Alkhawaja and Albaity (2020), Larisa et al. (2020), Hershey et al. (2017), Koposko et al. (2015), and Croy et al. (2010) stated that there was no correlation between financial risk tolerance and savings practices. The

following hypothesis is offered on the basis of existing literature on the topic of financial risk tolerance and its relation to retirement planning:

H 5: *Financial risk tolerance has a significant positive relationship with perceived retirement saving adequacy.*

2.5.4 Opportunity to Plan and Save

The third dimension of the CWO model focuses on external variables that affect individuals' attitudes and behaviors during the financial planning of retirement practices. These variables determine people's options for planning, saving, and investing for retirement (Hershey et al., 2012; Topa et al., 2018a). Some of them examined within the PRSA context included the quality of health expected following retirement (Jürges, 2010), parental financial socialization (Palaci et al., 2017), and wealth and tax benefits (Lum & Lightfoot, 2003).

Among other opportunity variables, wealth has grown considerably in the financial sector, especially as a supplement to retirement savings (Vivel-Búa et al., 2019). It is defined as the value of an individual's financial resources after deducting all liabilities (Annink et al., 2016; Rey-Ares, Fernández-López, & Vivel-Búa, 2018). Wealth is essential in planning to save and invest for retirement because it improves people's freedom to live as they wish. However, people cannot fulfill their desires, purposes, and demands if they are not rich enough. For example, the head of the household's high financial resources can prepare a better financial pension plan than those with less financial wealth (Lee & Green, 2006; Yuh et al., 1998).

A study by Kaushal and Jhalani (2018) reported that successful financial planning for retirement results from financial and non-financial factors. Among these financial factors, individual asset ownership is considered a vital factor in financial components that significantly influence financial planning for retirement behaviors (Blake, 2004; Lusardi & Mitchell, 2007a).

Theoretically, LCH indicates that people save and accumulate wealth for later consumption (Modigliani, 1963), elucidating the tendency of people the choice to save their earnings during years of service to guarantee a better life after leaving the workforce (Hatcher, 2003; Zhu & Chou, 2018). Moreover, LCH suggests that individuals getting closer to retirement are expected to save more and pay off their debt before retirement. This is based on the recommendations of Palací et al. (2018) and Vivel-Búa et al. (2019).

2.5.4.1 Assets Ownership (AO)

The challenges of the global economy have led researchers to investigate how people struggle with life problems to secure their financial security after retirement (Cahill et al., 2017), especially for middle-income families (Seethal & Menaka, 2020). According to research, most families approaching retirement age have limited financial resources (Cahill et al., 2017; Lusardi, 2000; Stango et al., 2008) or have insufficient wealth following retirement. The reasons for such a problem may include sources of retirement that may not cover living costs, lack of knowledge or experience in managing financial resources, or high debts.

Recently, asset ownership has become an important topic, particularly in successful retirement saving adequacy. Lusardi and Mitchell (2007a) and Vivel-Búa et al. (2019) showed that asset ownership is an essential predictor in financial planning. Also, it impacts their decision to participate in private pensions, allowing them to save (Vivel-Búa et al., 2019) and has higher expectations regarding income and expenditure subsequent to superannuation (Folk, 2019; Lusardi & Mitchell, 2007a). The most common asset accumulation for individuals is housing equity, post-retirement income, and financial assets.

Home equity is considered one of the most significant sources of savings (Sass, 2017), the leading, largest, and less liquid asset, where they can leave it as a bequest (Folk, 2019) for the next generations. Home equity among individuals, particularly seniors, is significant because it provides substantial savings before retirement (Begley & Chan, 2018). It allows homeowners to finance against their home equity (Chen et al., 2021) if they need to fill the gap between salary and retirement income. In many countries, home ownership is considered to be the main asset available to families to help pensioners meet their own needs (Bravo et al., 2019) to maintain their living standards (Chandola et al., 2018; Virtanen et al., 2017), as well as to face a late-life financial shock (Sass, 2017). Recently, the liquidation of home equity has become more accessible through financial innovations, where homeowners would not have to incur moving and transaction costs.

Since most retirees do not have financial resources other than pension income (Venti & Wise, 2000), the importance of owning a home provides a cushion for obtaining liquidity as needed. However, real estate assets are costly, so individuals who usually require a mortgage loan and lack homeownership are poorer than those who own their houses since they lack limited opportunities to use their financial assets to increase their

retirement income (Bravo et al., 2019). Researchers found that people with lower retirement income (Dingemans et al., 2017; Pettersson, 2014) who live in leased or mortgaged housing (Platts et al., 2019) were likely to be employed at a later age.

Theoretically, Rooij et al. (2011a) and Sekita (2011) showed that the ownership of a house has a statistically significant beneficial link with saving money for retirement. Reporting similar results, Vivel-Búa et al. (2019) indicated that homeowners save and invest for post-retirement more than individuals with different homeownership. This result is similar to other empirical proof discovered by DeVaney and Chiremba (2005) and Fontes (2011). However, a negative impact has been found by Torricelli et al. (2016). Other studies by França and Hershey (2018), Blake (2004), and Feldstein (1974, 1976, 1982) revealed that financial resources did not influence retirement planning decisions. Hence, the relationship between financial resources and retirement planning is still questionable. Rather than examining only housing equity ownership, this research also examines non-housing assets such as transportation which is believed to enhance retirement income among individuals in the future (Miller et al., 2017). Based on the above discussions, the following hypothesis is formulated.

H 6: *Asset ownership has a significant positive relationship with perceived retirement saving adequacy.*

2.5.4.2 Debt

The Oxford dictionary defines debt as "a sum of money that is owed or due." The phenomenon of individuals amassing increasing amounts of personal debt is one that has reached epidemic proportions in recent decades. Household, organizational, and country

debt levels exploded during the COVID-19 pandemic. Due to the pandemic, according to United Nations, the world will lose 195 million full-time jobs, including 5 million in the Arab countries, which will add to the people's debt. In addition, governments have recently begun transferring risks and responsibilities to individual pensions. Hence, these factors result in households of people in debt and over-indebtedness. Therefore, looking at the role of debt in retirement planning becomes a pressing concern, as well-being in retirement is heavily debt-based.

Debt does not always adversely affect individuals because it enables them to acquire assets immediately. Prices, however, may necessitate them to save for decades to purchase them in cash, such as mortgages or vehicle purchases. However, bearing debt for near retirement could seriously affect a post-retirement pension. Making such a decision may exacerbate the costs to an individual financially, mentally, or physically especially during the remaining years of work, in order to compensate for the past (Mutembei & Elly, 2017). For example, increasing personal debt loads can affect individuals' ability to contribute to their retirement accounts and manage their retirement savings (Lusardi et al., 2020) and could not save for post-retirement (Kumar et al., 2019b). If they are unable to reduce the level of their debts relative to their assets before they retire, this may impact their decision about when to retire (Ebrahimi, 2020; Yilmazer & Devaney, 2005). Butrica and Karamcheva (2018) demonstrated that if the retirement age had increased and workers had the choice, they would prefer to delay their retirement and claim their benefits.

In retirement planning, the literature indicated that household debt impacts individual commitment to retirement saving and planning practices (Jiménez et al., 2019). Studies showed that the higher the debt load for individuals, the longer it takes to make

retirement decisions (Boisclair et al., 2017; Lusardi & Mitchell, 2016; Lusardi et al., 2020) and their social security benefits (Butrica & Karamcheva, 2018). Bédard and Michaud (2021) examined the debt among older people who were on the verge of retirement and found the debt remained high among them. According to LCH, the closer people are to retirement, the better they save and the less debt they have. If not, they will need to continue working until they get older or face serious retirement security challenges. Consequently, debt reduces the ability to plan and save as debt payments reduce the wealth available to save or invest for retirement benefits.

There is currently no standard approach for producing reliable measures of consumer debt levels for several reasons (Betti et al., 2007). First, individuals of varying ages have varying degrees of debt and wealth. Second, they differ in their ability to foresee the future, their preferences for how their money and time should be spent in the present, and their propensity to save or invest. In other words, the optimal strategy for maximizing happiness in terms of spending or minimizing debt or wealth will vary by age group. As a result, there is no universally accepted measure for determining what defines "normal" or "excessive" levels of consumer debt based on aggregate consumption patterns.

The authors (Betti et al., 2007) indicated that current objective indicators were predicated on the idea of unsustainable spending (as measured by the consumption/income ratio), an unsustainable amount of debt (as measured by the debt/asset ratio) (Butrica & Karamcheva, 2018, 2020) or a lack of ability to service debt (as measured by the debt payment/income ratio) (Barba & Pivetti, 2008). Other researchers, such as (Almenberg, Lusardi, Säve-Söderbergh, & Vestman, 2021), came up with a questionnaire to examine people's perspectives on debt. However, due to the

conceptual difficulties of determining an adequate measure for debt and the absence of data on personal debt in Saudi Arabia, this study has adapted an HRS questionnaire that has been regularly utilized for studies on the well-being of the elderly (Venti, 2011) to the measure debt.

According to the available literature, researchers have examined the relationship between debt and other variables by analyzing survey data from various sources, such as Consumer Finances (SCF) to examine the relationship between student debt and retirement savings (Batkeyev, Ertugrul, Garg, & Krishnan, 2019), Health and Retirement Study (HRS) to assess the influence of debt on labor supply and claiming decisions of older adults nearing retirement (Butrica & Karamcheva, 2018), and National Financial Capability Study of the United States to investigate the connection between financial literacy, financial behavior, and excessive debt.

Theoretically, research has confirmed that personal debt negatively impacts retirement savings behavior. Elliott et al. (2013), Batkeyev et al. (2019), Lusardi et al. (2020), and Butrica and Karamcheva (2020) showcased the negative effect of debt on retirement savings. Likewise, Lahey et al. (2006) and Leinonen et al. (2020) stated that higher mortgage balances negatively impacted individuals' decisions toward retirement by remaining on the job. These results indicate that workers with high debt, mortgages, and credit cards plan to continue working until they repay their debt. In other words, as indebtedness increases, retirement savings decrease. Despite the above, a study revealed no significant relationship between debt and retirement planning, like Rutledge et al. (2016). It argued that the debt was unrelated to retirement planning because financial resources were associated in a negative way with a student loan. Thus, drawing upon the literature examined above, the study develops the following hypothesis:

H 7: *Debt has a significant negative relationship perceived retirement saving adequacy.*

2.5.5 Moderating Variables

Moderators are a third variable that a researcher uses to predict what strengthens or weakens the original relationship between IV and DV variables (Sekaran & Bougie, 2016). The motivation for using them in a study is based on earlier empirical investigations that have shown diverse findings on the link between the independent and dependent variables, such as knowledge and skill variables (e.g., financial literacy), motivational variables (e.g., financial risk tolerance), and external variables (e.g., indebtedness of households) and retirement behaviors (Kumar et al., 2019b; Palací et al., 2018; Topa et al., 2018a). This relationship between variables indicates the need for additional academic analysis combining mediation and moderation variables in retirement models (Davies et al., 2017).

Due to the inconsistent results in basic and advanced financial literacy, as well as in financial resources when it comes to perceived retirement saving adequacy, this study uses two moderators to assess if the relationship between IVs and DV gets stronger or weaker as a result of their presence. Culture and government policy have been chosen as the moderators in this study for the following reasons.

Previous studies were known to examine culture as a moderator and as an independent variable, given the expected cultural differences across a country. For example, the moderating effect of culture on the relationships between psychological

factors, social risk, and the role of the government in online buying behavior in Pakistan was investigated by Bhatti & Rehman (2019). Similarly, Tam and Oliveira (2019) examined its effect on the relationship between m-banking use and individual performance in a Southern European country. In addition, other studies show the importance of culture as a moderator in different fields (Bhatti & Rehman, 2019; Mallard, Lance, & Michalos, 2017; Tam & Oliveira, 2019; Waxin, 2004).

According to Schuabb et al. (2019), they insisted on examining the mediating and moderating functions of intercultural and cross-cultural in retirement planning to verify their functions in different contexts. In the context of retirement, for instance, Hershey's models included moderators such as retirement planning activity level, early learning, and support from friends and coworkers (França & Hershey, 2018; Hershey et al., 2010; Hershey et al., 2007b; Schuabb et al., 2019), allowing room in the model for the inclusion of additional variables that could act as moderators.

Saudi Arabia has many civilizations and cultures (Alotaibi, 2015), and this is because of the existence of holy sites and being the cradle of heavenly messages, influences of bordering countries, changes and improvements in education and technology (Bjerke & Al-Meer, 1993), and diplomatic interactions by the last two reigns. Bjerke and Al-Meer (1993) examined Saudi managers through the lens of Hofstede's four dimensions: power distance, uncertainty avoidance, individualism, and masculinity. This study examined the Saudis' culture, indicating that different cultures may exist there. According to Saudi Vision 2030, Saudi Arabia has a diverse culture influenced by the variety of its population and is the cornerstone of the Kingdom's identity (Government of Saudi Arabia, 2022). The 13 regions of the Kingdom, which has a population of over 34 million people, are all connected by the Arabic language but have their own distinct

dialects, customs, histories, and culinary identities. Such diversity in culture is assumed as well to be reflected by differences in attitudes and behaviors of the population.

On the other hand, government policy has been selected because of its substantial role as a moderator (Assagaf & Ali, 2017; Ngisau & Ibrahim, 2020; Taofeeq, Adeleke, & Lee, 2020). In China, where vehicles were not eco-friendly and were against the country's national energy security, researchers studied the moderating influence of government policy on the link between financial benefit, performance, environmentalism, psychological need, and consumer choice (Zhang et al., 2013). Their findings indicated that government policies could positively and negatively moderate the relationship between the variables under study.

2.5.5.1 Culture

Culture is the social customs and traditions that are transmitted from one generation to the next. It is collective mental programming that differentiates the members of one group or category of people from those who do not belong to that group or category (Sreen, Purbey, & Sadarangani, 2018). The culture of societies varies due to human-made factors (e.g., individual characteristics) and non-human-made factors (e.g., an institution's knowledge). According to Hofstede (1984), whether the personality of a person forms the identity of a person, then a culture determines the identity of a human group. Rozin (2003) considered culture a significant force in shaping human beings because customs and traditions differ from each person's ethics.

Cultural values are vital in explaining the differences in financial behavior (Weisfeld-Spolter, Sussan, Rippé, & Gould, 2018) among nations (Agyei, 2018). In particular, studies illustrated that different cultures influence human behavior differently regarding consumption behavior (Kim et al., 2018), financial decision-making in investment, money management, savings, as well as financial preparation for retirement (Diaw, 2017a; Kornadt et al., 2018). Psychologically, cultural differences affect an individual's ability to prepare for the future (Hershey, 2004), including the planning and saving process (Hershey et al., 2012). Hence, accepted norms have been known as the first step to deciding on retirement planning (Goodnow, 1997).

In the context of retirement, the planning process varies from nation to nation, depending on the people's culture and the laws and pension plans in place. A review of previous studies showed that cultural differences have led to a different preparation of people for retirement (Koposko, Bojórquez, Pérez, & Hershey, 2016), even with well-developed pension schemes (Lusardi & Mitchell, 2011a). Academic and practical evidence highlight concrete examples of how different cultures shape the retirement planning process and how these components are related to broader cultural contexts.

There were some intriguing findings from earlier cross-cultural studies on retirement. They suggested that financial planning for retirement behavior across cultures must be further investigated to have a clear picture (Koposko et al., 2016). For instance, Imamoglu et al. (1993) compared Swedes and Turks on how they feel about retiring and becoming older. The results showed that Turks became more socially active than Swedes as they neared retirement. However, when individuals retired, the Turkish were less happy with their lives than the Swedish. In South Africa, the benefits of personal pensions have improved because of the disappearance of the apartheid regime, leading to improved

quality of life for the post-retirement period (Asher, 2006). In both the U.S. and the U.K., where education about the importance of savings is a norm, saving among individuals for retirement is a central concern among employees (Waine, 2006).

A study by AXA (2007) investigated employees' feelings about retirement and gathered information on retirees from various places throughout the world. The results showed that each country's retirement differs because of its culture and customs. It is interesting to see how different cultures view retirement. For instance, British workers begin saving for retirement at the age of 28, Chinese workers at the age of 37, and European workers at the age of 32. In France, the monthly retirement savings plans were at 13%, while in Australia, they were at 37%, and in Belgium, they were at 25%. According to the survey, working persons in Spain and Germany are expected to retire at 63. In contrast, working individuals in the United States anticipated retiring at around the age of 64, and working individuals in China anticipated retiring at approximately 55. In addition, it showed that 34% of pensioners in French and Italian, 80% of retirees in Canada, 68% of retirees in the United States, and 65% of seniors in Australia retired before the age of legal retirement eligibility.

In a similar manner, the Organization for Economic Cooperation and Development (OECD) recently published (2022) a report titled "Pensions at a Glance" describing the structure of the national retirement income systems in the studied nations, describing the design of pension systems with a focus on mandated pensions schemes. For example, the most fundamental type of pension can either be a residence-based benefit or one restricted to individuals who have made contributions over their careers. Only two OECD member nations, Canada and New Zealand, as well as one non-OECD nation, Thailand, have a residence-based benefit. The second type of pension necessitates

completing specific residency requirements, such as income level. Therefore, lower-income retirees receive more benefits than those with higher assets. Another aspect brought up in the report was the possibility of providing older people with targeted or minimum pensions based on a single person. According to the report, certain countries, including China, Malaysia, Singapore, and Sri Lanka, do not provide their citizens with a primary or minimum pension as part of their national social security programs. However, other countries, such as India, Indonesia, Vietnam, and the Philippines, have a minimum pension in addition to Pakistan, Hong Kong, and Thailand.

The literature compared the United States and the Netherlands in two separate studies. The first research looked into disparities in employee retirement views (Hershey et al., 2007a). The findings showed that in comparison to Americans, Dutch citizens save more for retirement but lack retirement goal clarity and planning activities. Three years later, Van Dalen et al. (2010) examined the institutional, social, and psychological forces that impact perceptions of retirement savings among Dutch and Americans. The results revealed the differences between the American and Dutch pension cultures. In the same direction, Koposko et al. (2016) conducted a comparison study between students in the United States and Mexico in terms of retirement financial planning behavior. Their research showed that American students had a more long-term outlook and parental impacts on saving than their Mexican counterparts. Contrary to what one might expect, Mexican students had a clearer picture of their retirement than their American counterparts.

Among the emerging economies, Saudi Arabia's culture has always put them apart from others (Alotaibi, 2015), where males generally dominate all aspects of life, including financial decision-making (Mian, 2014). For example, a hierarchical system characterizes Saudi society, rooted in traditions and customs where men are the primary workforce and

more financially dependent. Only recently, women competed with men in the labor force and other areas. Based on the General Authority for Statistics report, women's participation in the labor force in 2000 was 14.49%, while participation in 2018 reached 22.9%. Formerly as well, a woman was not allowed to drive, a necessity to be active in the workforce. Only as recently as 2018 were women allowed to be registered license holders and drive on their own. An insight into the effect of culture is expected to add value to the study in examining an individual's behavior since culture is expected over the long run to influence how things are to be implemented (França & Hershey, 2018; Hershey et al., 2007a).

Research in international business relies heavily on culture and its various methods of measurement (Taras, Steel, & Stackhouse, 2023). It has been extensively used to understand an individual's behavior across countries. In his classic work "Culture's Consequences," published in 1980, Hofstede developed a methodology for evaluating culture from an "objective" perspective, allowing for a more thorough examination of cultural differences between nations. Based on Sharma (2010), the latent variable of culture has five dimensions: individualism, power distance, uncertainty avoidance, masculinity, and long-term orientation.

Culture is not measured equally across studies. For instance, Sreen et al. (2018) measured culture using two dimensions; Collectivism and Long-term Orientation. Similarly, Srivisal et al. (2021) examined the relationship between national culture and saving rate, measuring the culture by three dimensions: collectivism, uncertainty avoidance, and long-term orientation. Because the primary goal of this research is to examine the effects of capacity, willingness, and external variables on perceived retirement savings adequacy that do not require any particular or novel aspects of culture,

it will focus specifically on the two dimensions, uncertainty avoidance and long-term orientation, potentially related to people's perceptions of perceived retirement savings adequacy.

Hofstede's measurement of how one feels threatened by uncertainty has been used to develop the concept of uncertainty avoidance (Hofstede, 2001; Sharma, 2010). Uncertainty avoidance is a vital dimension of culture that may significantly affect the level of the financial industry (Khan, Gu, Khan, & Meyer, 2022). For example, dividend policies were examined by Bae et al. (2012), who showed that nations with high uncertainty avoidance ratings had lower dividend payouts. This is because managers in these countries preferred to keep more cash on hand in case of an unexpected adverse event. Regarding savings, uncertainty avoidance may significantly impact an individual's decisions due to one's attitude toward risk, which comes with uncertainty (Srivisal et al., 2021). More specifically, the sensation of uncertainty avoidance may influence how people evaluate the future, given that what will occur in the future is frequently unpredictable. Hence, those who have a higher level of preference for avoiding uncertainty may prefer to have current consumption rather than consumption in the future. However, Khan et al. (2022) indicated that very little attention had been paid in the past to the many dimensions of culture and their possible effects on the growth of the financial sector development.

Long-term orientation is defined as how much society looks to the future instead of going back to the past to solve current or future problems (Hofstede, 2001). A simple interpretation would suggest that saving and planning involve forgoing current consumption in favor of future advantages and are intimately tied to future orientation. Howlett et al. (2008) experimented with personal financial decisions and found that an

individual's attitude toward future orientation increased the likelihood that the individual would participate in a retirement plan. According to this interpretation, this study only measures culture by using Uncertainty Avoidance (UAI) and Long Term Orientation (LTO) as the cultural dimensions of Hofstede (Sharma, 2010) due to related to the future and may affect perceived retirement saving adequacy. Thus, the following hypothesis is proposed:

H 8: *Uncertainty Avoidance (UAI) and Long-Term Orientation (LTO) as the cultural dimensions moderate the relationship between Capacity, Willingness, Opportunity variables and perceived retirement saving adequacy.*

H 8a: *Uncertainty Avoidance (UAI) and Long-Term Orientation (LTO) as the cultural dimensions moderate the relationship between basic financial literacy and perceived retirement saving adequacy.*

H 8b: *Uncertainty Avoidance (UAI) and Long-Term Orientation (LTO) as the cultural dimensions moderate the relationship between advanced financial literacy and perceived retirement saving adequacy.*

H 8c: *Uncertainty Avoidance (UAI) and Long-Term Orientation (LTO) as the cultural dimensions moderate the relationship between financial self-efficacy and perceived retirement saving adequacy.*

H 8d: *Uncertainty Avoidance (UAI) and Long-Term Orientation (LTO) as the cultural dimensions moderate the relationship between retirement goal clarity and perceived retirement saving adequacy.*

H 8e: *Uncertainty Avoidance (UAI) and Long-Term Orientation (LTO) as the cultural dimensions moderate the relationship between financial risk tolerance and perceived retirement saving adequacy.*

H 8f: *Uncertainty Avoidance (UAI) and Long-Term Orientation (LTO) as the cultural dimensions moderate the relationship between asset ownership and perceived retirement saving adequacy.*

H 8g: *Uncertainty Avoidance (UAI) and Long-Term Orientation (LTO) as the cultural dimensions moderate the relationship between debt and perceived retirement saving adequacy.*

2.5.5.2 Government Policy (GP)

Government policies are regulatory actions created by decision-makers to influence individuals, groups, corporations, social, economic, cultural, and religious matters. Government policies usually significantly impact all areas of daily life (Leisering, 2003; Škrinjarić, 2018), whether formally through–laws, regulations, or informally–culture through culture, tradition, or social norms (North, 1990). In terms of the economy, governments usually intervene with laws and regulations to cover the impacts of the shortcomings of the financial and economic system (Hao & Lu, 2018), like those that influence individuals' wealth and pensions (Fisher & Willis, 2012), whether directly and indirectly. Moreover, the government develops a series of active and efficient ways to improve financial well-being and secure financially pre-and post-retirement individuals through designated regulatory bodies.

In the retirement context, pension system policies have been established globally to protect government and private employees from prolonged life and inflation risk as well as to provide primary retirement income for them after they leave the workforce (Jaafar et al., 2019). Hence, the perception of these regulations has a significant role in

retirement saving adequacy. The quality of knowledge given to workers and retirees about pension and social security policies would improve their ability to protect, save, and plan for their future.

Understanding pension or social security systems is an essential part of an individual's economic well-being at any age, which is considered a significant indicator of the ability to plan and save for retirement for working individuals. In case those individuals do not sufficiently understand retirement systems (Hershey et al., 2007a; Imamoglu et al., 1993) due to the complexity of pension or social security systems (Litwin & Sapir, 2009; Lusardi & Mitchell, 2011a), this leads to a decrease in retirees' financial well-being, simultaneously increasing the financial burden on social security systems. In this instance, most retirees can not count only on their pension after retirement to provide a decent life because it only covers basic life needs. Therefore, perceiving pension systems and having retirement financial literacy helps individuals plan and manage their wealth after retirement.

Referring to the literature, numerous studies have illustrated that government policies have an essential role in impacting the future financial decisions of individuals and companies, such as creditors and shareholders protection (La Porta et al., 1998), firm investment behavior (Chen et al., 2011; Lin & Wong, 2013), investment allocation (Hao & Lu, 2018), pension fund investment performance (Mutula & Kagiri, 2018), and retirement saving behavior (França & Hershey, 2018).

Apart from the above, government policies have been known to influence PRSA through pension and social security provisions and reforms. Reforms have always been a government agenda to alleviate the risk to public finance due to economic risk (General

Authority for Statistics, 2013), an aging population, or a hike in healthcare costs. The reforms vary from a change in retirement age, contribution rate, and pension benefit (Jaafar et al., 2019) as proposed by the International Monetary Fund (IMF), The Organization for Economic Co-operation and Development (OECD), and World Bank (WB) (Bongaarts, 2004). Recently, the Saudi government has approved the vision of 2030 as an economic development plan for the country. In the context of retirees, the objective of vision 2030 is to provide an appropriate environment for citizens in various fields, including financial planning tools, mortgage loans, savings portfolios, and multiple options for retirees to help them choose the suitable investment that fits their lifestyle after retirement (Government of Saudi Arabia, 2016).

In line with previous studies' arguments, this study has proposed to assume government policy as a possible moderator in the relationship between PRSA and the other variables in the CWO model. Accordingly, the following hypothesis is proposed:

H 9: *Government policy moderates the relationship between capacity, willingness, opportunity variables, and perceived retirement saving adequacy.*

H 9a: *Government policy moderates the relationship between basic financial literacy and perceived retirement saving adequacy.*

H 9b: *Government policy moderates the relationship between advanced financial literacy and perceived retirement saving adequacy.*

H 9c: *Government policy moderates the relationship between financial self-efficacy and perceived retirement saving adequacy.*

H 9d: *Government policy moderates the relationship between retirement goal clarity and perceived retirement saving adequacy.*

H 9e: *Government policy moderates the relationship between financial risk tolerance and perceived retirement saving adequacy.*

H 9f: *Government policy moderates the relationship between asset ownership and perceived retirement saving adequacy.*

H 9g: *Government policy moderates the relationship between debt and perceived retirement saving adequacy.*

2.6 Research Gaps

This study identifies two areas where further research is needed: the theoretical/empirical gaps and the contextual research gap in relation to PRSA. Empirically, in terms of capacity variables, earlier studies attested to the significance of financial literacy in determining retirement preparation (Jiménez et al., 2019; Palací et al., 2018; Topa et al., 2018a). These studies examined either the basic (Boisclair et al., 2017; Natalia Garabato Moure, 2016; Ricci & Caratelli, 2017; Sekita, 2011) or advanced (Almenberg et al., 2011; Brahmana et al., 2016; Crossan et al., 2011) financial literacy or both (Rooij et al., 2011a). The findings, however, were inconsistent as to which aspect of financial literacy influences retirement financial planning.

Another critical capacity variable for perceived retirement saving adequacy is financial self-efficacy. Despite the critical role of financial self-efficacy in PRSA, studies on Middle East countries, specifically the Gulf States, focused only on some capacity factors (e.g., financial literacy) (Al-Tamimi & Kalli, 2009; Mian, 2014). Studies on other aspects of financial planning, such as (Asebedo & Payne, 2019; Farrell et al., 2016; Sturr,

Lynn, & Lawson, 2021), found that the critical role of financial self-efficacy impacts PRSA has yet to be studied.

According to the literature, earlier psychological studies on perceived retirement saving adequacy have failed to consider such psychological factors, which require more investigation (Kumar et al., 2019b). For instance, numerous papers have investigated retirement goals, but very few academics have looked into the objectives of individuals who are still employed. Notably, other critical psychological factors, like self-control, that are known to affect how people handle their money were not included in the chosen studies. Thus, recent studies recommended the examination of their interactions (Hershey et al., 2010; Tomar, Kumar, & Sureka, 2021; Topa et al., 2018a) and doing more research on self-control and retirement goal clarity in various circumstances with diverse samples may be necessary. Therefore, this study examines the psychological variables of retirement goal clarity and financial risk tolerance, as proposed by Kumar et al. (2019b).

However, the ability and willingness to perform perceived retirement saving adequacy without the necessary opportunity factors shall not be sufficient to secure a post-retirement future. Previous studies examined a group of economic factors, namely financial resources and found a positive effect on PRSA (Palací et al., 2018; Schuabb et al., 2019; Topa et al., 2012). However, other researchers such as França and Hershey (2018), Blake (2004), and Feldstein (1974, 1976, 1982) demonstrated that financial resources did not influence retirement decisions. That is a further gap to think about. Similar to how social network factors affect PRSA, some research has looked into how they interact with PRSA (Tomar et al., 2021b). However, the findings remain uncertain (Murari, Shukla, & Adhikari, 2021). Therefore, more research needs to be done to see if

the results of past research will be the same as the results of future research. This can be done by using different research methods in different situations.

Numerous studies have examined social (e.g., friends, support of parents, and spouses) and economic (e.g., salary, financial well-being, and financial resources) factors that affect PRSA. However, it is preferable to look beyond these factors and take into account how other external factors may impact (e.g., pension schemes, unexpected inheritance, cultural and social norms, cost of living, and health issues) PRSA. The proposed variables affect not just how people feel about PRSA but also the behavior of investors, their choices of different retirement plans, the quality of retirement savings, and the amount of money people have saved for retirement. These are deserving of more investigation in subsequent studies.

Contextually, preceding studies illustrated that most retirement saving adequacy studies had been applied to developed economies, focusing on financial, economic (Lusardi & Mitchell, 2007a), or psychological determinants (Petkoska & Earl, 2009) alone. Meanwhile, recent studies examined PRSA based on a multi-perspective approach (França & Hershey, 2018; Kiso & Hershey, 2017), but neither of these studies involved emerging countries, namely Saudi Arabia. Given the disparities in culture and pension systems, these research findings may not be representative of emerging economies (Topa et al., 2011; Whitehouse, 2001). Thus, studies suggested that examining PRSA in various cultural contexts must always be considered (Jiménez et al., 2019; Teerawichitchainan & Knodel, 2015) because results from using these conceptual models in emerging nations may be more interesting.

According to the systematic literature review (SLR) conducted by this study, the CWO model is among the best conceptual models for evaluating financial preparedness for retirement from a variety of perspectives. The model has only been examined in Spain Palací et al., (2017; 2018) and Jiménez et al., (2019), allowing room for the CWO model to be examined in other developed and developing nations. Despite the fact that these studies have elucidated a variety of predictors – including psychological, cultural, financial, and task characteristics factors (Top et al., 2018a), there is still a shortage of empirical studies that evaluate the whole model in order to comprehend the components that determine retirement saving behavior.

2.7 Conceptual Framework

When proposing a comprehensive framework for a study in order to understand a phenomenon, it is essential to clarify each part of that conceptual framework. The proposed conceptual framework for this study was primarily adapted and modified based on the CWO model (Hershey et al. 2012). Theoretically, the model of the existing study is explained by two theories: the Life Cycle Hypothesis and the Intentional Change Theory. Figure 3.1 illustrates the conceptual model for the study. Empirically, the conceptual model is linked with two capacity variables: financial self-efficacy and financial literacy; two psychological variables: financial risk tolerance and retirement goal clarity; two economic variables: assets ownership and debt; two moderating variables: culture and government policy, to meet the research objectives.

Table 2.1 Variables and Theories

S/N	Factors	Theories
1	Financial Literacy	Intentional Change Theory

2	Financial Self-Efficacy	
3	Retirement Goal Clarity	Intentional Change Theory
4	Financial Risk Tolerance	
5	Wealth	Life Cycle Hypothesis
6	Culture	Literature Review
7	Government Policy	

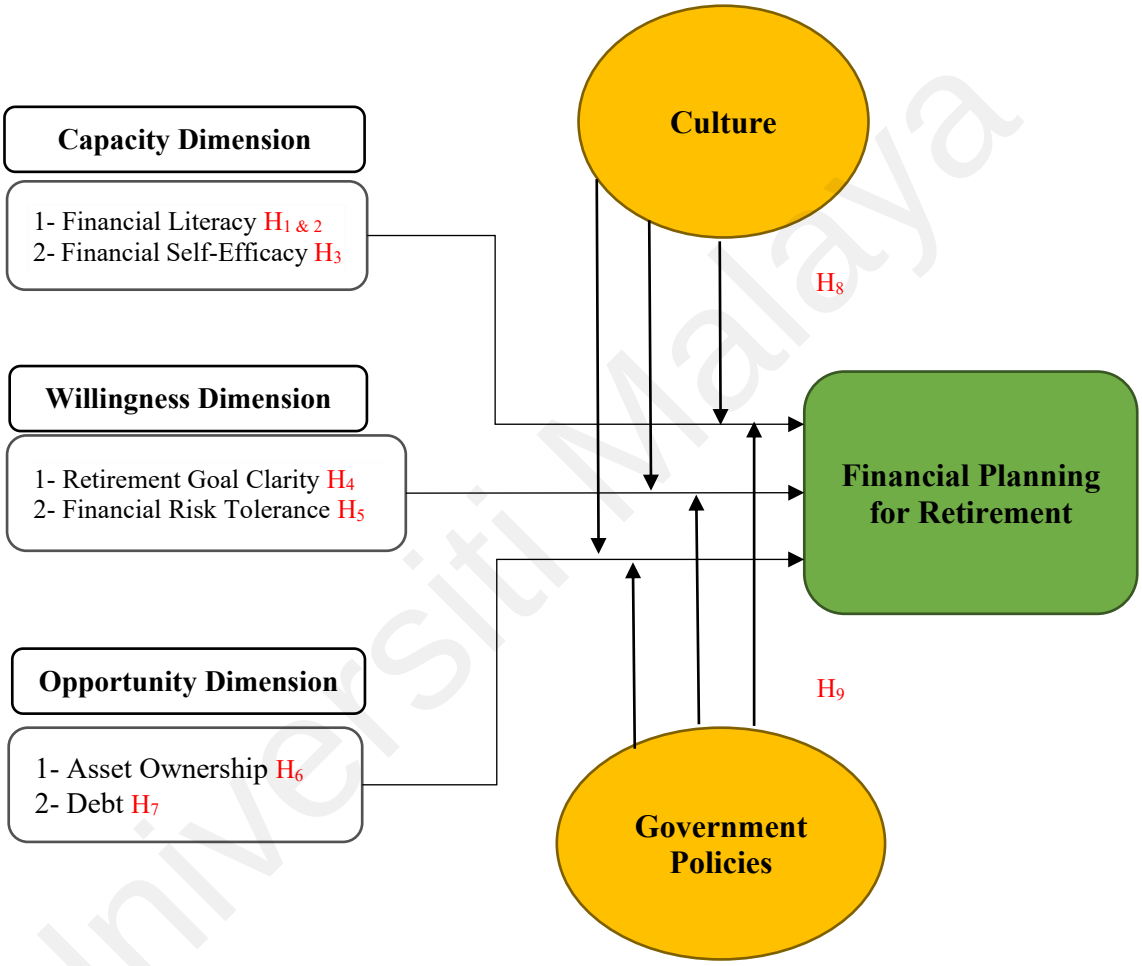


Figure 2.1 Conceptual Framework of the Study

2.8 Chapter Summary

This chapter explains the underpinning theories of this study and reviews past literature on the study's chosen variables. The subsequent chapter deals with the methodology adopted to answer the research questions of the study.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter outlines the methodological process and research design in examining the influence of various variables on PRSA among public university employees. It begins with a research design, followed by the sampling design process, measurement scale development, quality control of research instruments, data collection process, and data analysis. Then, it briefly describes the software programs used for the data analysis, SPSS version 29 and Smart PLS 4. The chapter concludes by highlighting the extent of the researcher's interference in the study.

3.2 Research Design

This study uses a cross-sectional design in which numerical data was collected from many participants at a single time to give a quick "overview" of the study's features and related factors at a particular time. Moreover, to determine internal and external factors influencing perceived retirement saving adequacy. The study's primary goal is exploratory, examining the relationship between the variables (Creswell & Creswell, 2017). It is based on the deduction technique to examine both LCH and ICT theories before coming to the final results. Given the nature of the research and the literature on PRSA, the deductive strategy is deemed suitable for achieving the study goals. A survey questionnaire is applied to collect the participants' data (Sekaran & Bougie, 2016).

3.2.1 Research Process

This research begins with a systematic literature review of PRSA conceptual models to examine theoretical or practical gaps and determine future research directions. The steps involved in the research process for this particular study are outlined in Figure 3.1, which can be found further down this page. Each phase has several interrelated sub-levels, which explain the connections between the main idea of each phase.

The second phase consists of outlining the problems behind the study and then developing the research model as a third phase. This step allows the study to choose the best theoretical model to study the influence variables of PRSA, which led the study to the CWO model. The fourth step determines the appropriate research methodology to collect the data that will allow the study to respond to the research questions identified in the first phase. This includes the definition of the operating variables concern. The fifth phase determines the population, sampling, sample frame, and appropriate sample size. In the following steps, the designed instruments underwent a pilot study to test their reliability and validity.

This is conducted through the distribution of a self-report survey questionnaire to selected respondents at various public universities in Saudi Arabia. Once the field experts have reviewed the survey questionnaire and refined it to reflect the reliability and validity considerations identified during the pilot survey, the study embarks on data collection for the primary study data. Phase nine analyzes the collected data using Partial Least Square-Structural Equation Modeling (PLS-SEM), while phase ten discusses the studies' results. The last phase is the writing of the thesis.

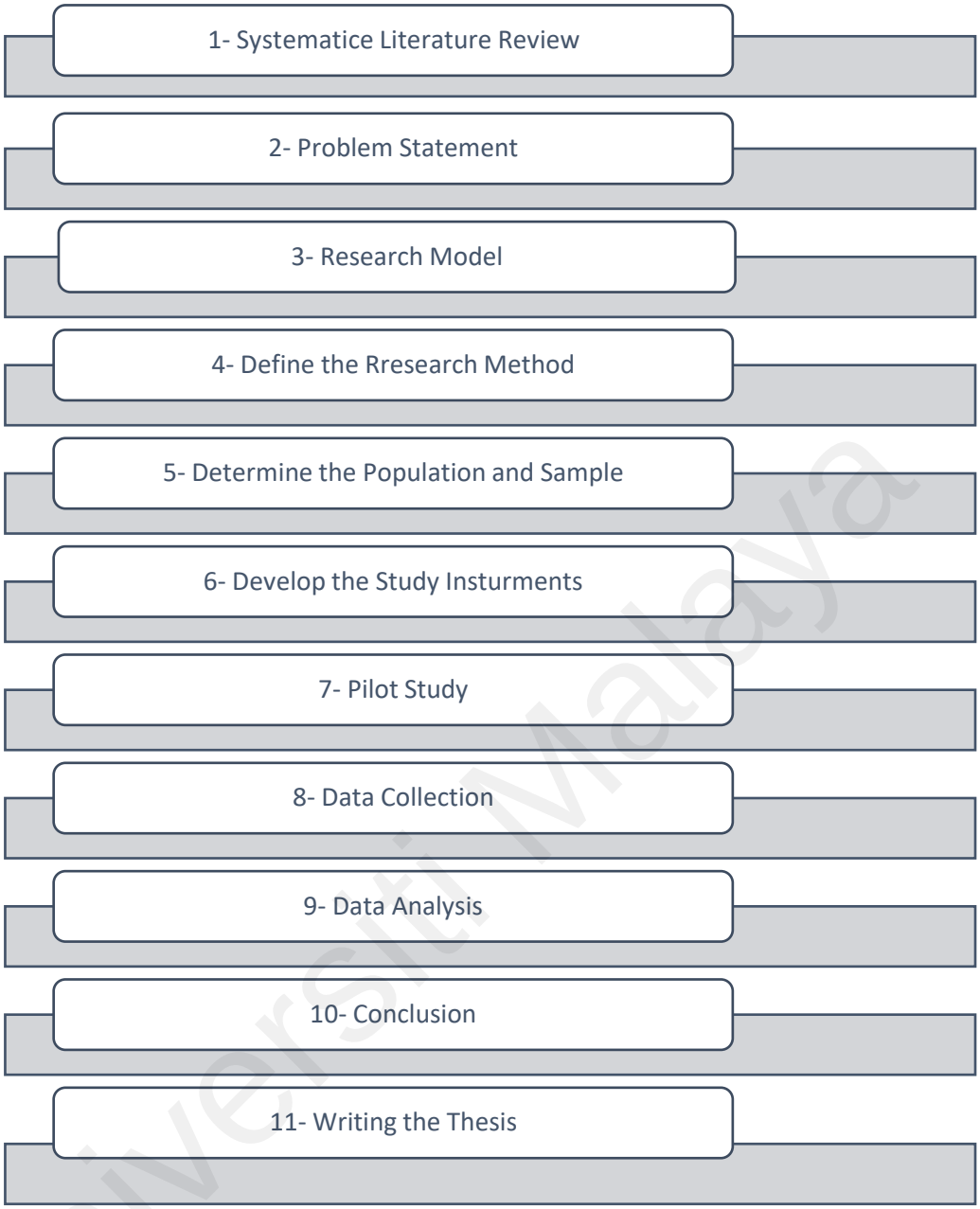


Figure 3.1 Research Process Flowchart

3.2.2 Data Collection Technique

For many reasons, the current study has applied a questionnaire as an appropriate tool to collect the data quantitatively. First, it is not easy to identify many issues and gather data on many research questions in a single study. However, in this case, the

questionnaire is appropriate because it allows researchers to do so (Higgins, 2009; Sekaran & Bougie, 2016). The current study, for instance, has a large population. Thus, the effective way to collect quantitative information is to use the questionnaire because of its ease of distribution.

Second, it is not difficult to determine the validity and reliability of the data collected because of the availability of statistical tools (Taofeeq et al., 2020). Thus, the following questionnaire method provides reliable data to test theories like LCH and ICT. Third, a questionnaire method is followed because open-ended questions are used in the study to help explore a substantive area (Gill & Johnson, 2002).

Fourth, surveys are proper to study public opinion, so it is easy for participants to fill out the questionnaire based on their preferences (Sekaran and Bougie, 2016). By looking at the current research's nature, people do not usually like to express their plans or sensitive information that could be difficult to collect from respondents face-to-face or through a telephone survey. Examples of sensitive information are family, personal information, what people think or believe about politics or religion, what individuals plan about the future, and so on. To avoid such uncomfortable scenarios with respondents answering such sensitive questions, the Public Pension Agency's regulations were not placed at the beginning of the survey. Collecting data through questionnaires may override participants' privacy or cause dubious effects on them or the community. For these reasons, the survey is a better way of collecting the data.

3.2.3 Research Methodology

This study has applied a quantitative approach as a research method to examine the perceived retirement saving adequacy among the respondents. Utilizing the quantitative method in the current research provides greater insight into antecedents of PRSA and produces new theoretical insights. Consequently, two theories (LCH & ICT) were used to develop a conceptual model related to the research hypotheses. The study's variables were selected based on the past literature and the systematic literature review results. On a quantitative basis, data were collected from respondents via an online questionnaire. The gathered data were analyzed by SPSS version 29 and Smart PLS 4. For the preliminary data analysis, which included screening and cleaning the data, looking for outliers, normality, and common method bias, and conducting exploratory factor analysis, the software utilized was SPSS. Meanwhile, Smart PLS 4 was employed to assess primary data analysis for the measurement and structural models.

3.3 Sampling Design Process

The sample is a subset of the total population that contains some members chosen from it (Sekaran & Bougie, 2016). It is a process of choosing the right respondents as representatives for a study's population. The sampling approach provides an effective and affordable means of gathering data and efficiently tackles the practical constraints of gaining access to all population members. Due to the limitation of money, time, as well as access to the entire study population that makes this effort hard to achieve, drawing a plan to choose a sample is required to represent and generalize outcomes to the overall

population. The stages involved in the sampling process are further detailed in the following sections of this research.

3.3.1 Population Frame

Saudi Arabia has been chosen as the population of the study for a few reasons. Geographically, it dominates the other Gulf States (2.15 million km²) and census (35 million), based on the General Authority for Statistic (2021). This might imply that what applies to Saudi Arabia is highly likely to apply to the rest of the Gulf states. Second, Saudi Arabia is an important commercial location in the international community as it lies at the heart of the three continents of Asia, Europe, and Africa. Besides having strategic importance in the oil and natural gas industry, it is a unique religious and geographical beacon for all Muslims worldwide. Most significantly, the introduction of Vision 2030 and the alterations of the existing pension system enable the study to examine the influence of financial, psychological, and economic factors on retirement savings adequacy.

3.3.2 Sampling Frame

Despite the fact that the public university population in Saudi Arabia is the study's target group, the sampling frame consists of university staff, namely academicians and administrators' staff. This specific sample is chosen for the following reasons.

First, they are a population of specific interest in retirement planning because they account for 48% of the largest share of government workers. Likewise, since they work in an academic setting, it is natural to presume they have a higher level of education than their peers in other sectors. As such, they are expected to make better decisions related to saving and investment practices during their career. Second, they have an influence on the next generations. According to Machado-Taylor et al. (2010), the level of motivation held by university staff is a significant factor that plays a part in contributing to beneficial outcomes regarding the quality of educational institutions and the education received by students. Therefore, academician and non-academician staff from all public universities are selected to ensure that all bases are covered.

Third, staff members at public universities were chosen for this research since, in contrast to those working in the military or the financial business, they do not require formal letters in order to take part in this investigation. This was done since public colleges are easily accessible. Fourth, university staff has more potential than other industries for information exchange (Chahal & Savita, 2014) than other sectors anticipating simple access to retirement planning information. Fifth, since they are registered with PPA, which mandates pensions after retirement, they are of interest to researchers in personal financial planning, particularly retirement.

Moreover, because public university staffs earn lower salaries than private university employees, their pensions are also lower, necessitating a greater retirement savings sufficiency. The monthly pension varies depending on the length of service and the salary. PPA provides a pension for a retiree equivalent to 50%, 75%, and 100% of the last salary based on the employee's service years in the government sector for 20, 30, and 40 years, respectively. Most workers who receive pensions rely on their pensions after

retirement, making them more sensitive to unexpected future costs during their retirement. In this case, they must plan, save, and invest early for their retirement (Alkhawaja & Albaity, 2020).

3.3.3 Unit of Analysis

The unit of analysis or focal unit is a significant entity that a researcher analyzes (Bailey & Pearson, 1983) and is determined by the study's objectives (Sekaran & Bougie, 2010). The current study chooses academicians and administrators as the unit of analysis. According to the literature, most previous research has neglected to involve all participants from all age cohorts, genders, marital status, education qualifications, and employment sectors in the public education sector (Hutabarat & Wijaya, 2020; Jiménez et al., 2019). This study includes these demographic factors to avoid biased results.

3.3.4 Inclusion and Exclusion Criteria

The academicians and administrators in this study hold Saudi nationality, and their age is between twenty-six and the maximum before the mandatory retirement age. The minimum age for the respondents was twenty-six years old to ensure that all of them joined the labor force at this age. Only the Saudis are chosen, given that the government pension plan is only available for those holding Saudi nationality. The study participants are employees working at government universities, which excludes students, others, and those working at private universities. They were excluded from the study because many of their employees are non-Saudis, excluding them from the mandatory pension.

Moreover, non-Saudis and those who were already retired from their jobs are not included.

3.3.5 Sample Size

There are several common ways to estimate sample size: adopting a published statistical table, published by Krejcie and Morgan (1970), Joseph Hair's table (2014), use of a formula introduced by G*power software, and using a census method by gathering a study's data from all-inclusive members of a targeted population. In determining the sample size, this study follows Krejcie and Morgan (1970), in which the sample is determined based on the following formula.

$$S = X^2 NP\,(1 - P) \div d^2(N - 1) + X^2 P(1 - P)$$

Where:

S = Required Sample Size

X = Z value

N = Population Sample Size

P = Population Proportion

d = Margin of error (1%, 5%, or 10%)

The reason for choosing Krejcie and Morgan's table is that the population number is known, making it easier to know the approximate sample size for this research. According to the Saudi Arabian Monetary Authority, employment in the higher education sector was approximately 570,046 at the end of 2016 (SAMA, 2019). Therefore, the sample size for the study involving public universities is 382 participants.

3.3.6 Sampling Techniques

According to Sekaran and Bougie (2016), probability and non-probability sampling may be employed in social sciences studies. Theoretically, non-probability is the most helpful way to do a pilot study and deal with a large sample. Practically, this type of sampling design is used for cost, procedure, and time considerations. Non-probability sampling has several types, and the convenience sampling method is one of the primary types of non-probability methods. The convenience sampling method indicates which cases are most easily obtained from the frame. This process lasts until the required sample size is achieved (Saunders et al., 2009).

This study uses convenience sampling due to certain explanations. Firstly, even though using convenience samples with undetermined selectivity in empirical pension research has been questioned (Topa & Valero, 2017), it is frequently employed for individual financial preparation (França & Hershey, 2018; Safari et al., 2016; Shreevastava & Brahmbhatt, 2020). Second, this research's goal is to apply past research indicators. In the event that the theory or scale examination was to take place, Highhouse and Gillespie (2010) suggested using the technique of convenience sampling.

Third, samples may be taken from a large population in a short time, making this a valuable method for scientific studies (Tharenou et al., 2007). Given a lack of access to information on universities in the Ministry of Education, the sample frame only covers their websites. Thus, finding a comprehensive list from which to select names randomly was a challenge. Also, given this constraint, convenience sampling appears to be the only viable approach to picking responders. Classifying public university employees is challenging since universities differ from city to city. Finally, the Covid-19 pandemic has

necessitated the distribution of an online survey to the official email addresses of workers at public universities.

3.4 Measurement Scale Development

Before conducting a questionnaire survey, the first step is choosing appropriate questions to measure each variable in a study. Measurement is an essential notion in social science research (Hair et al., 2014) that helps researchers measure variables according to specific rules (Hair et al., 2016). In the context of retirement, Taylor and Geldhauser (2007) and Jiménez et al. (2019) argued that the first step to improving the PRSA's measures is to think as individuals about how and why they intend to plan and save for the future and what are the reasons that prevent them from planning for their retirement.

The research questions were formulated following the literature review and the hypotheses development in Chapter 2. After determining the research gaps, research topic, and formulating the study hypotheses, the survey scales were developed to answer the study's questions. For the current study, the scales of the variables were taken from prior studies that were found in the body of research on personal financial planning and then modified. Specifically, the measurements for financial literacy, retirement goal clarity, financial risk tolerance, and culture were adopted. However, the measurements for perceived retirement saving adequacy, two items for financial self-efficacy, assets ownership, and government policy were adapted, and part of debt measurements was specially created to fit the study's context.

The questions that were employed in the study were both objective and subjective. Objective questions require a specific response to test specific knowledge about a topic, such as the time value of money on basic financial literacy and the function of the stock market on advanced financial literacy. On the other hand, subjective questions measure individuals' thoughts, attitudes, and experiences, such as financial risk tolerance and financial self-efficacy.

The questionnaire scales consist of open-ended and closed-ended questions (Chava & David, 1996). Open-ended questions allow participants to express or write their responses easily and quickly. In contrast, closed-ended questions provide specific choices for the participants to choose one option. Such scales were evaluated using a seven-point Likert scale (1 = “strongly disagree,” 7 = “strongly agree”) except for financial literacy questions which have been coded as 1 for the correct answer; otherwise, they are coded as 0.

The study’s variables have been measured in two different ways: directly and indirectly. A direct approach is easy and straightforward to measure factors, such as gender and age. In contrast, an indirect approach, such as intention, satisfaction, knowledge, and trust, is not easy to implement (Hair et al., 2017a). Such variables are complex, so researchers and scientists usually resort to alternative methods to measure these complicated variables. A composite score, which evaluates variables using a selection of conceptually or statistically connected items functioning as proxy variables, is one of these methods (Eo et al., 2022). In other words, it merges all indicators of one latent variable to create a scale or index (e.g., a single-item construct) by which the overall concept is indirectly evaluated.

In the literature, a number of authors used a composite scale (Acjaz Khan et al., 2022; Jankowski, 2015; Noone e t al., 2010b). Following this approach is more precise and recommended by Hair et al. (2017a) because combining all items in a single concept is more probable to represent all the various aspects of the concept and reduce measurement error. In particular, when the variance inflation factor (VIF) for a predictor construct (tolerance value) is greater than 5 or 0.20, a researcher may choose to combine items into a single construct in order to address collinearity issues (Hair et al., 2017a). Also, it improves the measurement's accuracy and validity by reducing score variability and boosting validity by offering a more representative sample of data regarding the underlying idea (Stewart et al., 1992). In addition, individuals may comprehend trends in complicated settings through composite ratings, which support evidence in decision-making (Ghafoori et al., 2021).

A composite score approach is applied in this research to measure the items that belong to perceived retirement saving adequacy (dependent variable), culture and government policy (moderators), and debt (mortgage and other loans). The following paragraphs provide information about measurement for the study's variables: perceived retirement saving adequacy, financial literacy, financial self-efficacy, retirement goal clarity, financial risk tolerance, assets ownership, debt, culture, and government policy.

3.4.1 Questionnaire Design

The questionnaire design is vital to clarify and shape the study's data. The appropriate design of the questionnaire is essential to make the questions manageable and comprehensible to respondents to ensure the results are reliable for scholars.

The questionnaire scales consist of seven broad sections (A–G); each section represents one variable. The scales were adopted and adapted from numerous studies (Jacobs-Lawson & Hershey, 2005; Lown, 2011; Lusardi & Mitchell, 2007a; Martínez et al., 2009; Qu, 2007; Rooij et al., 2012; Sharma, 2010; Stawski et al., 2007; Study, 2018b; Uppal, 2016). Answering the survey questions takes approximately around 10-15 minutes to complete.

3.4.2 Socio-Demographic Variables

Section A was divided into two parts. The first section of the survey consists of closed-ended questions that gather information on the respondents, such as their gender, age, marital status, educational level, employment sector, and university at which they are employed. The age of participants was categorized into eight various groups, and each group represents five years, from 26 to over 60. Marital status was categorized into four groups: single, married, divorced, and widowed, while the educational level was divided into five groups: secondary, diploma, bachelor, master, and doctorate level. As for the employment sector and university of employment, the former is divided into academic and non-academic staff. The regression models use demographic data to determine the difference between respondents' demographic characteristics as control variables.

Meanwhile, the second part of section A includes both open and closed-ended questions. Open-ended questions are to extract specific information regarding, for example, the desired retirement age: "At what age do you plan to stop working altogether?"; the source of income for retirement: "How much of your current salary is saved for your retirement (in percentage)?", and the expected expenditures during

retirement: “How much do you expect that your retirement pension will provide your retirement needs?”. While close-ended questions include, “Which one is your intention in the future?” Table 3.1 summarizes these items.

Table 3.1 Age of Retirement and Source of Income

No.	Dimension	Original items	Adapted items	Source of original items
7 8	Age of Retirement	When you retire, do you plan to stop working altogether or reduce work hours at a particular date or age? Have you not given it much thought, or what?	**1)** After retirement, I plan to stop working altogether. **2)** I intend to retire earlier than the retirement age. **3)** After retirement, I plan to continue working to ensure income sufficiency **A)** After retirement, I plan to continue my working hours as is. **B)** After retirement, I plan to reduce my work hours.	Health and Retirement Study (2018)
9		At what age do you plan to stop working?	At what age do you plan to stop working altogether?	
10	Source of Income	Are you expecting to receive money or benefits at some time in the future from your [PLAN NAME/kitchen sink] (plan)?	How much do you expect that your retirement pension will provide for your retirement needs?	
11 12		Do you have a good idea of how much money you will need to save to maintain your desired standard of living when you retire?	Do you put aside some savings from your salary for your retirement? If yes, how much of your current salary is saved for your retirement?	(Uppal, 2016)

3.4.3 Perceived Retirement Saving Adequacy (PRSA)

Section B deals with PRSA, which is the study's dependent variable. It is measured by a six-item scale developed by Health and Retirement Study (2012, 2018b) and Uppal (2016), as indicated in Table 3.2.

During the process of preparing the PRSA measurements, this study tried to figure out which indicators were the best. It has applied twelve items divided into two sections to address the PRSA measurements' components. The first section has two sets, as shown in Table 3.1. The first set contains three items focusing on assessing desired retirement age, while the second set contains three items assessing the source of income. In the interest of providing a more descriptive analysis, these questions have been included.

On the other hand, the second section comprises two sets; the first consists of three items allowing respondents to self-evaluate their source of income. Similarly, the second set has three items that allow them to determine their expenditure regarding their retirement. A group of experts who have validated the questionnaire suggested one of them. Table 3.2 provides a summary of these measurements.

Table 3.2 Perceived Retirement Saving Adequacy Construct

No.	Dimension	Original Items	Adapted Items	Source
1	Source of Income	Do you have a good idea of how much money you will need to save to maintain your desired standard of living when you retire?	I have put aside some money for my retirement.	(Uppal, 2016)
2		Are you expecting benefits at some time in the future from your plan?	I am expecting benefits that can be utilized for my retirement planning.	Health and Retirement Study (2012)
3		1- Can you receive regular payments on a monthly or yearly basis? 2- How much do you expect those payments to be? 3- Are you currently receiving regular payments from your pension?	I will receive fixed payments as my pension when I retire.	Health and Retirement Study (2018)
4	Expenditures	Do you have a good idea of how much money you will need to save to maintain your desired standard of living when you retire?	I will have enough money to maintain my desired standard of living when I retire.	(Uppal, 2016)
5		I expect that I will have enough savings to pay for my expenditures during my retirement.	I expect that I will have enough savings to pay for my expenditures during my retirement.	Expert

Table 3.2, Continued

No.	Dimension	Original Items	Adapted Items	Source
6	Expenditures	Are you expecting benefits at some time in the future from your plan?	I am expecting some earnings, which I can utilize during my retirement.	Health and Retirement Study (2012)

3.4.4 Capacity Variables

Section C contains capacity variables that represent the variables of financial literacy and financial self-efficiency. It comprises twenty-six items: fourteen questions for financial literacy and twelve for financial self-efficacy. The data for this section is to answer the first research question, which is to know the extent of the influence of capacity variables on PRSA among the target population.

The well-designed financial literacy measurements developed by van Rooij et al. (2011a) were used to understand better how good the respondent's skills and knowledge are in preparing for retirement savings. This study has included the five measures of basic financial literacy (simple math, compound interest, inflation, time value of money, and money illusion) to assess participants' grasp of these concepts. Several empirical studies have used such scales extensively (Li et al., 2020; Nguyen & Nguyen, 2020; Niu et al., 2020), showing sufficient scales to measure financial literacy. However, certain items were changed to suit the research better. For example, the Saudi Riyal is used instead of the U.S. dollar, which was used in the original survey.

In contrast, advanced financial literacy scales were used to find out how knowledgeable people understood topics like stocks and bonds, the relationship between

risk and return risk diversification, and how the stock market works. These ten items assess common financial knowledge like saving and investing, but none are relevant to retirement planning. By analogy to Bandura's (2006) suggestion for self-efficacy, two questions in basic and another two in advanced financial literacy in the field of retirement were added in this study to finalize content and explore the impact of financial literacy on perceived retirement saving adequacy. The fourteen questions evaluating financial literacy provide in Table 3.3.

Table 3.3 Financial Literacy Construct

No.	Dimension	Adopted Items	Source
1	Basic Financial Literacy	Suppose you had SR 100 in an investing account, and the profit rate was 2% per year. After five years, how much do you think you would have in the account if you left the money to grow?	(Rooij et al., 2011b)
2		Imagine that the profit rate on your investing account was 1% per year, and inflation was 2% per year. After one year, how much would you be able to buy with the money in this account?	
3		Suppose you had SR 100 in an investing account, the profit rate is 20% per year, and you never withdraw money or profit payments. After five years, how much would you have on this account in total?	
4		Suppose that in the year 2017, your income has doubled, and the prices of all goods have doubled too. In 2017, how much will you be able to buy with your income?	
5		Assume my friend inherits SR 10,000 today, and his sibling inherits SR 10,000 3 years from now. Who is richer because of the inheritance?	
6		Pensions will only be paid to pensioners holding Saudi nationality, except for the non-Saudi wife of the deceased pensioner.	Public Pension Agency (2019)
7		I know that Public Pension Agency (PPA) deducts 9% from the employee's salary monthly who benefits from the pension scheme.	
8	Advanced Financial Literacy	What happens if somebody buys the stock from Firm B in the stock market?	(Rooij et al., 2011b)
9		What happens if somebody buys a bond from Firm B?	
10		Considering a long time period (for example, 10 or 20 years), which asset normally gives the highest return?	
11		When an investor spreads his/her money among different assets, the risk shall _____.	
12		Which of the following statements describes the main function of the stock market?	
13		I know that an employee who has been deceased/dismissed from work due to death/injury is entitled to receive monthly pensions equivalent to 4/5 of his/her last monthly salary.	Public Pension Agency (2019)

Table 3.3, Continued

No.	Dimension	Adopted Items	Source
14	Advanced Financial Literacy	When a pensioner dies, if there are only two beneficiaries, only up to 75% of the pension will be distributed among them.	Public Pension Agency (2019)

On the other hand, the financial self-efficacy scale for the current study is based on Lown (2011), designed by Schwarzer and Jerusalem (1995), and Health and Retirement Study (HRS). The first ten items were based on the general self-efficacy measurements (Lown 2011). The Cronbach's alpha was 0.76, and factor loading ranged between 0.574 and 0.759. Due to the ten items being general and not evaluating specific behavior, the last two items adapted from HRS were added, as Bandura (2006) suggested. Table 3.4 shows the adopt and adapt items used in this study.

Table 3.4 Financial Self-Efficacy Construct

No.	Adopted Items	Adapted Items	Source
1	I can always manage to solve difficult problems if I try hard enough.		(Schwarzer and Jerusalem 1995)
2	It is hard to stick to my spending plan when unexpected expenses arise.		
3	It is challenging to make progress toward my financial goals.		
4	When unexpected expenses occur, I usually have to use credit.		
5	I am confident that I can deal efficiently with unexpected events		
6	When faced with a financial challenge, I have a hard time figuring out a solution.		
7	I lack confidence in my ability to manage my finances.		
8	I can solve most problems if I invest the necessary effort.		
9	I worry about running out of money in retirement.		
10	I can remain calm when facing difficulties because I can rely on my coping abilities.		
11	Are you able to choose how your share of contributions for this plan is invested?	I can choose how much contributions of my pensions are to be invested by PPA.	Health and Retirement Study (2004)

Table 3.4, Continued

No.	Adopted Items	Adapted Items	Source
12	Are you able to choose how any of the money in your (plan) is invested?	I can change the amount to be invested in my pension scheme.	Health and Retirement Study (2018)

3.4.5 Willingness Variables

Section D deals with related psychological variables: retirement goal clarity and financial risk tolerance. The second objective of the study is to examine the influence of willingness factors on PRSA among employees. This part makes it possible to do that.

Stawski et al. (2007) developed retirement goal clarity scales using five questions. The factor loading across items was found to be between 0.71 and 0.86, and Cronbach's alpha was 0.90, indicating sufficient measurement reliability for exploratory study objectives. Thus, these items were adopted and applied in this study to measure individuals' goals for their retirement. Also, various researchers, such as França and Hershey (2018), Petkoska & Earl (2009), and Hershey et al. (2007b), employed the items in retirement planning behavior. Indeed, such items are regularly cited in the personal financial planning literature. Table 3.5 illustrates the variable measurements used in this study.

Five items of financial risk tolerance given by Jacobs-Lawson and Hershey (2005) were used as the basis for the scales' design. As a result of Cronbach's alpha value being 0.83, the measurements were chosen for use in this study to assess people's tolerance for financial risk. Table 3.6 illustrates the measurements applied in the study.

Table 3.5 Retirement Goal Clarity Construct

No.	Items	Source
1	I set clear goals for gaining information about retirement.	Stawski et al.(2007)
2	I think a great deal about the quality of life in retirement.	
3	I set specific goals for how much will need to be saved for retirement.	
4	I have a clear vision of how life will be in retirement.	
5	I discussed retirement plans with my spouse, friend, or family.	

Table 3.6 Financial Risk Tolerance Construct

No.	Items	Source
1	I am willing to risk financial losses.	(Jacobs-Lawson & Hershey, 2005)
2	I prefer investments that have higher returns, even though they are riskier.	
3	The overall growth potential of retirement investment is more important than the level of risk of the investment.	
4	I am very willing to make risky investments to ensure financial stability in retirement.	
5	I would never choose the safest investment when planning for retirement.	

3.4.6 Opportunity Variables

Section E sources information about two variables: asset ownership and debt. This section enables the attainment of the third study objective to know the extent of opportunity variables' impact on PRSA among employees.

Assets ownership is measured by six questions (open-ended and close-ended) in the form of tangible assets adapted items based on Rooij et al. (2011b) and the Health and Retirement Study (2014). The first indicator/item inquiries about the type of residence respondents reside in, while the second asks whether they fully, partially, or do not own

their residence. These two indicators/items are evaluated by creating a meaningful composite score by multiplying the scores of individual indicators.

The first question is evaluated using a six-point ordinal scale (1 = "others," 2 = "University Accommodation," 3 = "One House Family," 4 = "Apartment," 5 = "Duplex," 6 = "Villa,"). At the same time, the second question is evaluated also using a three-point ordinal scale (2 = "Owned Fully by You," 1 = "Owned Partially by You," 0 = "Rented or other"). For instance, a respondent who owns a portion of a family home will receive a composite score of 3 (e.g., 1×3). Another example, a respondent who fully owns an apartment will receive a composite score of 8 (e.g., 2×4). A third (open-ended) question asks respondents about their home's present value. After receiving responses, this question was converted to a continuous scale by calculating the rage and dividing it into seven Likert scales. Meanwhile, the fourth and fifth questions (closed-ended dummy scales) inquire about respondents' other tangible assets, such as vehicle ownership.

Because these questions have various scales, the first two questions (composite score) will be evaluated descriptively; the third question measures the value of home ownership, and the fourth and fifth questions measure ownership of other assets. For analysis, two indicators/items in PLS measure the asset ownership variable. The first one pertains to home ownership, represented by the third question in the survey questionnaire. The second indicator/item represents ownership of additional assets, represented by the fourth and fifth questions in the survey questionnaire. A few of the respondents have indicated that they had no assets due to either their financial or tangible assets.

Although there are no standard measures for analyzing debt, this study adapts three questions to measure mortgage loans and three to assess credit card loans to evaluate

debt based on the Health and Retirement Study (2004, 2008). The first question is a dummy scale, asking respondents whether or not they have a mortgage. The second and third questions are open-ended and are converted to a continuous scale. The former evaluates respondents' mortgage loans, whereas the latter evaluates other types of loans. The last three questions ask the respondents about credit card loans. For analysis, in Smart PLS, debt is measured by two indicators/items due to the differing scales of the indicators. The first indicator/item is a composite score, a single-item scale, represented by the second and third questions for measuring mortgages and other loans. However, the second indicator/item is represented by only the sixth question for assessing credit card loans.

Table 3.7 Assets Ownership and Debt Constructs

No.	Original Items	Adapted Items	Source
1	Percentage of real estate held by households	What type of home are you staying at?	van Rooij et al. (2011b)
2		Do you own part of it, do you rent it, or what? The home is ……..	
3	What is the present value of your checking or savings accounts or money market accounts?	What is the present value of the home?	Health and Retirement Study (2014)
4	Do you (or your [husband/wife]) have any real estate other than your main home, such as land, rental real estate, or money owed to you on a land contract or mortgage?	Do you (or your [husband/wife]) have any real estate other than your main home, such as land, rental real estate, or money owed to you on a land contract or mortgage?	
5	Do you (or your [husband/wife/partner]) own anything for transportation, like cars, trucks, a trailer, a motor home, a boat, or an airplane?	Do you (or your [husband/wife]) own anything for transportation, like a car, truck, trailer, motor home, etc.?	
6	If you sold all that and then paid off any debts on it, about how much would you get?	If you sold all your properties and then paid off all debts with it, about how much would you get?	

Table 3.7, Continued

No.	Original Items	Adapted Items	Source
7	Do you (or your [husband/wife/partner]) have any real estate other than your [(other than your main home or second home)/(other than your main home)/(other than your second home)], such as land, rental real estate, or money owed to you on a land contract or mortgage?	Do you have a mortgage or any other loan that uses on the property as collateral?	Health and Retirement Study (2014)
8	And do you (or your [husband/wife/partner]) have any debts that we haven't asked about, such as credit card balances, medical debts, life insurance policy loans, loans from relatives, and so forth?	How much do you still owe on your home loan?	Health and Retirement Study (2008)
9	About how much altogether would that amount to, minus any debts [he/she/they] might have?	How much do you still owe on the loans (not including the mortgage)?	
10		How much is the deduction from the current income to settle the monthly debt (in percentage)?	
11	Does any of that debt include credit card debt?	Do you have a credit card?	
12		If yes, do you have a credit card loan?	
13		If yes, the credit card bill is ….	

3.4.7 Moderating Variables

Sections F and G represent the study's moderators. These sections fulfill the fourth and fifth study's objectives to define the moderation effect of culture and government policy on the relationship between capacity, willingness, and opportunity variables toward PRSA.

Sixteen items were adopted from Hofstede's study (Sharma, 2010) to assess the value of cultural differences along two dimensions: long-term orientation and avoiding uncertainty. Uncertainty avoidance is shown by ambiguity intolerance and risk aversion subdimensions, while the long-term orientation dimension is represented by tradition and prudence subdimensions. Four items represented each subdimension, and a composite score was used to summarize each subdimension's entire scale. In contrast, the

government policy scale was developed by Hershey et al. (2007b), Qu (2007), and PPA (2019) measured by two dimensions: adequacy and guidelines. Adequacy is represented by a composite score based on the first five indicators/items, while guidelines are represented by a composite score based on the last two indicators/items. Table 3.8 illustrates the cultural dimensions and the items used in this study.

Table 3.8 Culture Construct

No.	Dimension	Sub-Dimension	Items	Source
1	Uncertainty Avoidance (UAI)	Risk Aversion (RSK)	I tend to avoid talking to strangers, especially about my financial matter.	(Sharma, 2010)
2			I prefer a routine way of life to an unpredictable one full of change.	
3			I would not describe myself as a risk-taker.	
4			I do not like taking too many chances to avoid making a mistake.	
5		Ambiguity Intolerance (AMB)	I find it difficult to function without clear directions and instructions.	
6			I prefer specific instructions to broad guidelines.	
7			I tend to get anxious quickly when I do not know the outcome.	
8			I feel stressed when I cannot predict the consequences.	
9	Long-Term Orientation (LTO)	Tradition (TRD)	I am proud of my culture.	
10			Respect for tradition is important to me.	
11			I value a strong link to my past.	
12			Traditional values are important to me.	
13		Prudence (PRU)	I believe in planning for the long term.	
14			I will work hard for success in the future.	
15			I am willing to give up today's fun for success in the future.	
16			I do not give up easily, even if I do not succeed in my first attempt.	

Table 3.9 Government policy Construct

NO.	Dimension	Original construct	Adapted Construct	Source
1	Adequacy	The current government regulations on the services standards of the hotel sector are very complete.	Public Pension Agency has clear guidelines on retirement.	Qu (2007)
2			The current retirement guidelines from Public Pension Agency on retirement are adequate to serve pensioners during their retirement.	
3		Our city has more effective regulations to encourage the hotels to improve their product and services standards in the hotel sector	Public Pension Agency has effective guidelines/programs to encourage financial planning for retirement among government servants.	
4		1- Our city has stricter regulations to protect the consumers. 2- There are complete laws and regulations to ensure fair competition.	There are sufficient guidelines to ensure retirees are self-sufficient after retirement.	
5		I am very confident in my ability to do retirement planning.	I am confident that the government pension pay-out from Public Pension Agency is sufficient to sustain my life after retirement	Hershey et al. (2007b)
6	Guidelines	There is a proposal from the Public Pension Agency to raise the retirement age by two years	There is a proposal from the Public Pension Agency to raise the retirement age from 60 to 62 for men and 55 to 57 for women is a good policy.	Public Pension Agency (2019)
7		Public Pension Agency's right to increase the 9% deduction if it is insufficient to meet its obligations to give the employee the promised pensions is a good move.	Public Pension Agency's right to increase the 9% deduction if it is insufficient to meet its obligations to give the employee the promised pensions is a good move.	

3.5 Quality Control of Research Instruments

Before administering the survey, this study conducts various validity tests, including some of the ones recommended by Newman, Newman, and Newman (2010). This section highlights the process of translation and adaptation of instruments, content validity, administration of the questionnaire, pilot test, reliability of the pilot test, and exploratory factor analysis.

Finally, a pilot study was conducted to evaluate the quality of the revised survey questionnaire. Content validity was used to test the goodness of measures (Sekaran & Bougie, 2016), as Newman, Newman, and Newman (2010) proposed, before applying the measurements in the actual survey. Meanwhile, reliability was represented by Cronbach's coefficient alpha of the questionnaire (Bolarinwa, 2015).

3.5.1 Process of Translation and Adaptation of Instruments

The translation process involves converting an original language of an article, English, for example, to the desired language based on linguistic and cultural differences in order to achieve equivalence (Hilton & Skrutkowski, 2002). The questionnaire of this study was initially prepared in English and then translated into Arabic to consider linguistic and cultural differences and achieve equivalence.

The translation is conducted using forward and back translations by two independent translators (Erkut et al., 1999; Jones & Kay, 1992). In forward translation, the original version was sent to an Associate Professor of Linguistics, also the Dean of Academic Services at Taibah University. He is a native speaker of the target culture's primary language and familiar with the English-speaking culture. Given his research background and work, he is also familiar with the terminology of the field covered by the questionnaire. He has translated the questionnaire from English to Arabic, using simple, clear, and concise words to form easily understood items for the participants. The researcher has avoided methodological risks during the translation process, such as idiomatic expressions, slang phrases, and jargon, as Hilton and Skrutkowski (2002)

recommended. Subsequently, the independent translator, a native Arabic speaker, and the researcher compared Arabic and English versions to discuss discrepancies in the draft.

The next step in forward translation is to make sure the translation is correct. In this phase, the first English and Arabic draft was sent to a panel of experts to validate the translation content. The panel consists of an expert from the Public Pension Agency (PPA), an academic at the Department of Law at Taibah University, and two academicians from King Abdul Aziz University. Their role was to review and edit inappropriate translated sentences and differences between the English and translated version. The completed draft is considered for the forward-back translation.

The purpose of the forward-back translation is to ensure that the final survey is ready for a pilot test. The draft of both versions was sent to a second independent translator, the Head of the Department of Finance and Economics at Taibah University. His role is to modify, revise, and translate the Arabic version into the English version again. With such independent professional language support, back-translation errors could be eradicated at the most. Any inconsistencies or differences in the translation were discussed with the second independent professional language support and the experts' committee as often as required until a suitable version was obtained. Only then will the final version of the questionnaire becomes ready for distribution to the target participants.

After finishing forward and back translation, the study has conducted a pre-test of the modified version of the target group. The study has considered some essential points while doing a pilot test, such as the participants' number and location. Appendix B has copies of the survey in English.

3.5.2 Content Validity

The validity of the content, also known as logical validity, raises concerns regarding the representativeness and relevance of the questions to the field of study and is sometimes transparent to participants (Sekaran & Bougie, 2016). Lynn (1986) indicated that the minimum numbers of professionals required to validate a survey content are at least three. This research follows the recommendation made by Lynn (1986) and Polit and Beck (2006), where the number of experts should be more than two and less than 11 members.

As for this study, four experts were informed about the research framework and its objectives and were asked to assess the questionnaire according to significance, straightforwardness, and ambiguity. Two academicians from King Abdul Aziz University with backgrounds in personal finance have assessed the survey questionnaire. The third expert was a commercial lawyer who also worked as an academician in the Department of Law at Taibah University. The fourth and final expert was a PPA manager at the Madinah branch.

The four experts have checked and ensured every question's length, understanding, readability of instruments, wording, format, the time respondents spent answering the survey, and sequential questions. Then, they have suggested and recommended modifying some items and deleting the rest to enhance the quality of the questionnaires. After making changes, they have found that the survey was obvious, not tricky, well organized, and comfortable for participants. Finally, they have confirmed that the questionnaires reflected the objectives of the study and verified the evaluation, as previously mentioned.

To count the content validity index, Lynn (1986) showed that content validity could be measured either by the content validity index (I-CVI) of individual items or the overall scale's content validity. In order to apply I-CVI, the current study has presented the questionnaire to a team of four experts related to the study variables (Polit & Beck, 2006) so that they would have to validate it. The PRSA measures, in addition to the study's variable measurements, have been a part of the content validation process. The survey questionnaire was broken up into six different sections. At the beginning of the questionnaire were questions about the person's age, gender, level of education, marital status, job sector, and university where they worked. The second section was PRSA, followed by capacity, willingness, and opportunity dimensions, while culture and government policies came last.

The experts' team have used a 4-point ordinal scale (Waltz & Bausell, 1981) and applied labels that were frequently used in the literature that was supported by Davis (1992), which are: 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, and 4 = highly relevant. Subsequently, the total item of I-CVI has been divided by the number of experts to compute it. The acceptable result for the total item I-CVI recommended by Lynn (1986) should be at least 0.78. For example, if one of four content experts rated an item as not or somewhat relevant, the I-CVI would be 0.75, which should be omitted (Lynn, 1986; Polit & Beck, 2006).

After computing the I-CVI for each item, the result showed that the questionnaire items' content was valid, except for items 8 and 9 of the government policy variable, for which the I-CVI was less than 0.78. Item number 8 was, “There is a regular review of retirement policy by the government,” while item number 9 was, “The board of directors for Public Pension Agency (PPA) has been reviewing the retirement policies effectively.”

Thus, both items were deleted from the survey. Tables 3.10 to 3.18 below show the experts' evaluation based on a 1 to 4 for each item.

Table 3.10 Content Validity for Socio-Demographic Data

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
1	✓	✓	✓	✓	4	1
2	✓	✓	✓	✓	4	1
3	✓	✓	✓	✓	4	1
4	✓	✓	✓	✓	4	1
5	✓	✓	✓	✓	4	1
6	✓	✓	✓	✓	4	1
7	✓	✓	✓	✓	4	1
8	✓	✓	✓	✓	4	1
9	✓	✓	✓	✓	4	1
10	✓	✓	✓	✓	4	1
11	✓	✓	✓	✓	4	1
12	✓	✓	✓	✓	4	1
Proportion Relevant	1	1	1	1	Mean I-CVI	1
Mean expert proportion	1	(✗) for `Disagree' responses (represented by 1 & 2 in the form prepared for the experts) (✓) for `Agree' responses (represented by 3 & 4 in the form prepared for the experts)				

Table 3.11 Content Validity for Perceived Retirement Saving Adequacy

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
1	✓	✓	✓	✓	4	1
2	✓	✓	✓	✓	4	1
3	✓	✓	✓	✓	4	1
4	✓	✓	✓	✓	4	1
5	✓	✓	✓	✓	4	1
6	✓	✓	✓	✓	4	1
Proportion Relevant	1	1	1	1	Mean I-CVI	1
Mean expert proportion	1	(✗) for `Disagree' responses (represented by 1 & 2 in the form prepared for the experts) (✓) for `Agree' responses (represented by 3 & 4 in the form prepared for the experts)				

Table 3.12 Content Validity for Financial Literacy

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
1	✓	✓	✓	✓	4	1
2	✓	✓	✓	✓	4	1
3	✓	✓	✓	✓	4	1
4	✓	✓	✓	✓	4	1
5	✓	✓	✓	✓	4	1
6	✓	✓	✓	✓	4	1
7	✓	✓	✓	✓	4	1
8	✓	✓	✓	✓	4	1
9	✓	✓	✓	✓	4	1
10	✓	✓	✓	✓	4	1
11	✓	✓	✓	✓	4	1
12	✓	✓	✓	✓	4	1
13	✓	✓	✓	✓	4	1
14	✓	✓	✓	✓	4	1
Proportion Relevant	1	1	1	1	Mean I-CVI	1
Mean expert proportion	1	(✗) for `Disagree' responses (represented by 1 & 2 in the form prepared for the experts) (✓) for `Agree' responses (represented by 3 & 4 in the form prepared for the experts)				

Table 3.13 Content Validity for Financial Self-Efficacy

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
1	✓	✓	✓	✓	4	1
2	✓	✓	✓	✓	4	1
3	✓	✓	✓	✓	4	1
4	✓	✓	✓	✓	4	1
5	✓	✓	✓	✓	4	1
6	✓	✓	✓	✓	4	1
7	✓	✓	✓	✓	4	1
8	✓	✓	✓	✓	4	1
9	✓	✓	✓	✓	4	1
10	✓	✓	✓	✓	4	1
11	✓	✓	✓	✓	4	1
12	✓	✓	✓	✓	4	1
Proportion Relevant	1	1	1	1	Mean I-CVI	1
Mean expert proportion	1	(✗) for `Disagree' responses (represented by 1 & 2 in the form prepared for the experts) (✓) for `Agree' responses (represented by 3 & 4 in the form prepared for the experts)				

Table 3.14 Content Validity for Retirement Goal Clarity

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
1	✓	✓	✓	✓	4	1
2	✓	✓	✓	✓	4	1
3	✓	✓	✓	✓	4	1
4	✓	✓	✓	✓	4	1
5	✓	✓	✓	✓	4	1
Proportion Relevant	1	1	1	1	Mean I-CVI	1
Mean expert proportion	1	(✗) for `Disagree' responses (represented by 1 & 2 in the form prepared for the experts) (✓) for `Agree' responses (represented by 3 & 4 in the form prepared for the experts)				

Table 3.15 Content Validity for Financial Risk Tolerance

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
1	✓	✓	✓	✓	4	1
2	✓	✓	✓	✓	4	1
3	✓	✓	✓	✓	4	1
4	✓	✓	✓	✓	4	1
5	✓	✓	✓	✓	4	1
Proportion Relevant	1	1	1	1	Mean I-CVI	1
Mean expert proportion	1	(✗) for `Disagree' responses (represented by 1 & 2 in the form prepared for the experts) (✓) for `Agree' responses (represented by 3 & 4 in the form prepared for the experts)				

Table 3.16 Content Validity for Wealth (Asset Ownership and Debt)

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
1	✓	✓	✓	✓	4	1
2	✓	✓	✓	✓	4	1
3	✓	✓	✓	✓	4	1
4	✓	✓	✓	✓	4	1
5	✓	✓	✓	✓	4	1
6	✓	✓	✓	✓	4	1
7	✓	✓	✓	✓	4	1
8	✓	✓	✓	✓	4	1

Table 3.16, Continued

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
9	✓	✓	✓	✓	4	1
10	✓	✓	✓	✓	4	1
11	✓	✓	✓	✓	4	1
12	✓	✓	✓	✓	4	1
13	✓	✓	✓	✓	4	1
Proportion Relevant	1	1	1	1	Mean I-CVI	1
Mean expert proportion	1	(×) for `Disagree' responses (represented by 1 & 2 in the form prepared for the experts) (✓) for `Agree' responses (represented by 3 & 4 in the form prepared for the experts)				

Table 3.17 Content Validity for Culture

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
1	✓	✓	✓	✓	4	1
2	✓	✓	✓	✓	4	1
3	✓	✓	✓	✓	4	1
4	✓	✓	✓	✓	4	1
5	✓	✓	✓	✓	4	1
6	✓	✓	✓	✓	4	1
7	✓	✓	✓	✓	4	1
8	✓	✓	✓	✓	4	1
9	✓	✓	✓	✓	4	1
10	✓	✓	✓	✓	4	1
11	✓	✓	✓	✓	4	1
12	✓	✓	✓	✓	4	1
13	✓	✓	✓	✓	4	1
14	✓	✓	✓	✓	4	1
15	✓	✓	✓	✓	4	1
16	✓	✓	✓	✓	4	1
Proportion Relevant	1	1	1	1	Mean I-CVI	1
Mean expert proportion	1	(×) for `Disagree' responses (represented by 1 & 2 in the form prepared for the experts) (✓) for `Agree' responses (represented by 3 & 4 in the form prepared for the experts)				

Table 3.18 Content Validity for Government Policies

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
1	✓	✓	✓	✓	4	1
2	✓	✓	✓	✓	4	1
3	✓	✓	✓	✓	4	1
4	✓	✓	✓	✓	4	1
5	✓	✓	✓	✓	4	1
6	✓	✓	✓	✓	4	1
7	✓	✓	✓	✓	4	1
8	×	×	×	✓	1	0.25
9	×	×	×	✓	1	0.25
Proportion Relevant	0.78	0.78	0.78	1	Mean I-CVI	0.83
Mean expert proportion	0.84	(×) for `Disagree' responses (represented by 1 & 2 in the form prepared for the experts) (✓) for `Agree' responses (represented by 3 & 4 in the form prepared for the experts)				

3.5.3 Administration of the Questionnaire

As stated earlier, the questionnaire was applied as the appropriate instrument that was utilized in order to collect the data for the study from the respondents. A cover letter in the Arabic language was attached to the survey. It has provided brief information about the study to explain the study's importance, nature, purpose, variables, and implications to help the potential participants answer the questionnaire (Creswell & Creswell, 2017). The letter and questionnaire were distributed through google drive and shared with the employees' emails.

3.5.4 Pilot Test

The pilot study was done with a sampling method called "convenience sampling." Ten percent (38 people) of the primary sample of 382 respondents with a variety of personal traits and work experiences from academic and non-academic staff took part. It was distributed among the target participants before conducting the primary survey (Forgasz & Kaur, 1997) for different reasons. First, it is to elicit expert and respondents' feedback on the clarity of instructions and survey items. If there were complex and vague questions in the survey, they were highlighted. Second, identify any errors in the questionnaire surveys that must be addressed before being sent out to participants. For example, some participants have commented that the Likert scale should be 4 or 5 points better than seven because some participants have faced difficulty filling out the survey through their smartphones.

These views and suggestions have been considered in the final version of the survey questionnaire to enhance and improve the questionnaire's quality, validity, reliability, format, and content. Thereby, the survey became more understandable and more manageable for respondents when filling out the questionnaire (Sudman et al., 1996).

3.5.5 Reliability of Questionnaires in Pilot Test

During the pilot test, items in the survey were structured and standardized in order to confirm validity, reliability, and generalizability and reduce bias. They were organized in a way that did not affect the next question's answer. They were also presented to

participants in the same sequence and at the same time. To measure the survey's reliability, Cronbach's coefficient alpha and corrected item-total correlation were applied as appropriate tools to assess each item's internal consistency in the survey. Regarding test-retest reliability, it was applied only to basic and advanced financial literacy because their items are objective and thus prove that the correct answers were stable and did not change between the participants (Christodoulou et al., 2015; Portney, 2020).

For the survey's internal consistency, the coefficient Cronbach's Alpha should not be less than 0.70 (Field, 2013), and the corrected item-total correlation should not be less than 0.30. The study has pooled 93 items that comprise demographic, independent, dependent, and two moderators for reliability analysis. The value of Cronbach's coefficient alpha of dependent, independent, and moderators ranged between 0.754 to 0.882, which is considered acceptable, as Groleger Sršen et al. (2015) suggested. The tables below show the coefficient Cronbach's Alpha and corrected item-total correlation results for each variable.

Table 3.19 Internal Consistency of Perceived Retirement Saving Adequacy

	Items	Corrected Item-Total Correlation
1	I have put aside some money for my retirement.	.344
2	I am expecting benefits that can be utilized for my retirement planning.	.662
3	I will receive fixed payments as my pension when I retire.	.541
4	I will have enough money to maintain my desired standard of living when I retire.	.840
5	I expect that I will have enough savings to pay for my expenditures during my retirement.	.815
6	I am expecting some earnings, which I can utilize during my retirement.	.757
	Cronbach's alpha = 0.858	

Table 3.20 Re-Test Reliability for Financial Literacy

	Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	Basic	.574	.444
2		.724	.407
3		.381	.452
4		.381	.452
5		.376	.452
6		-.131	.509
7		-.296	.661
8	Advance	.360	.459
9		.671	.417
10		.565	.427
11		.350	.456
12		.299	.462
13		.117	.489
14		-.296	.661
15	Test Re-Test for basic FL	.574	.444
16		.299	.462
17		.420	.449
18		.186	.478
19		.387	.454
20		-.103	.511
21		-.222	.523
22	Test Re-Test for Advanced FL	.444	.471
23		.394	.451
24		.504	.439
25		.173	.480
26		.163	.481
27		-.225	.525
28		-.374	.538
	Cronbach's alpha = 0.494		

Table 3.21 Internal Consistency of Financial Self-Efficacy

	Items	Corrected Item-Total Correlation
1	I can always manage to solve difficult financial problems if I try hard enough.	.428
2	It is hard to stick to my spending plan when unexpected expenses arise.	.637
3	It is challenging to make progress toward my financial goals.	.582
4	When unexpected expenses occur, I usually have to use a credit card.	.555
5	I am confident that I could deal efficiently with unexpected events.	.483
6	When faced with a financial challenge, I have a hard time figuring out a solution.	.605
7	I lack confidence in my ability to manage my finances.	.536
8	I can solve most financial problems if I invest the necessary effort.	.414
9	I worry about running out of money in retirement and does meet its goal.	.680
10	I can remain calm when facing difficulties because I can rely on my coping abilities.	.501
11	I can choose how much contributions of my pensions are to be invested by PPA.	.307
12	I can change the amount to be invested in my pension scheme.	.508
	Cronbach's alpha = 0.849	

Table 3.22 Internal Consistency of Retirement Goal Clarity

	Items	Corrected Item-Total Correlation
1	I set clear goals for gaining information about retirement.	.708
2	I think a great deal about the quality of life in retirement.	.513
3	I set specific goals for how much will need to be saved for retirement.	.711
4	I have a clear vision of how life will be in retirement.	.817
5	I discussed retirement plans with my spouse, friend, or family.	.518
	Cronbach's alpha = 0.839	

Table 3.23 Internal Consistency of Financial Risk Tolerance

	Items	Corrected Item-Total Correlation
1	I am willing to risk financial losses.	.699
2	I prefer investments that have higher returns, even though they are riskier.	.725
3	The overall growth potential of retirement investment is more important than the level of risk of the investment.	.667
4	I am very willing to make risky investments to ensure financial stability in retirement.	.692
5	I would never choose the safest investment when planning for retirement.	.735
	Cronbach's alpha = 0.874	

Table 3.24 Internal Consistency of Culture

Dimension		Items	Corrected Item-Total Correlation
1) Risk Aversion	1	I tend to avoid talking to strangers, especially about my financial matter.	.137
	2	I prefer a routine way of life to an unpredictable one full of change.	.496
Cronbach's alpha = 0.643	3	I would not describe myself as a risk-taker.	.418
	4	I do not like taking too many chances to avoid making a mistake.	.464
2) Ambiguity Intolerance	5	I find it difficult to function without clear directions and instructions.	.308
	6	I prefer specific instructions to broad guidelines.	.505
Cronbach's alpha = 0.779	7	I tend to get anxious easily when I do not know the outcome.	.338
	8	I feel stressed when I cannot predict the consequences.	.378
3) Tradition	9	I am proud of my culture.	.537
	10	Respect for tradition is important to me.	.459
Cronbach's alpha = 0.789	11	I value a strong link to my past.	.485
	12	Traditional values are important to me.	.449
4) Prudence	13	I believe in planning for the long term.	.281
	14	I will work hard for success in the future.	.537
Cronbach's alpha = 0.816	15	I am willing to give up today's fun for success in the future.	.135
	16	I do not give up easily, even if I do not succeed in my first attempt.	.440
	Cronbach's alpha as a whole = 0.791		

Table 3.25 Internal Consistency of Government policy

	Items	Corrected Item-Total Correlation
1	Public Pension Agency has clear guidelines on retirement.	.678
2	The current retirement guidelines from the Public Pension Agency on retirement are adequate to serve pensioners during their retirement.	.679
3	I am confident that the government pension payout from the Public Pension Agency is sufficient to sustain my life after retirement.	.616
4	Public Pension Agency has effective guidelines/programs to encourage financial planning for retirement among government servants.	.749
5	There are sufficient guidelines to ensure retirees are self-sufficient after retirement.	.848
6	There is a proposal from the Public Pension Agency to raise the retirement age from 60 to 62 for men and 55 to 57 for women is a good policy.	.391
7	Public Pension Agency's right to increase the 9% deduction if it is insufficient to meet its obligations to give the employee the promised pensions is a good move.	.746
	Cronbach's alpha = 0.882	

Table 3.26 Number of Retained and Omitted Items of Each Instrument

Instrument	Number of items before validation	Number of omitted items	Retained items	CVI
Perceived Retirement Saving Adequacy	6	0	6	1
Financial Literacy	14	0	14	1
Financial Self-Efficacy	12	0	12	1
Retirement Goal Clarity	5	0	5	1
Financial Risk Tolerance	5	0	5	1
Wealth	13	0	13	1
Culture	16	0	16	1
Government Policy	9	2	7	1

3.5.6 Exploratory Factor Analysis

Exploratory Factor Analysis is a statistical technique used to evaluate a latent variable's measurement model. There are several applications for exploratory factor analysis: the comprehension of an underlying structure to a large group of variables, the evaluation of scales, and the reduction of the number of variables required within a particular structure (Julie Pallant, 2020). Moreover, it informs a researcher of the number of possible items that could represent a construct. This study performed EFA to identify the number of dimensions contributing to the study's variables (Hair et al., 2017a),

especially for perceived retirement saving adequacy, financial literacy, financial self-efficacy, culture, and government policy constructs.

This study has used principal component analysis to determine factor extraction, followed by an investigation utilizing the Varimax technique and Kaiser normalization. Multiple EFA iterations were performed on the study's data. Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) test of sample adequacy were employed to evaluate each iteration's results. The KMO test was used to determine whether or not there was a sufficient sampling of each variable in the structure. By using Bartlett's test, however, the study is able to ascertain the direction of the statistical significance of the correlation between the research variables. The crucial value for KMO should be greater than 0.50, and the procedure cannot be used if it is below that threshold (Leech, Barrett, & Morgan, 2013).

When developing a scale, it is crucial to conduct the EFA on data separate from the CFA data (Schumacker & Lomax, 2010). Because of this, this study uses CFA on a separate data set to demonstrate the reliability of the EFA structure it discovered. Because the minimum size for factor analysis is 100 (Gorsuch, 1983), the study has divided the gathered data into two sets. For the exploratory factor analysis (EFA), 100 respondents were chosen randomly, using SPSS, and the remaining 425 respondents were chosen for the structural equation modeling (PLS-SEM) analysis.

3.6 Data Collection Process

Data is defined as simple facts or information that has not been analyzed. Data collection is a process of gathering data from the source. The data collection process is crucial in applying research, namely when some points must be considered in conducting data collection, such as cost, time, and quality (Pinsonneault & Kraemer, 1993).

Basically, primary and secondary methods are ways of collecting data. Primary data is first-hand data collected from participants for later analysis to find solutions to a research problem (Sekaran & Bougie, 2016). Several data collection types can be used in this method, such as interviews, observations, and questionnaires. The literature defines a questionnaire as a way that includes written questions directed to a specific group of people to capture their information. After analysis, the result provides details about their behaviors and attitudes about a particular topic (Babbie, 2015; Sekaran & Bougie, 2016).

This study has adopted an instrument, a self-administered questionnaire, to gather the data from target participants. This kind of tool is usually used in explanatory and descriptive research (Saunders et al., 2009) and exploratory research in social science to elucidate the variables in various phenomena. According to Saunders, Lewis, and Thornhill (2009), manual distribution of a questionnaire using hard copies besides electronic distribution using respondents' email may be used to have accurate, reliable results and a high response rate. However, participants have received the survey questionnaire in electronic form via their formal emails because of the Covid-19 pandemic.

3.7 Data Analysis Process

This study has employed preliminary, descriptive, and primary analysis as data analysis approaches, as shown in Figure 3.2 below. Once the data is collected, numerous research tasks in data analysis are performed to ensure that the data gathered are not incomplete or inaccurate (Sekaran & Bougie, 2016). These tasks give precise meaning to the data collected for the whole study process. Also, they provide substantiation for the study's results. Once the participants reach the sample size required, the data are ready to be analyzed using statistical software programs.

Statistical Package for the Social Sciences (SPSS) version 29, Partial Least Square Structural Equation Modelling (PLS-SEM), and Microsoft Excel were used to perform data analysis in terms of statistical software. More specifically, SPSS and Microsoft Excel have performed the preliminary and initial descriptive analysis (Azman Ong & Puteh, 2017) to understand the gathered data comprehensively. This stage includes the central tendency, dispersion, and association of the data, which are necessary to describe the respondents' profiles. Meanwhile, PLS-SEM explains the variance among independent variables and the research hypothesis (Hair et al., 2017a).

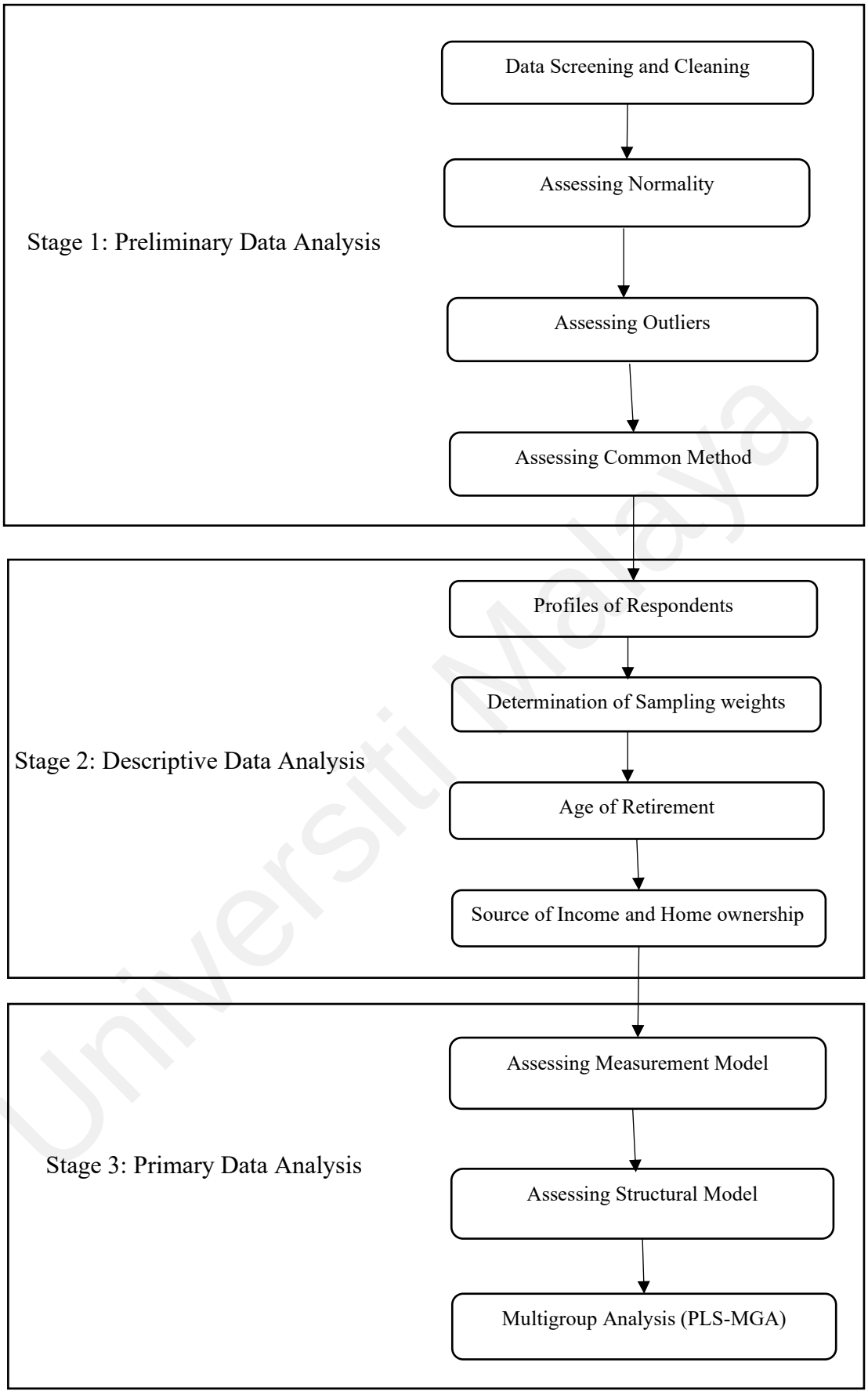


Figure 3.2 Stages of Data Analysis

3.8 Structural Equation Model (SEM)

SEM is used to find out what effects PRSA as a dependent variable, shown by the CWO dimensions as independent variables. SEM is proper in many ways as a statistical tool for analyzing data. First, it is a powerful technique for examining and approximating causal relationships, which is considered the best (Fan et al., 2016; Hair et al., 2017a) using statistical data and qualitative causal assumptions. Second, it allows the scientists to simultaneously examine the relationship of variables under the study (Eisenhauer et al., 2015; Hair et al., 2017a). In other words, the model can handle a complicated relationship between latent variables simultaneously, taking into account its structure. As a result, the effect of Type 1 errors will be reduced.

Elangovan and Rajendran (2015) indicated another benefit of using SEM: research can examine multiple layers of direct and indirect links between variables. This is because SEM is a second-generation multivariate analysis. This means that SEM has many roots, such as factor analysis, path analysis, and multiple regression (Lowry & Gaskin, 2014), allowing research, as mentioned by Chin and Todd (1995), to figure out how the dependent and independent variables are related in order to answer the research questions.

For this study, PLS-SEM was chosen as the statistical method for several reasons. As the conceptual model of this research is derived from multiple theories, the prediction between latent variables has to employ PLS-SEM usage (Azman Ong & Puteh, 2017), which is more vigorous than SPSS dealing with exploratory research objectives (Taofeeq et al., 2020) and complex conceptual framework (Hair et al., 2017a). Furthermore, PLS-SEM can deal with formative constructs and is recommended for moderating models

(Memon et al., 2019). Third, it provides visual results that assist readers in interpreting the results efficiently. It also deals with multicollinearity and allows scholars to consider the structure of the data.

3.9 Primary Data Analysis (Measurement Model)

The previous section highlights the reasons for choosing SEM and PLS-SEM as statistical methods to analyze the study data. However, this section showcases PLS-SEM employment in analyzing the collected data in two forms: the measurement model (outer model) and the structural model (inner model). Table 3.27 shows how the measurement and structural models were evaluated systematically, as Hair et al. (2017a) recommended.

Table 3.27 Measurement and Structural Model Assessment

Evaluation of the Measurement Model	
1- Reflective Measurement Model	**2- Formative Measurement Model**
• Internal Consistency (Cronbach's alpha, composite reliability) • Convergent Validity (indicator reliability, average variance extracted) • Discriminant Validity (cross-loading, variable correlation)	• Convergent Validity • Collinearity between Indicators • Significance and Relevance of Outer Weights
Evaluation of the Structural Model	
1- Collinearity Assessment 2- Size and significance of path coefficients (P-Value) 3- Coefficients of Determination (R^2) 4- Effect Size (f^2) 5- Predictive Relevance (Q^2) 6- Goodness of Fit index (GoF)	

* Source: (Hair et al., 2017a)

This research has carried out validity and reliability exams using the PLS-SEM method to investigate the relationship between items and their corresponding variables (Hair et al., 2017a). Before analyzing the study data, the measurement model is required to have valid findings of the structural model. In this phase, three critical points have been highlighted: to determine the type of measurement (formative or reflective), test the relationship between items and their latent variables, and assess higher-order constructs if found.

A study by Ho (2013) stated that a measurement model is a group of rules that guide researchers in measuring latent variables. One of these rules stated by Chin (2010) is that it should differentiate between reflective and formative measured constructs. Therefore, the current research has employed the Confirmatory Tetrad Analysis (CTA) technique using the PLS-SEM to examine the nature of the variables' indicators in path modeling, either the reflective or the formative items (Gudergan et al., 2008; Hair et al., 2017a). The CTA-PLS technique requires at least four items per construction (Kono, Ito, & Loucks-Atkinson, 2018). However, in a construct with less than four items, a researcher could add some available indicators (Gudergan et al., 2008). Table 3.28 explains the CTA-PLS results.

Table 3.28 Guideline to Determine Measurement Model

	CI Low adj.	CI Up adj.	Measurement Model is
If the values of tetrads are positive ……	+	+	Formative
If the values of tetrads are negative …..	-	-	Formative
If at least one tetrad value is different ……	+/-	-/+	Reflective

Calculating CTA-PLS should be followed by five steps. First, shape and calculate all vanishing tetrads for a variable measurement model. Next, a researcher should detect model-implied vanishing tetrads. Then, remove the redundant model implied vanishing tetrads, while the fourth step is to execute a statistical significance examination for every remaining vanishing tetrad. The final step is to assess the outcomes taking into account an appropriate set of a multitude of evaluations. Testing the relationship between latent variables and their measurements, as well as assessing higher-order constructs, will be discussed in more detail in the following paragraphs.

3.9.1 Reflective Measurement Model

The findings of the CTA-PLS analysis have led to the conclusion that the current research includes reflective and formative constructs. A reflective construct consists of indicators shaped by an underlying latent construct (Petter et al., 2007). The reflective measurements' characteristics are highly correlated and interchangeable (Hair et al., 2017a), and deleting one item or more must not alter the conceptual domain of a variable. However, items are changed if a latent construct changes (Jarvis et al., 2003). In this study, retirement goal clarity and asset ownership (other assets ownership) are reflective measurements because of the causality path seen from the variables to the measurements.

Three crucial criteria should be focused on understanding the evaluation process for the reflective measurement construct model: internal consistency reliability, convergent validity, and discriminant validity. The reliability and internal consistency focus on four measures: Cronbach’s alpha, reliability of common factor models (rho_A), composite reliability (CR), and outer loading. Convergent validity focuses on indicator

reliability and Average Variance Extracted (AVE), while discriminant validity focuses on three approaches: cross-loading, Fornell-Larcker criterion, and heterotrait-monotrait ratio (HTMT). In the following paragraphs, these examinations will be discussed in detail.

3.9.1.1 Internal Consistency Reliability

Using alpha (α) has become commonplace in social science research and medical education for various reasons. First, many items are used to measure one variable in the study. Second, it is not difficult for a researcher to compare with other estimates, so the researcher needs to manage only one test (Tavakol & Dennick, 2011).

Internal consistency assessment confirms the survey's reliability Slavec, Drnovšek, & Drnovesek (2012) using alpha (α), which Lee Cronbach developed in 1951. The internal consistency reliability is assessed by Cronbach's alpha, (rho_a), and composite reliability (CR) (Cronbach, 1971; Hair et al., 2017a). The former estimates the reliability of the measurements based on the intercorrelations among them. In contrast, the latter measures reliability by calculating the outer loading of items for each variable, while (rho_A) usually lies between the former and latter measures.

Even though CR and alpha (α) are tools to measure reliability, Cronbach's alpha has limitations. It does not accurately evaluate the reliability because it assumes that all items have equal weights, reliability, and loading of a construct (Werts et al., 1978). Therefore, the appropriates measure of internal consistency reliability is composite reliability (CR).

The value for consistency reliability should be at least 0.70 (Chin, 2010). Suppose this value of reliability measures becomes less than 0.60. In that case, there is a lack of reliability (Henseler et al., 2009), while if this value becomes above 0.95, it means they measure the same phenomenon, which is not likely to be a valid measure for the construct (Hair et al., 2017a). As such, the most recommended value for composite reliability of the measurement variables based on the literature is expected to be between 0.70 and 0.90.

3.9.1.2 Convergent Validity

Hair et al. (2017a) defined convergent validity as "the extent to which a measure correlates positively with alternative measures of the same construct." Two essential criteria determine convergent validity: indicator reliability and Average Variance Extracted (AVE). The indicator reliability points out how an investigator assesses one item or more to be consistent with a construct intended to measure (Urbach & Ahlemann, 2010). According to Hair et al. (2017a), if indicator reliability and outer loading are less than 0.40, the indicators should be deleted; accepted if they are more than 0.70. However, the indicator reliability value between 0.40 and 0.70 should be kept if removing the indicator leads to decreased CR and AVE suggested threshold value.

Meanwhile, AVE is defined as how much each variable, on average, explains the variance of its indicators (Hair et al., 2017a). In case the value of AVE is 0.50 and above, it is considered an acceptable range value. It means less variance remains in the indicator's error than the invariance elucidated by the construct.

3.9.1.3 Discriminant Validity

Discriminant validity is the third stage in assessing the reflective measurement construct model. It ensures that each construct in a model differs from other empirical standards (Hair et al., 2017a). It examines whether indicators for a specific construct do not measure other constructs (Urbach & Ahlemann, 2010). To evaluate discriminant validity, there are three approaches: cross-loading (Chin, 1998), variable correlation (root square of AVE) (Fornell & Larcker, 1981), and the HTMT approach. Cross-loading is a process to measure an item's correlation with all constructs to ensure that the loading of an item assigned to a specific construct is more than its loading on other latent variables in a study's model.

The variable correlation is a process of comparing the square root of the AVE value for one construct with other square roots of the AVE correlation value (Hair et al., 2017a). Fornell and Larcker (1981) showed that discriminant validity is the square root of AVE. The third approach to measure discriminant validity is HTMT, which is a way to estimate the accurate correlation between two constructs. If the correlation value between the latent constructs is close to 1, it indicates a lack of discriminant validity. Table 3.29 shows a summary of the reflective measurement model.

Table 3.29 Summary of Validity of Reflective Measurement Model

S/N	Validity Criteria	Index	Guidelines
1	Internal Consistency	Composite Reliability	CR > 0.60 (for exploratory study) CR > 0.70 - 0.90 (satisfactory) CR > 0.90 (not eligible)
2	Convergent Validity	1- Indicator Reliability	Items loading > 0.70 Statistically significant at 0.05 level
		2- Average Variance Extracted (AVE)	AVE > 0.50
3	Discriminant Validity	Cross Loading / Fornell & Larker / HTMT	Each item has the highest loading for its designated variable
			The square root of the AVE value of one construct must be higher than the square root of the AVE value for another construct

3.9.2 Formative Measurement Model

This research takes into account a total of nine factors: seven independent variables and two moderators. Basic and advanced financial literacy, financial self-efficacy, financial risk tolerance, culture, government policy, and perceived retirement saving adequacy are formative measurements. According to Hair et al. (2017a), assessing convergent validity, collinearity issue, and the formative measurements' relevance are steps to evaluate formative measurement models using the bootstrap procedure. The following steps will be illustrated in more detail in the following paragraphs.

3.9.2.1 Convergent Validity

Models for formative and reflective assessment are distinct; hence, reflective assessment indices cannot be used to investigate formative assessment data. Unlike reflective measurements, formative items influence the underlying variable, are not interchangeable and exchangeable (Hair et al., 2017a; Jarvis et al., 2003), and are supposed to be mistake-free (Diamantopoulos, 2006). Also, the correlation between reflective indicators is high, but formative indicators are not likely to be high. Consequently, using the same reflective measurement standards in convergent and discriminant validity to evaluate formative indicators does not have any meaning (Chin, 1998; Hair et al., 2017a).

Evaluating convergent validity for formative measurement is carried out by redundancy analysis. It is a conventional test of correlation between formative measured construct with reflective measured of the same construct (global item) to see whether the correlation level is high or low (Ramayah et al., 2018). To assess the convergent validity of formative measurements, the path magnitude between formative and reflective measurements should be at least 0.70 (Hair et al., 2017a). At the same time, the value of R^2 should be more than 0.50. According to Hair et al. (2017a), the endogenous variable in redundancy analysis must be mentioned in the research design and part of a survey questionnaire.

Due to several considerations, convergent validity was not evaluated in this study. First, the findings of prior studies have not been capable of identifying an appropriate reflecting assessment (global item) that corresponds to formative measured constructs. A professional in the field of financial literacy, for example, should develop a new global

item for basic and advanced financial literacy. Second, the CTA exam result for this study has revealed that several study variables had formative measurements. This finding indicates that formative measures associated with a single latent construct assess distinct topics, indicating a low expected correlation between the measurements. Therefore, the formative items were evaluated only for the multicollinearity and significance of the weightings of the indicators.

3.9.2.2 Collinearity Issues

High correlations between formative indicators are undesirable because they alter items' statistical significance and their weights, whereas correlations between reflective indicators are desired (Hair et al., 2017a; Ramayah et al., 2018). Precisely, estimated weights for formative indicators become incorrect. Therefore, computation of collinearity using the variance inflation factor (VIF) for formative indicators is necessary. If it exceeds 10, the indicator must be removed from the formative measurement model. Similarly, if the value of VIF is between 5 to 10, a prospective collinearity issue should be avoided.

3.9.2.3 The Significance and Relevance of the Formative Indicators

Besides the importance of assessing convergent validity and collinearity issues for the formative measurement model, evaluating the significance and relevance of the formative indicators are not less important, which can be done by evaluating an item's outer weight, outer loading, and theories. For example, an indicator of outer weight in a

formative measurement model becomes significant if its value is above 0.50. In contrast, an indicator of outer loading in a reflective measurement model becomes significant if its value is above 0.70. Usually, an item's outer weight in a formative measurement model is less than an item's outer loading in a reflective measurement model (Hair et al., 2017a).

In case an item's weight statistically is not significant, weak items could be kept according to the principle of outer loading, content validity, prior research, or theories that justify the item's relevance to retain in the study (Hair et al., 2017a; Ramayah et al., 2018). If not, the unsatisfactory item's weight should be removed.

3.9.3 Evaluation of Hierarchical Component Models

Hierarchical component models (also called Higher-order constructs) consist of multidimensional constructs containing two layers of components or more to be tested (Hair et al., 2017a). First-order measurement models examine the relationships between the variables and their measures, whereas second-order measurement models examine the links between the dimensions and their respective variables. In this study, the basic and advanced financial literacy and financial self-efficacy variables consist of the second-order measurement model, which considers Hierarchical Component Models (HCMs) or Higher-Order Models (HOM).

The indicators for first-order components (general – retirement) for basic and advanced financial literacy have been modeled formatively, as is the entire set of repeated indicators for the second-order components. Regarding financial self-efficacy, the first-order components (reverse questions – general – retirement) have been modeled

reflectively. However, the second-order component, financial literacy, and financial self-efficacy are modeled formatively concerning the first-order components.

Research on higher-order constructs (HCMs) from the past has shown that reflective-reflective and reflective-formative types are most common in different fields (Sarstedt et al., 2019). HCMs have numerous valuable distinguishing characteristics. First, applying HCMs help researchers reduce the number the relationship between variables in a path model. It outlines the lower-order constructs into one multidimensional higher-order construct (Hair et al., 2017a). Second, it deals with collinearity among first-order constructs by re-assembling the items and variables within the different subdimensions to build a second-order construct (Garson, 2016; Hair et al., 2018).

According to the literature, there are different approaches to examining higher-order constructs in PLS-SEM; the extended repeated indicators and two-stage approaches are the most illustrious (Ringle et al., 2012). Sarstedt et al. (2019) proved that both approaches generate highly similar outcomes if the sample size is large enough. Therefore, this study has followed an embedded two-stage approach based on its objectives to examine high-order constructs for culture.

3.10 Primary Data Analysis (Structural Model)

Once the measurement model (outer model) has been evaluated, the structural model (inner model) is the next assessment step. The structural model indicates the relationship between constructs (Hair et al., 2017a; Ramayah et al., 2018). Evaluating structural model findings helps a researcher decide whether the analysis results support

underlying theories for a study. To assess the structural model using PLS-SEM, collinearity evaluation (phase1), the significance of the path coefficients P-value (phase2), the level of the coefficient of determination R^2 value level (phase3), f^2 effect size (phase4), and finally, predictive relevance Q^2 (phase5) are the five critical criteria to be evaluated.

3.10.1 Collinearity Assessment

The collinearity assessment in the Informative Measurement Model applies the same measurement tool to the Structural Model, the VIF value (Hair et al., 2017a; Ramayah et al., 2018). The VIF for every predictor construct or tolerance value must not exceed 5 or 0.20. If so, the researcher may either discard the construct, merge items into a single construct, or create a higher-order construct to treat collinearity issues (Hair et al., 2017a).

3.10.2 Structural Model Path Coefficient (P-Value)

The second criterion for evaluating PLS-SEM's structural model examines a study's hypotheses measured by the path coefficient. It is a statistical estimation of the average change in the dependent value for every unit change in independent value in multiple regression (Groebner et al., 2010). To ascertain whether a particular relationship between IV and DV is significant or not, it needs to calculate the P-value or T-value. The acceptable value of T-statistics and P-value for one tail should be 1.28 ($P < 0.10$), 1.65 ($P < 0.05$), and 2.33 ($P < 0.01$) (Hair et al., 2017a).

3.10.3 Coefficient Determination (R^2)

The third criterion is to determine the coefficient of determination (R^2 values), representing the variation percentage in a dependent factor that could be interpreted by independent variables (Hair et al., 2017a). The acceptable range for R^2 varies from one scholar to another. According to Hair et al. (2017a), R^2 equal to or more than 0.25 is weak, equal to or more than 0.50 is moderate, and more than 0.75 is substantial. Cohen (1988) referred to the fact that R^2 equal to or more than 0.02 is weak, equal to or more than 0.13 is moderate, and equal to or more than 0.26 is strong. However, Falk and Miller (1992) referred to the minimum acceptable R^2 value as 0.10.

3.10.4 Effect Size (f^2)

The effect size (f^2) is employed to investigate the relative influence of specific independent variables on the dependent variable, whether weak, moderate, or strong, through a change in coefficient determination (Chin, 2010). It can be specified that 0.02, 0.15, and 0.35 represent small, medium, and tremendous influence, respectively (Hair et al., 2017a; Ramayah et al., 2018). It shows whether omitting an exogenous from a model significantly affects the R^2 value or not (Hair et al., 2017a). Also, it represents the influence between exogenous and endogenous latent variables through the changes in R^2. Consequently, the size of the (f^2) effect was calculated because the P-value only highlights the effect between endogenous and exogenous but does not reveal the magnitude of the effect between independent and dependent variables (Sullivan & Feinn, 2012).

3.10.5 Predictive Relevance (Blindfolding) Q^2

In parallel to examining the coefficient of determination (R^2 values) and effect size (f^2), also a researcher can effectively investigate predictive relevance (Q^2) to assess an inner model (Hair et al., 2017a). The Q^2 assesses the power of the research model regarding predictive relevance. A Q^2 value should be greater than zero to ascertain that the study's model is predictive of relevance for the dependent variable. According to Ramayah et al. (2018) and Hair et al. (2017b; 2019), only endogenous variables with reflective indicators can be applied to the blindfolding technique. Based on Confirmatory Tetrad Analysis (CTA), perceived retirement saving adequacy measurements are formative. Accordingly, this study does not perform Q^2 to assess its predictive value.

3.10.6 Goodness of Fit Index

The last criterion is the Goodness of Fit index (GoF), which considers both measurement and structural models' efficiency. It is the dependent variable's geometric mean (AVE) and average (R^2). The aim of GoF focuses on the study model at both the measurement and structural model and its performance (Henseler & Sarstedt, 2013). To calculate GoF, the formula is

$$GoF = \sqrt{(\overline{R^2} \times \overline{AVE})}$$

To determine the GoF criterion, its value defines whether the value is large at 0.36, medium at 0.25, or small at 0.10, according to Odekerken-Schröder et al. (2009).

Because the GoF is inappropriate to use with the formative measurement model, Hair et al. (2017a; 2017b) advised avoiding using this measure.

3.10.7 Moderation Effect

Assessing the moderation effect is considered the last phase in the structural model. This assessment illustrates the probability that the relationship between exogenous and endogenous variables will change. It has two kinds: categorical or continuous variables. According to Baron and Kenny (1986) and Memon et al. (2019), a moderator variable is used if the relationship between independent and dependent variables is inconsistent or unexpectedly weak. Applying a moderator may change the inner model's path coefficient from a negative to a positive relationship and vice versa. Hence, two continuous moderators in this study – culture and government policy – have been assumed to influence the relationship between the chosen variables and PRSA, either to strengthen/weak the relationship or change the relationship's direction.

The moderation effect is investigated through the use of three different statistical methods in PLS-SEM: product-indicator approach, two-stage approach, and orthogonalizing approach (Hair et al., 2017a; Memon et al., 2019; Ramayah et al., 2018). Product indicator and orthogonalizing approaches apply only when independent variables, moderators, or both have a reflective measurement model (Hair et al., 2017a). Otherwise, the two-stage approach is recommended to examine the moderation effect (Chin et al., 2003). Since this study has variables with a formative measurement model, the product indicator and orthogonalizing approaches are not applicable. Therefore, the two-stage approach is more appropriate to be used. Both stages are defined as follows:

Regarding the first stage, an examination of the conceptual model without the interaction term, moderators, is to acquire results of the latent variables. The results of the examination are then saved for the second stage. In the second stage, on the other hand, both scores – exogenous variables and moderators from the previous stage – are multiplied to generate a single-item measure utilized to gauge the interaction term.

3.10.8 Multigroup Analysis (PLS-MGA)

In order to determine if there are statistically significant variations in the parameter estimates for each group, researchers might use a technique called multigroup analysis (MGA) (e.g., outer loadings, path coefficients, and outer weights) (Hair et al., 2017a). After examining the structural study's model for the whole data, Partial Least Square-Multigroup Analysis (PLS-MGA) assesses the significant differences between academic and non-academic groups. Hence, applying MGA in a single population enables a researcher to avoid failing to assess whether significant differences among groups exist or not (Matthews, 2017), which can be misleading (Sarstedt et al., 2016) in the final results.

This study has applied PLS-MGA because it consists of different groups of employment, academic and non-academic, to confirm the significant difference between the CWO model's path models across both groups and provide accurate results. For instance, the path model connecting capacity (financial literacy, financial self-efficacy), willingness (retirement goal clarity, financial risk tolerance), and opportunity (assets ownership, debt) dimensions and perceived retirement saving adequacy are revealed and

compared with the purpose of determining the significant level between administrators and academic staff.

3.11 Chapter Summary

This chapter provides a bird's eye view of the study's methodology and the techniques used in this study. It gives an insight into research design, including justification of the research design and process. Since the quantitative method approach is the most suitable research strategy in the current study, the investigator chose this approach in structuring, organizing, and designing the entire study process, including the sampling frame, quality control of research instruments, data collection process, data analysis process, and extent of researcher interference with the study. These whole study processes illustrate the extent of the quality and originality of the present research.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter explains the data analysis procedure as well as the study findings. The response rate is presented in the second section. In the next third, fourth, and fifth sections, preliminary, descriptive, and primary data analyses were presented. The data analysis process comprises preliminary, descriptive, and primary data analysis. Preliminary data analysis prepares the collected data for further analysis and summarizes the results, while the primary data analysis estimates the overall assessment results of the measurement and structural models used in this study. The analysis of descriptive data about the context of respondents is assessed.

In primary data analysis, the reflective measurement model should be examined based on three criteria: internal consistency reliability, convergent validity, and discriminant validity, whereas the formative measurement model should be examined based on also three criteria: convergent validity, collinearity, and significance and relevance of the formative indicators. The structural model assessment includes six subparts: lateral collinearity, path coefficient, coefficient of determination (R^2), effect size (f^2), coefficient of predictive power (Q^2), and eventually, the moderating assessment. Finally, a multi-group analysis (MGA) is performed for further information to evaluate the significant differences between the academic and non-academic employment sectors.

4.2 Response Rate

The limited availability of data on secondary retirement savings in Saudi Arabia prompted the study to conduct a survey questionnaire to obtain primary data from Saudi public universities. Between 15 March and 15 June 2020, the survey was sent to all 29 of Saudi Arabia's public universities. Due to an inadequate response rate for statistical analysis, the submission deadline was pushed out to late January 2021. A total of 1,300 of the designed survey were distributed via email; only 558 respondents were received, representing a 43% response rate. In particular, 355 faculty members and 203 administrators participated in the study. The low response rate was expected because the survey was distributed through email. Sekaran (2016) argued that a response rate greater than 30% is considered reasonable and statistically significant.

4.3 Preliminary Data Analysis

The process of conducting the first statistical analysis technique is referred to as preliminary data analysis. This stage aims to guarantee that the data can be used in the major analysis stage. These statistical analytical techniques must be followed since inaccurate data yield inaccurate analytical results. Once these techniques are completed, critical statistical steps are applied to achieve the goals of the study.

Before moving on to multivariate data analysis using SEM-PLS, the following preliminary analysis should be done to examine the goodness of the data: screening, cleaning, and coding the data. Specific assumptions of inferential statistics regarding

outliers, normality, common method bias, and exploratory factor analysis of collected data were checked for errors and to improve statistical analysis.

4.3.1 Screening and Cleaning the Data

Before analyzing the collected data, the initial stage for this study was to screen and clean the data for problems, check for inaccuracy, discover the errors, and take the necessary steps to correct them. The data had no missing values since all questionnaire items needed respondents' responses before submission.

4.3.2 Assessing Normality

Usually, the assessment of normality is one of the critical assumptions in the evaluation of multivariate data to improve the quality of the research and ensure that the data are a normal distribution (Hair et al., 2017a). Such a test is helpful to clarify the study data and indicates the form of the data collected, the terms of error, and the residues that follow a normal distribution (Green & Salkind, 2014). Normality can be determined by examining skewness and kurtosis levels for each variable (Hair et al., 2017a). In order to show a normal univariate distribution, the values of skewness and kurtosis must be between -2 and +2 (George & Mallery, 2010). However, Byrne (2013) and Hair et al. (2010) indicated that the acceptable normality range for univariate skewness and kurtosis is ±2 and ±7.

This study has applied the Mardia test (1970) to measure multivariate skewness and kurtosis to verify whether the study's variables are nonnormally distributed. On the Power Website, an online statistical power analysis was used to examine the multivariate skewness and kurtosis level for financial literacy, financial self-efficacy, retirement goal clarity, financial risk tolerance, assets ownership, debt, culture, and government policy. The results of the multivariate investigation have shown that Mardia's skewness and kurtosis p-values were less than 0.05, indicating that the data was not normally distributed. This outcome strongly justifies the application of the PLS-SEM in place of Amos or SPSS. Table 4.1 below provides the normality results for the gathered sample data.

Table 4.1 Results of Multivariate Data Normality

	Univariate Skewness and Kurtosis			
Variable	**Skewness**	**SE_Skew**	**Kurtosis**	**SE_Kurt**
$PRSA_1$	-0.3040	0.1034	-1.3652	0.2065
$PRSA_2$	-0.7903	0.1034	-0.7808	0.2065
$PRSA_3$	-0.4776	0.1034	-1.5554	0.2065
$PRSA_4$	-0.6947	0.1034	-0.9607	0.2065
$PRSA_5$	-0.6468	0.1034	-1.0220	0.2065
$PRSA_6$	-0.6617	0.1034	-0.9409	0.2065
$PRSA_7$	-0.6883	0.1034	-1.2038	0.2065
$PRSA_8$	0.3898	0.1034	-1.2685	0.2065
$PRSA_9$	0.2549	0.1034	0.1750	0.2065
$PRSA_{10}$	-0.2898	0.1034	-0.4959	0.2065
$PRSA_{11}$	0.1514	0.1034	-1.9842	0.2065
$PRSA_{12}$	1.2161	0.1034	0.9230	0.2065
FL_1	-0.9264	0.1034	-1.1460	0.2065
FL_2	0.3277	0.1034	-1.8994	0.2065
FL_3	0.1441	0.1034	-1.9864	0.2065
FL_4	-0.0791	0.1034	-2.0009	0.2065
FL_5	-0.0359	0.1034	-2.0059	0.2065
FL_6	0.9073	0.1034	-1.1811	0.2065
FL_7	-1.4571	0.1034	0.1236	0.2065
FL_8	-0.4185	0.1034	-1.8314	0.2065
FL_9	0.3956	0.1034	-1.8501	0.2065
FL_{10}	1.6459	0.1034	0.7114	0.2065
FL_{11}	-0.4032	0.1034	-1.8440	0.2065
FL_{12}	0.1514	0.1034	-1.9842	0.2065
FL_{13}	1.0875	0.1034	-0.8203	0.2065
FL_{14}	1.0457	0.1034	-0.9098	0.2065

Table 4.1, Continued

Univariate Skewness and Kurtosis				
Variable	**Skewness**	**SE_Skew**	**Kurtosis**	**SE_Kurt**
FSE_1	-0.8554	0.1034	-0.8196	0.2065
FSE_2	-0.8084	0.1034	-0.7452	0.2065
FSE_3	-0.6622	0.1034	-0.8135	0.2065
FSE_4	-0.0845	0.1034	-1.4510	0.2065
FSE_5	-0.9889	0.1034	-0.2228	0.2065
FSE_6	-0.3478	0.1034	-0.9846	0.2065
FSE_7	-0.0202	0.1034	-1.3283	0.2065
FSE_8	-0.6041	0.1034	-1.3049	0.2065
FSE_9	-0.1999	0.1034	-1.4119	0.2065
FSE_{10}	-0.9200	0.1034	-0.5520	0.2065
FSE_{11}	-0.3618	0.1034	-1.0893	0.2065
FSE_{12}	-0.3917	0.1034	-1.0448	0.2065
RGC_1	-0.5710	0.1034	-0.9222	0.2065
RGC_2	-0.7956	0.1034	-0.8240	0.2065
RGC_3	-0.4396	0.1034	-1.1054	0.2065
RGC_4	-0.5942	0.1034	-0.9159	0.2065
RGC_5	-0.1341	0.1034	-1.3966	0.2065
FRT_1	-0.2754	0.1034	-1.1084	0.2065
FRT_2	-0.2607	0.1034	-1.1191	0.2065
FRT_3	-0.5677	0.1034	-0.8777	0.2065
FRT_4	-0.2679	0.1034	-1.1136	0.2065
FRT_5	-0.0162	0.1034	-1.2440	0.2065
D_1	1.2315	0.1034	-0.4852	0.2065
D_2	2.4755	0.1034	5.0559	0.2065
D_3	4.0028	0.1034	17.2385	0.2065
D_4	1.9666	0.1034	2.8495	0.2065
D_5	-0.3277	0.1034	-1.8994	0.2065
D_6	2.3440	0.1034	3.5069	0.2065
D_7	3.0351	0.1034	8.5205	0.2065
Index_567	3.0351	0.1034	8.5205	0.2065
AO_1	-0.0887	0.1034	0.3868	0.2065
AO_2	0.9610	0.1034	-0.8297	0.2065
Index_12	1.3530	0.1034	0.4413	0.2065
AO_3	1.1709	0.1034	-0.3233	0.2065
AO_4	1.0822	0.1034	0.1515	0.2065
AO_5	0.4648	0.1034	-1.7904	0.2065
AO_6	1.7215	0.1034	3.6357	0.2065
(RSK)	-0.1250	0.1034	-1.7419	0.2065
	-0.6530	0.1034	-1.0388	0.2065
	-0.6815	0.1034	-1.0044	0.2065
	-0.6031	0.1034	-0.8793	0.2065
(AMB)	-0.3318	0.1034	-1.3136	0.2065
	-0.6356	0.1034	-1.0487	0.2065
	-0.6200	0.1034	-1.0267	0.2065
	-0.5362	0.1034	-1.1794	0.2065
(TRD)	-0.3563	0.1034	-1.6564	0.2065
	-0.3947	0.1034	-1.5989	0.2065
	-0.5158	0.1034	-1.2591	0.2065
	-0.5957	0.1034	-1.2429	0.2065
(PRU)	-0.3150	0.1034	-1.6926	0.2065
	-0.1854	0.1034	-1.7868	0.2065
	-0.4726	0.1034	-1.4360	0.2065
	-0.3486	0.1034	-1.6142	0.2065

Table 4.1, Continued

Univariate Skewness and Kurtosis				
Variable	**Skewness**	**SE_Skew**	**Kurtosis**	**SE_Kurt**
GP_1	-0.5193	0.1034	-1.1043	0.2065
GP_2	-0.5446	0.1034	-0.9152	0.2065
GP_3	-0.5651	0.1034	-0.9818	0.2065
GP_4	-0.4858	0.1034	-0.7231	0.2065
GP_5	-0.4660	0.1034	-0.8191	0.2065
GP_6	-0.4245	0.1034	-1.1776	0.2065
GP_7	-0.2257	0.1034	-1.2485	0.2065
Mardia's Multivariate Skewness and Kurtosis				
	b	z	p-value	
Skewness	1688.771	157055.71705	0.0000	
Kurtosis	7982.154	39.75974	0.0000	

*PRSA = Perceived Retirement Saving Adequacy
*FSE = Financial Self-Efficacy
*FRT = Financial Risk Tolerance
*GP = Government Policy
* AMB = Ambiguity Intolerance Items
* PRU = Prudence
*FL = Financial Literacy
*RGC = Retirement Goal Clarity
*AO = Asset Ownership
* RSK = Risk Aversion
* TRD = Tradition

4.3.3 Assessing the Outliers

Outliers are respondents' observations of items or questions with abnormal values from others (Hair et al., 2017a). Outliers result in entry errors for the data collection or a rare participant response from others. Any case with an extraordinary value that differs from other cases is regarded as an outlier (J Pallant, 2010). Hence, analyzing data that included outliers may provide an inappropriate result (Neter et al., 1996; Pallant, 2010) and provide inaccurate analysis findings.

The standardized (z) score method was used to test all of the variables in this study using an Excel sheet to identify the outliers. Any standardized (z) score for an item more than ± 3.29 will be considered an outlier (Tabachnick & Fidell, 2013). The result had indicated that the sample had 33 extraordinary values, which had been removed before further tests were undertaken. Therefore, the data size was reduced to 525 after 33 cases were deleted from the original gathered study's data. This number remains greater than the required sample size (382) previously discussed. Table 4.2 shows the result of outliers.

Table 4.2 Outlier Calculation

Construct	Item	Outlier Case Number	Z-Score ><+- 3.29
Debt	D_2	29	More than 3.29
		30	
		86	
		95	
		114	
		130	
		159	
		179	
		211	
		212	
		268	
		309	
		326	
		358	
		399	
		403	
	D_3	42	More than 3.29
		106	
		127	
		140	
		176	
		186	
	D_4	172	More than 3.29
		349	
		495	
		548	
	D_{567}	169	More than 3.29
		235	
		257	
		267	
		361	
		522	
		557	

4.3.4 Assessing Common Method Bias (CMB)

A phenomenon in the context of PLS-SEM is caused by the measuring method (Kock, 2015). It happens due to several potential causes, such as leniency biases, item characteristics effects, the context of indicators, and the participants' desires (Podsakoff

et al., 2003). Because CMB could seriously impact a study's result, it must be considered among individuals with similar characteristics. To address common method biases, there is more than one type of statistical tool that can be used: such as Harman's single-factor test, partial correlation procedure, controlling for the effects of a directly measured latent methods factor, controlling for the effects of an unmeasured latent methods factor, correlated uniqueness model, direct product model, and multiple method factors (Podsakoff et al., 2003).

To cope with this bias, Harman's Single-Factor Test technique is carried out in SPSS software to investigate all the measurement indicators. According to the results of the factor analysis, the first single factor explains 13.511% of the total variance. It was significantly less than the common method bias criteria curve, which is 50%. Therefore, there are no CMB threats in the data set used for this study.

4.4 Descriptive Data Analysis

The descriptive analysis approach illustrates the fundamental characteristics of the study's data by testing the variables independently through several descriptive statistics to provide significant insights into each variable. Generally, it provides information about the frequency, center, and spread of data (Argyrous, 2005). The present study provides descriptive statistics in three sections: profiles of respondents, retirement age, and source of income. The respondents' descriptive statistics' demographic information comprises gender, age, marital status, educational level, employment sector, and university of employment. This analysis is presented in Figures 4.1 and 4.2 below.

4.4.1 Profiles of Respondents

This section summarizes the essential descriptive statistics for participants. Regarding the university of employment, the respondents represent twenty-nine different public universities spread around the country. The universities are divided into five locations. From the eastern area, thirty-five ones have participated in the survey. The Western region has seven universities; two hundred and fifty-eight respondents have responded to the study's survey. Although nine public universities are in the middle region, one hundred and forty-nine employees have participated in the study.

Meanwhile, five and four universities are located in southern and northern areas; fifty-three and thirty employees have participated in the study, respectively. The highest number of participants were from the western area, specifically Taibah University at 103 (19.62%) and King Abdul Aziz University at 54 (10.29%), while the smallest percentage was 0 from King Abdullah University of Science and Technology. Therefore, most of the participants in the study were from the western and central regions. This demographic information is presented in Figure 4.1.

The majority of the respondents in this study (330 out of 525) were from academia. This was expected as the questionnaires were sent through emails, and academicians were more familiar with this platform. Drawing on the overall respondents, 344 (66%) were males. This roughly captures the composition of the employees in the government sector: 59.37% of the 1,226,700 employed were men (SAMA, 2019). Most of them were married 429 (82 %) and were between 31 to 40 years old (54 %). Regarding education level, most responders have postgraduate degrees, with 152 (29%) holding

doctoral degrees and 185 (35%) holding master's degrees, as expected in an academic setting. The full demographic profiles of the respondents are shown in Figure 4.2 below.

Table 4.3 below shows Pearson's coefficient of correlation results used to measure the relationship between the study's variables in one-tailed significance. Gupta and Kapoor (2020) indicated that correlation coefficient values range between positive and negative 1. If the correlation value equals positive or negative 1, the result is a perfect positive or negative correlation. If the correlation result is less than 0.4, 0.7, or 1, the correlation could be weak, moderate, or strong. This study has found that financial self-efficacy and culture in relation to financial planning for retirement had a positive correlation coefficient of 0.43 and 0.41, which showed a moderate correlation between them. This means that increasing the level of financial self-efficacy, long-term orientation, and uncertainty avoidance increases the level of perceived retirement saving adequacy among public university employees.

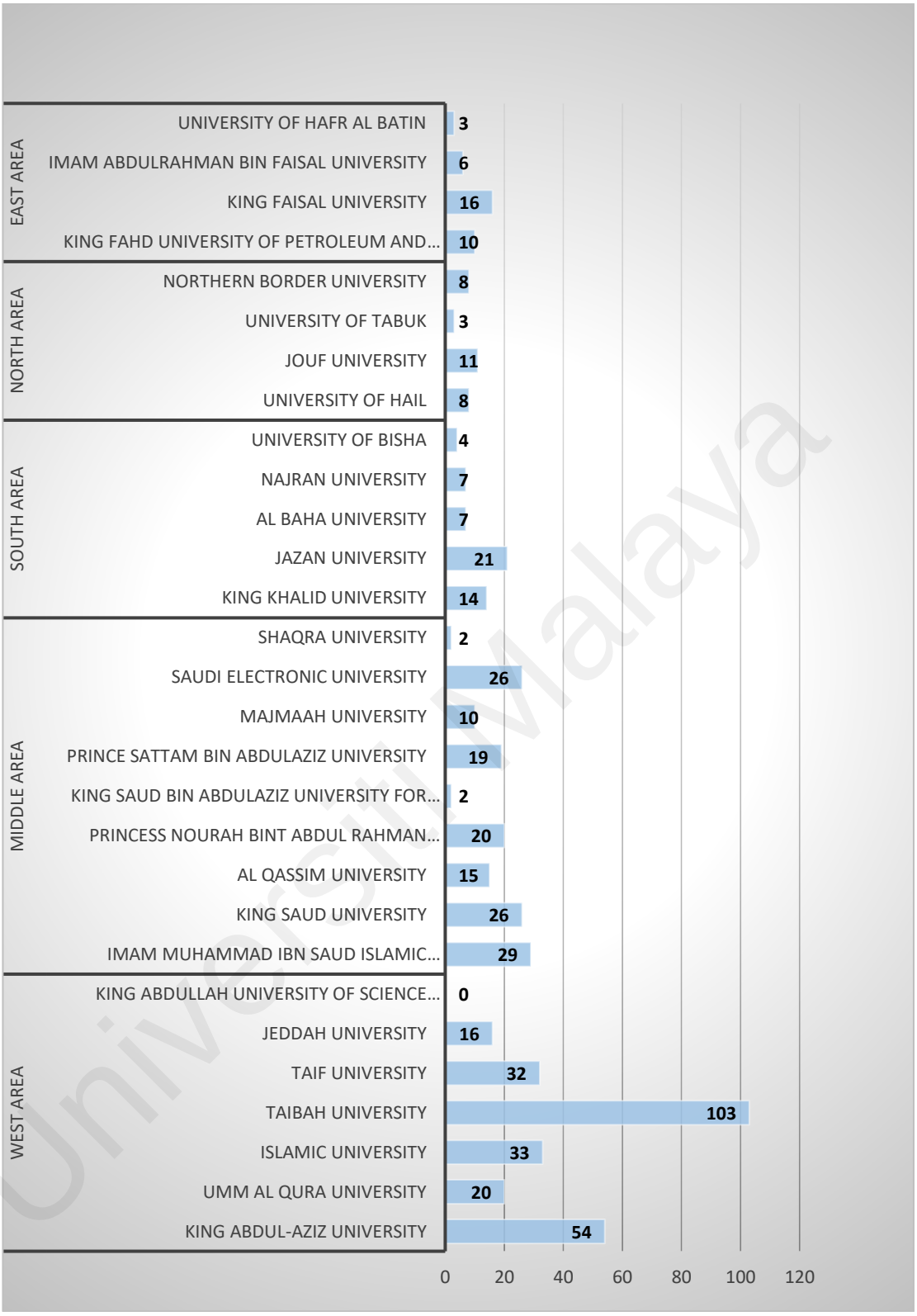


Figure 4.1 Distribution of Participants by Universities

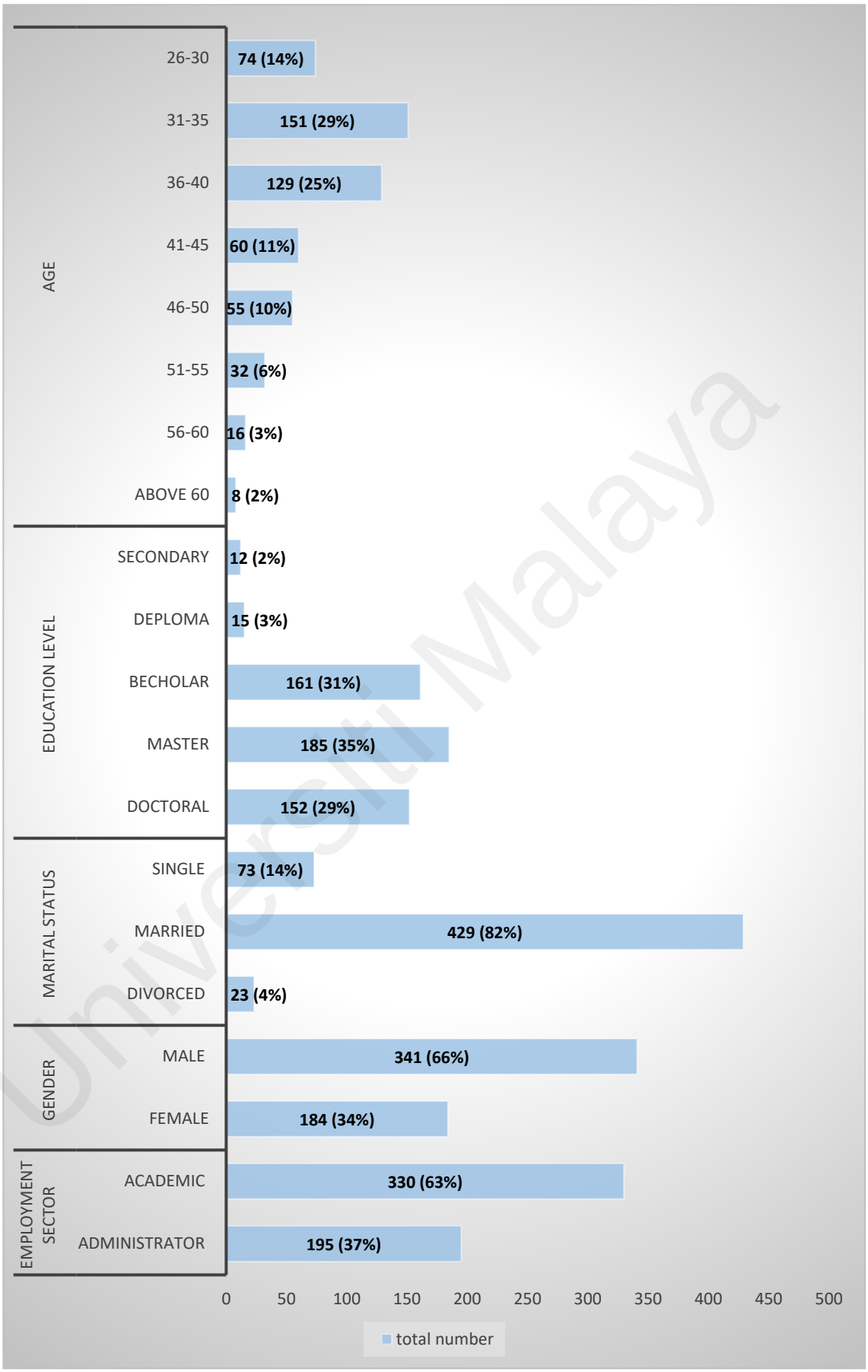


Figure 4.2 Descriptive Statistic for Respondents

Table 4.3 Means, Standard Deviations and Pearson's Correlations among Variables

	M	*SD*	*Gender*	*Age*	*Marital Status*	*Education Level*	*Employment Sector*	*BFL*	*AFL*	*FSE*	*FRT*	*RGC*	*Debt*	*AO*	*Culture*	*GP*	*PRSA*
Demographic																	
Gender	-	-	1.00														
Age	40.70	1.67	-0.18**	1.00													
Marital Status	-	-	0.07*	0.21**	1.00												
Education Level	-	-	0.02	0.13**	0.09**	1.00											
Employment Sector	-	-	-0.11	0.20**	0.06**	-0.68**	1.00										
Predictor Variables																	
BFL	0.52	0.30	-0.21**	-0.01	-0.03	0.17	-0.18**	1.00									
AFL	0.45	0.30	-0.20*	0.04	0.03	0.16	-0.16	0.52**	1.00								
FSE	4.01	1.09	0.030*	0.07*	-0.02	0.12	-0.11	0.00	0.05	1.00							
FRT	3.78	1.29	-0.13*	0.00*	-0.03	0.03	0.05*	0.02	0.11*	0.40**	1.00						
RGC	4.00	1.35	-0.11	0.09	-0.01	0.03	0.04**	0.04	0.11*	0.44**	0.48**	1.00					
Debt	0.33	0.43	0.00	0.03	0.08	0.03	-0.01	-0.06*	0.04	0.11	0.12	0.06	1.00				
AO	1.04	1.22	-0.04	0.21*	0.00*	0.14**	0.02	0.05	0.04	-0.01	0.12	0.11**	0.21**	1.00			
Culture	3.96	1.23	0.01	-0.01	-0.03	0.13	-0.18**	0.03	0.09*	0.53**	0.34*	0.43**	0.05	-0.01	1.00		
GP	3.87	1.22	0.03	0.02	0.01	0.07	-0.03	0.02	0.00*	0.40	0.34*	0.45**	0.03	0.03	0.50**	1.00	
Outcome Variable																	
PRSA	4.14	1.33	-0.05	-0.02	-0.05	0.08	-0.08	0.09*	0.06	0.43**	0.25	0.37**	0.05	-0.06**	0.41**	0.38**	1.00

Note. N = 525. PRSA= Perceived Retirement Saving Adequacy; M = Mean; SD = Standard Deviation. BFL= Basic Financial Literacy; AFL= Advanced Financial Literacy; FSE= Financial Self-Efficacy; FRT= Financial Risk Tolerance; RGC= Retirement Goal Clarity; AO= Assets Ownership; GP= Government Policy

Source: Author Calculations.

*P < .05. **P < .01.

4.4.2 Determination of Sampling Weights

Weighted PLS (WPLS) is a modified version of the PLS path modeling algorithm that enables researchers to give a certain amount of weight to each observation in order to provide a more accurate representation of the population of interest (Becker & Ismail, 2016; Low et al., 2021). Before performing the primary analysis, WPLS-SEM is applied to ensure that the sample represents each university (Klapper & Lusardi, 2020) and to fix problems caused by non-probability sampling methods, such as a lack of representativeness and generalizability (Levy & Lemeshow, 2013). Due to the fact that the response rates at the various universities were not the same, some of the universities have contributed more than others. Therefore, in order to account for over and under-sampling, the sampling weight was calculated, and the results were adjusted according to the proportion of the population and the proportion of the sample. Table 4.4 shows the post-stratification weight of each university.

Table 4.4 Post-Stratification Weight of Each University

University	Population	Proportion of population (PP)	Sample	Proportion of Sample (PS)	Weight (PP/PS)
Umm Al-Qura University	6259	0.161	20	0.038	4.229
The Islamic University	1954	0.050	33	0.063	0.800
Imam Moh. Bn Saud Islamic Uni.	6241	0.161	29	0.055	2.908
King Saud University	19593	0.504	26	0.050	10.184
King Abdulaziz University	13148	0.338	54	0.103	3.291
King Fahd Uni. of Petrol & Min.	1844	0.047	10	0.019	2.492
King Faisal University	2627	0.068	16	0.030	2.219
King Khalid University	4562	0.117	14	0.027	4.404
Qassim University	5727	0.147	15	0.029	5.160
Taibah University	4096	0.105	103	0.196	0.537
Taif University	2836	0.073	32	0.061	1.198
king Saud bin Abdul Aziz for Health Sciences	2114	0.054	2	0.004	14.285
Jazan University	2879	0.074	21	0.040	1.853
Hail University	2019	0.052	8	0.015	3.411
AL - Jouf University	1642	0.042	11	0.021	2.017
Tabuk University	1996	0.051	3	0.006	8.992
AL Baha University	1522	0.039	7	0.013	2.938
Najran University	1297	0.033	7	0.013	2.504
Princess Nourah Bint Abdulrahman University	5857	0.151	20	0.038	3.958
University of Northern Border	979	0.025	8	0.015	1.654

Table 4.4, Continued

University	Population	Proportion of population (PP)	Sample	Proportion of Sample (PS)	Weight (PP/PS)
Shaqra University	1728	0.044	2	0.004	11.677
Prince Sattam Bin Abdulaziz University	2564	0.066	19	0.036	1.824
Imam Abdulrahman Bin Faisal University	4510	0.116	6	0.011	10.158
Majmaah University	3023	0.078	10	0.019	4.085
Saudi Electronic University	1021	0.026	26	0.050	0.531
Jeddah University	833	0.021	16	0.030	0.704
Bisha University	281	0.007	4	0.008	0.949
Hafr Al Batin University	442	0.011	3	0.006	1.991

4.4.3 Age of Retirement and Intention to Work After Retirement

The retirement age analysis presents the employee's perspective on when the retirement decision is made. It is a time when employees generally leave the workforce and are entitled to retirement benefits. Empirical evidence draws attention to the fact that individuals who anticipate benefitting from retirement may be more likely to leave the workforce than those who believe to be uninterested in retirement (Bidewell et al., 2006; Davies et al., 2017). From prior literature, the current research has added retirement age questions as a part of perceived retirement saving adequacy measurements in an attempt to improve the prediction of desired retirement age among public university employees.

Table 4.5 below presents the distribution of retirement-related questions, which examine the respondents' intended retirement age, their intention to work after retirement, and, if so, the age they plan to stop working altogether. Regarding the respondents' intention related to retirement, 102 respondents (19.43%), the lowest percentage, have decided to quit working after retirement and never work again. Meanwhile, a substantial proportion of respondents, 300 respondents (57.14%), have intended to continue working after retirement to guarantee income adequacy. The reason was that academicians usually did not complete their Ph.D. programs until they reached their 30s or 40s. Therefore, if

they retire at the age of 60, there could be a critical shortage in the labor force in the universities (Donner, Sze, & Bluth, 2015; Sullivan & Al Ariss, 2019). Compared to academicians, administrators' income is low, forcing them to continue working after retirement.

The next question asks respondents whether they intend to continue working after leaving their job. Table 4.5 shows that out of 300 respondents who intend to keep working after retirement, 182 (60.67%) will reduce their working hours. In comparison, 118 (39.33%) out of 300 respondents will keep working the same hours even after retirement age, either in the same job or in a different place. With respect to the age they intend to stop working question, the results have indicated that most of the respondents intended to retire between 60 to 69 (43.43%); some of them (8.19%) intend to retire early at 40 years old, while a small number of them (2.29%) intend to work even after the age of 80 years old.

Table 4.5 Retirement Age and Intention to Work after Retirement

Intention Related to Retirement	Overall	
	n	%
Early Retirement	123	23.43
Stop working after retirement	102	19.43
Continue to work after retirement	300	57.14
Continue to work after retirement (n=300)		
Reduction in working hours	182	60.67
Same working hours	118	39.33
Intention Related to Retirement	**Overall**	
	n	**%**
Age to stop working altogether		
(40 – 49)	43	8.19
(50 – 59)	187	35.62
(60 – 69)	228	43.43
(70 – 79)	55	10.47
80 and above	12	2.29

4.4.4 Source of Income for Retirement

This section of the demographic questions indicates the source of respondents' anticipated retirement income, whether their pension will be enough to cover their needs after they retire, and the savings they undertake for future retirement needs. Results in Table 4.6 show that most respondents (79.05%) expected their retirement pension to cover more than 50% of their needs, and only (20.95%) expected that the pension would not cover half of their needs. While the lowest have expected that it would cover 10% to 20% of their needs, question twelve illustrates the percentage of individuals who have deducted from their current salary for their retirement. Most of them save between 1% to 15%.

Table 4.6 Source of Income after Retirement

Source of Income After Retirement	Respondents	
	n	%
The expectation of retirement pension providing retirement needs		
10% to 20%	31	5.90
30% to 40%	79	15.05
50% to 60%	181	34.48
70% to 80%	156	29.71
90% to 100%	78	14.86
Putting aside some savings from the salary for retirement		
Yes	240	45.71
No	285	54.29
Source of Income After Retirement	**Respondents**	
	n	**%**
Amount of current salary saved for retirement		
not saving		
(1% - 15%)	119	49.59
(16% – 30%)	95	39.58
(31% – 45%)	15	6.25
46% and above	11	4.58

4.4.5 Home Ownership

The purchase of a home is, for the vast majority of people, the single most important financial investment they will ever make in their entire lives. Many people believe owning a home is one of the essential requirements for leading a quiet life both before and after retirement. Becoming a homeowner necessitates going through a number of steps, including looking for and getting ready to purchase a house, putting money aside gradually for a down payment, and, if necessary, applying for a mortgage loan. This study has asked the respondents about their home type and its ownership.

According to the study findings, over half of the employees who responded to the survey have lived in apartments, while fewer than five percent identified living in any other type of property. In the same vein, the findings have shown that a greater percentage of them did not own the house where they currently reside. This result indicates a significant drop in the percentage of university employees who own their homes (32.95%), and there has been an increase in the number of households renting privately or living in some other type of accommodation (67.05%). Alongside one another, rents and home prices have climbed considerably, and the difficulties associated with trying to meet the rising costs of housing have been well-documented, impacting adequate retirement savings. Tables 4.7 and 4.8 present the results of home ownership.

Table 4.7 Type of Homeownership

Type of Home	Villa	Duplex	Apartment	Family House	University Accommodation	Other
Respondents	66 (12.57%)	41 (7.81%)	274 (52.19%)	97 (18.48%)	31 (5.90%)	16 (3.05%)

Table 4.8 Homeownership

Homeownership	Fully Ownership	Partially Ownership	Rented or Other
Respondents	105 (20%)	68 (12.95%)	352 (67.05%)

4.5 Primary Data Analysis (Measurement Model)

The measurement model, considered the first phase in PLS-SEM, is applied to evaluate all variables' indicators' validity and reliability to avoid inaccurate measurement model specifications (Hair et al., 2017a). Before examining the measurement model, Exploratory Factor Analysis (EFA) and Confirmatory Tetrad Analysis (CTA) were utilized initially in this study. EFA was applied to investigate the underlying dimensions of the variables that have adapted measurements. Then, according to Wong (2002), CFA was also carried out using PLS-SEM to provide strong justification for the reliability and validity of the variables. Meanwhile, CTA has been initially employed to assess empirically if newly developed perceived retirement saving adequacy and other variables measures are followed by a formative or reflective model to supplement the theoretical support.

4.5.1 Exploratory Factor Analysis (EFA)

The survey questionnaire used in this research builds on adapted and adopted questions from preceding studies; additional items were developed to define each variable better and were added to the survey. Due to questions adapted from previous research, EFA is undertaken in this study.

A PCA with Varimax rotation was conducted in the preliminary stage to validate the underlying structure of the study's variables. In order to provide a complete and rich description of the significance of each variable, many indicators were developed and adapted from the existing body of research, especially perceived retirement saving adequacy with six items, basic and advanced financial literacy with seven items each, financial self-efficacy with 12 items, culture with 16 items and government policy with seven items. In total, 55 items make up this set. So, finding the essential items that show these dimensions are very important.

Each of the constructs' items was factor-analyzed separately to measure the study's variables and to see if the constructs in the research model were multi-dimensional. Kaiser-Meyer-Olkin sampling adequacy and Bartlett's Test of Sphericity were employed before extracting the EFA to ensure that the data were suitable for factor extraction for the study's variables. According to Auerswald & Moshagen (2019), Kaiser's criterion can be used to decide how many items to keep with a variable. Table 4.9 shows the results of Bartlett's test for the sphericity of each factor. The findings were substantial and statistically significant across various analyses, ranging from 59.654 (basic financial literacy) to 399.769 (financial self-efficacy). Likewise, the KMO measure was above 0.6, with most analyses in the range of 0.641–0.750. Considering that the assumptions were not broken, it was reasonable to believe that factorability existed.

Table 4.9 Factor Analysis Results for Research Constructs

Construct	Items	Factors	Test
Perceived Retirement Saving Adequacy (PRSA) (Based on two factors)	$PRSA_1$	0.599	KMO = 0.728
	$PRSA_2$	0.662	Bartlett = 155.032
	$PRSA_3$	0.866	
	$PRSA_4$	0.817	
	$PRSA_5$	0.894	
	$PRSA_6$	0.645	

Table 4.9, Continued.

Construct	Items	Factors				Test
Basic Financial Literacy (BFL) (Based on two factors)	BFL_1	0.695				KMO = 0.641
	BFL_2	0.619				Bartlett = 59.654
	BFL_3	0.575				
	BFL_4	0.65				
	BFL_5	0.664				
	BFL_6		0.52			
	BFL_7		0.737			
Advanced Financial Literacy (AFL) (Based on two factors)	AFL_1	0.774				KMO = 0.688
	AFL_2	0.798				Bartlett = 132.821
	AFL_3	0.539				
	AFL_4	0.592				
	AFL_5	0.768				
	AFL_6		0.851			
	AFL_7		0.848			
Financial Self-Efficacy (FSE) (Based on three factors)	FSE_1		0.738			KMO = 0.720
	FSE_2	0.624				Bartlett = 399.769
	FSE_3	0.891				
	FSE_4	0.475				
	FSE_5		0.601			
	FSE_6	0.807				
	FSE_7	0.693				
	FSE_8		0.754			
	FSE_9			0.662		
	FSE_{10}		0.728			
	FSE_{11}			0.858		
	FSE_{12}			0.749		
Culture (Based on four factors)	C1	0.694				KMO = 0.842
	C_2	0.680				Bartlett = 627.465
	C_3	0.679				
	C_4	0.800				
	C_5		0.586			
	C_6		0.549			
	C_7		0.893			
	C_8		0.865			
	C_9			0.681		
	C_{10}			0.730		
	C_{11}			0.507		
	C_{12}			0.512		
	C_{13}				0.738	
	C_{14}				0.764	
	C_{15}				0.770	
	C_{16}				0.700	

Table 4.9, Continued.

Construct	Items	Factors		Test
Government Policy (GP) (Based on two factors)	GP_1	0.814		KMO = 0.750 Bartlett = 281.518
	GP_2	0.843		
	GP_3	0.797		
	GP_4	0.684		
	GP_5	0.568		
	GP_6		0.796	
	GP_7		0.779	

4.5.2 Confirmatory Tetrad Analysis (CTA)

CTA evaluates constructs in tetrad form. All values in a tetrad must be non-significantly different from zero to be considered reflective; otherwise, they must be represented formatively (Garson, 2016; Hair et al., 2017a). Theoretical considerations must support any change to the measurement model. Based on CAT-PLS outcomes, it is confirmed that perceived retirement saving adequacy, basic and advanced financial literacy, financial self-efficacy, financial risk tolerance, culture, and government policy are formative measurements. In contrast, retirement goal clarity and others were reflective measurements. Table 4.10 illustrates the CTA-PLS outcomes (5000 bootstrap subsamples), clarifying that some tetrads are significant, and others are non-significant, which provides empirical support that the study's conceptual model comprises both reflective and other formative measurements.

Table 4.10 Confirmatory Tetrad Analysis

Variable	Tetrad	Original Sample	P-Value	CI Low adj.	CI Up adj.
Basic Financial Literacy (BFL)	FL1,FL2,FL3,FL4	1.104	0.246	-0.005	0.003
	FL1,FL2,FL4,FL3	0.795	0.301	-0.002	0.003
	FL1,FL2,FL3,FL5	0.345	0.360	-0.003	0.004
	FL1,FL3,FL5,FL2	-0.539	0.488	-0.003	0.003
	FL1,FL2,FL3,FL7	0.409	0.173	-0.003	0.001
	FL1,FL2,FL4,FL5	-0.422	0.323	-0.003	0.004
	FL1,FL2,FL5,FL7	0.049	0.279	-0.003	0.002
	FL1,FL3,FL4,FL7	-0.251	0.031	-0.001	-0.004*
	FL1,FL3,FL7,FL5	-0.386	0.259	-0.004	0.002
Advanced Financial Literacy (AFL)	FL10,FL11,FL12,FL13	-0.612	0.416	-0.002	0.002
	FL10,FL11,FL13,FL12	-0.441	0.340	-0.002	0.002
	FL10,FL11,FL12,FL14	0.916	0.414	-0.002	0.002
	FL10,FL12,FL14,FL11	0.197	0.276	-0.002	0.003
	FL10,FL11,FL12,FL9	-0.181	0.082	-0.006	0.002
	FL10,FL11,FL13,FL14	-0.663	0.052	-0.001	0.003
	FL10,FL11,FL13,FL9	0.297	0.473	-0.003	0.003
	FL10,FL11,FL14,FL9	-0.055	0.066	-0.001	0.003
	FL10,FL8,FL9,FL11	0.441	0.422	-0.003	0.003
	FL10,FL12,FL13,FL8	-0.828	0.458	-0.003	0.003
	FL10,FL12,FL9,FL13	-0.864	0.191	-0.002	0.004
	FL10,FL12,FL14,FL8	1.303	0.111	-0.001	0.004
	FL10,FL13,FL8,FL14	-0.646	0.014	-0.004	-0.000*
	FL10,FL13,FL8,FL9	0.039	0.491	-0.003	0.003
Financial Self-Efficacy (FSE)	FSE1,FSE10,FSE11,FSE12	-0.450	0.011	-0.381	2.603*
	FSE1,FSE10,FSE12,FSE11	-0.196	0.053	-0.728	2.326
	FSE1,FSE10,FSE11,FSE2	-0.344	0.112	-0.525	1.240
	FSE1,FSE11,FSE2,FSE10	-0.271	0.057	-1.609	0.514
	FSE1,FSE10,FSE11,FSE4	-0.712	0.166	-0.906	1.721
	FSE1,FSE10,FSE11,FSE5	-0.081	0.148	-1.685	0.829
	FSE1,FSE10,FSE6,FSE11	0.676	0.452	-1.208	1.309
	FSE1,FSE10,FSE7,FSE11	-0.893	0.245	-0.878	1.392
	FSE1,FSE11,FSE8,FSE10	0.696	0.213	-1.880	1.140
	FSE1,FSE11,FSE9,FSE10	0.915	0.051	-1.783	0.554
	FSE1,FSE10,FSE12,FSE3	-0.926	0.092	-1.480	0.583
	FSE1,FSE12,FSE3,FSE10	0.106	0.004	-0.148	2.019*
	FSE1,FSE10,FSE12,FSE6	0.226	0.241	-0.671	1.072
	FSE1,FSE10,FSE12,FSE7	-1.496	0.288	-1.188	0.820
	FSE1,FSE10,FSE8,FSE12	-0.068	0.029	-1.752	0.435*
	FSE1,FSE10,FSE2,FSE4	0.862	0.257	-1.118	1.715
	FSE1,FSE10,FSE5,FSE2	0.268	0.402	-0.742	0.638
	FSE1,FSE10,FSE2,FSE6	0.434	0.122	-0.730	1.626
	FSE1,FSE10,FSE2,FSE8	-1.161	0.025	-2.155	0.464*
	FSE1,FSE3,FSE5,FSE10	-1.041	0.012	-2.068	0.309*
	FSE1,FSE10,FSE3,FSE7	-1.277	0.001	0.039	2.590*
	FSE1,FSE10,FSE4,FSE7	1.042	0.050	-0.566	1.875*
	FSE1,FSE4,FSE7,FSE10	-0.718	0.446	-0.843	0.910
	FSE1,FSE4,FSE9,FSE10	1.375	0.099	-1.552	0.625
	FSE1,FSE11,FSE12,FSE5	0.452	0.134	-0.751	0.349
	FSE1,FSE11,FSE2,FSE8	0.197	0.126	-1.287	0.578
	FSE1,FSE11,FSE9,FSE2	-1.233	0.183	-1.216	0.656
	FSE1,FSE3,FSE5,FSE11	0.327	0.005	-1.595	0.140*
	FSE1,FSE11,FSE8,FSE3	-0.207	0.423	-1.376	1.231
	FSE1,FSE11,FSE3,FSE9	-0.074	0.012	-0.245	1.626*
	FSE1,FSE11,FSE5,FSE4	0.470	0.010	-2.089	0.288*
	FSE1,FSE8,FSE9,FSE11	1.104	0.070	-0.777	2.161
	FSE1,FSE12,FSE3,FSE5	0.795	0.003	-0.113	1.977*
	FSE1,FSE4,FSE8,FSE12	0.345	0.013	-2.232	0.368*
	FSE1,FSE12,FSE6,FSE8	-0.539	0.362	-0.830	1.039

Table 4.10, Continued

Variable	Tetrad	Original Sample	P-Value	CI Low adj.	CI Up adj.
Financial Self-Efficacy (FSE)	FSE1,FSE8,FSE9,FSE12	0.409	0.274	-0.950	1.388
	FSE1,FSE3,FSE8,FSE2	-0.422	0.001	-2.946	-0.057*
	FSE1,FSE4,FSE7,FSE2	0.049	0.410	-1.007	0.863
	FSE1,FSE2,FSE7,FSE9	0.251	0.010	-0.285	2.036*
	FSE1,FSE2,FSE9,FSE8	-0.386	0.234	-0.876	1.428
	FSE1,FSE5,FSE6,FSE3	-0.612	0.170	-0.980	1.849
	FSE1,FSE3,FSE8,FSE5	-0.441	0.003	-2.492	0.150*
	FSE1,FSE4,FSE8,FSE6	0.916	0.006	-2.347	0.245*
	FSE1,FSE4,FSE8,FSE7	0.197	0.003	-2.727	0.156*
	FSE10,FSE11,FSE4,FSE3	-0.181	0.001	-0.004	2.104*
	FSE10,FSE11,FSE5,FSE6	-0.663	0.049	-2.084	0.620*
	FSE10,FSE11,FSE6,FSE7	0.297	0.000	0.152	2.612*
	FSE10,FSE11,FSE6,FSE8	-0.055	0.033	-0.318	1.220*
	FSE10,FSE2,FSE6,FSE9	0.441	0.246	-0.699	1.083
	FSE10,FSE3,FSE8,FSE4	-0.828	0.004	-2.697	0.195*
	FSE11,FSE4,FSE8,FSE9	-0.864	0.171	-0.744	1.399
	FSE11,FSE7,FSE9,FSE5	1.303	0.188	-0.937	0.518
	FSE12,FSE2,FSE9,FSE5	0.646	0.377	-0.806	0.661
	FSE12,FSE2,FSE6,FSE7	0.039	0.057	-0.451	1.402
Retirement Goal Clarity (RGC)	RGC1,RGC2,RGC3,RGC4	-0.179	0.336	-1.169	0.801
	RGC1,RGC2,RGC4,RGC3	0.055	0.442	-0.812	0.933
	RGC1,RGC2,RGC3,RGC5	-0.035	0.450	-0.676	0.606
	RGC1,RGC3,RGC5,RGC2	-0.401	0.109	-1.161	0.357
	RGC1,RGC3,RGC4,RGC5	0.346	0.153	-0.441	1.129
Financial Risk Tolerance (FRT)	FRT1,FRT2,FRT3,FRT4	0.548	0.058	-0.256	1.369
	FRT1,FRT2,FRT4,FRT3	0.400	0.155	-0.522	1.311
	FRT1,FRT2,FRT3,FRT5	0.851	0.003	0.134	1.588*
	FRT1,FRT3,FRT5,FRT2	-0.459	0.025	-1.021	0.070*
	FRT1,FRT3,FRT4,FRT5	-0.479	0.097	-1.355	0.363
Government Policy (GP)	GP1,GP2,GP3,GP4	1.563	0.002	0.137	3.052*
	GP1,GP2,GP4,GP3	1.855	0.000	0.558	3.226*
	GP1,GP2,GP3,GP5	1.000	0.018	-0.251	2.306*
	GP1,GP3,GP5,GP2	0.115	0.307	-0.498	0.730
	GP1,GP2,GP3,GP7	0.659	0.092	-0.661	2.012
	GP1,GP2,GP4,GP5	2.028	0.000	0.689	3.450*
	GP1,GP2,GP4,GP7	1.894	0.000	0.474	3.391*
	GP1,GP2,GP5,GP7	1.554	0.003	0.042	3.124*
	GP1,GP6,GP7,GP2	0.031	0.445	-0.588	0.646
	GP1,GP3,GP4,GP6	0.338	0.153	-0.545	1.236
	GP1,GP3,GP7,GP4	0.477	0.167	-0.847	1.806
	GP1,GP3,GP5,GP6	0.144	0.351	-0.866	1.153
	GP1,GP4,GP6,GP5	0.061	0.421	-0.758	0.881
	GP1,GP4,GP6,GP7	0.191	0.324	-0.935	1.319
Culture	C10,C11,C12,C13	1.595	0.009	-0.561	3.782*
	C1,C10,C12,C11	0.924	0.116	-1.576	3.409
	C1,C10,C11,C13	0.081	0.415	-1.129	1.302
	C1,C11,C13,C10	-2.110	0.005	-4.768	0.445*
	C1,C10,C11,C14	0.627	0.096	-0.914	2.184
	C1,C10,C11,C15	0.228	0.323	-1.364	1.834
	C1,C10,C11,C16	0.257	0.297	-1.280	1.822
	C1,C10,C2,C11	-2.745	0.000	-5.322	-0.270*
	C1,C10,C3,C11	-2.816	0.000	-5.286	-0.465*
	C1,C11,C4,C10	-2.361	0.000	-4.428	-0.378*
	C1,C11,C5,C10	-1.286	0.025	-3.417	0.803*
	C1,C10,C11,C7	0.364	0.174	-0.882	1.614
	C1,C12,C15,C10	0.499	0.283	-2.297	3.315
	C1,C10,C12,C4	0.082	0.383	-0.813	0.971

Table 4.10, Continued

Variable	Tetrad	Original Sample	P-Value	CI Low adj.	CI Up adj.
Culture	C1,C10,C5,C12	-0.885	0.100	-3.128	1.321
	C1,C10,C12,C6	0.201	0.317	-1.162	1.551
	C1,C10,C6,C12	-0.324	0.322	-2.593	1.924
	C1,C10,C7,C12	-0.913	0.071	-2.919	1.084
	C1,C13,C14,C10	-0.256	0.345	-2.326	1.792
	C1,C13,C3,C10	-1.420	0.031	-3.895	1.013*
	C1,C10,C15,C14	1.640	0.016	-0.828	4.121*
	C1,C10,C2,C14	-1.833	0.007	-4.274	0.568*
	C1,C10,C14,C3	-0.209	0.331	-1.761	1.323
	C1,C10,C4,C14	-0.964	0.072	-3.095	1.157
	C1,C14,C7,C10	0.145	0.418	-2.066	2.416
	C1,C10,C15,C3	0.689	0.025	-0.435	1.831*
	C1,C10,C7,C15	-0.413	0.255	-2.429	1.611
	C1,C16,C4,C10	-1.981	0.003	-4.351	0.298*
	C1,C10,C5,C16	-0.337	0.346	-3.080	2.399
	C1,C10,C5,C2	0.834	0.013	-0.378	2.049*
	C1,C10,C2,C6	-0.201	0.396	-2.679	2.251
	C1,C10,C2,C7	-0.129	0.430	-2.520	2.208
	C1,C10,C6,C3	0.675	0.039	-0.558	1.914*
	C1,C10,C7,C3	0.341	0.171	-0.818	1.493
	C1,C10,C4,C5	0.107	0.424	-1.688	1.906
	C1,C10,C7,C5	1.163	0.014	-0.531	2.884*
	C1,C11,C4,C13	-0.807	0.023	-2.116	0.481*
	C1,C13,C5,C11	0.721	0.111	-1.163	2.632
	C1,C11,C7,C14	-0.303	0.239	-1.682	1.079
	C1,C11,C2,C15	-1.526	0.010	-3.672	0.574*
	C1,C15,C4,C11	-1.321	0.017	-3.350	0.673*
	C1,C11,C16,C2	0.059	0.434	-1.073	1.192
	C1,C11,C16,C4	-0.069	0.417	-1.117	0.992
	C1,C2,C6,C11	1.497	0.005	-0.342	3.374*
	C1,C11,C3,C5	-0.868	0.073	-2.808	1.030
	C1,C12,C14,C13	0.820	0.178	-2.049	3.674
	C1,C12,C14,C15	0.572	0.248	-2.137	3.285
	C1,C12,C15,C4	0.184	0.324	-1.115	1.485
	C1,C12,C7,C16	0.256	0.314	-1.436	1.973
	C1,C12,C2,C4	0.353	0.265	-1.453	2.169
	C1,C12,C7,C2	0.499	0.128	-0.911	1.915
	C1,C15,C5,C13	-1.343	0.022	-3.503	0.813*
	C1,C13,C16,C2	0.830	0.018	-0.425	2.133*
	C1,C13,C16,C3	0.538	0.158	-1.161	2.290
	C1,C13,C4,C16	-1.260	0.049	-3.716	1.200*
	C1,C13,C16,C5	1.102	0.039	-0.874	3.151*
	C1,C13,C6,C16	0.191	0.399	-2.183	2.620
	C1,C5,C6,C13	0.413	0.092	-0.582	1.419
	C1,C14,C7,C16	0.181	0.407	-2.264	2.690
	C1,C4,C6,C14	1.317	0.005	-0.315	3.004*
	C1,C15,C2,C5	-0.950	0.040	-2.720	0.777*
	C1,C16,C3,C2	0.040	0.473	-1.855	1.880
	C1,C16,C2,C7	-0.797	0.098	-2.822	1.147
	C1,C2,C4,C3	0.481	0.112	-0.785	1.762
	C1,C4,C6,C5	2.113	0.000	0.155	4.141*
	C10,C11,C6,C7	2.841	0.000	0.516	5.241*
	C10,C15,C5,C16	-0.172	0.416	-2.782	2.473
	C10,C2,C5,C15	-0.247	0.268	-1.537	1.040
	C10,C15,C2,C6	1.805	0.003	-0.287	3.939*
	C10,C3,C5,C2	-0.579	0.164	-2.489	1.322
	C10,C2,C7,C4	-0.868	0.049	-2.581	0.804*
	C11,C14,C15,C13	-1.041	0.176	-4.678	2.537

Table 4.10, Continued

Variable	Tetrad	Original Sample	P-Value	CI Low adj.	CI Up adj.
Culture	C11,C14,C3,C5	1.148	0.003	-0.207	2.532*
	C11,C2,C4,C6	-0.161	0.316	-1.235	0.919
	C12,C13,C2,C3	1.660	0.008	-0.549	3.920*
	C12,C14,C5,C16	-0.458	0.251	-2.633	1.748
	C12,C3,C5,C6	0.517	0.150	-1.089	2.128
	C13,C5,C7,C16	-0.096	0.407	-1.409	1.201
	C1,C10,C5,C12	-0.885	0.100	-3.128	1.321

* Tetrads values are significantly different from zero.

4.5.3 Assessment of Reflective Measurement

4.5.3.1 Internal Consistency Reliability

The current study has tested the reflective measurement model by applying a PLS algorithm to attain Cronbach's alpha (α) and composite reliability (CR). These tools allow the study to confirm and prove the items' internal reliability, consistency, and stability.

To ensure reliability, Cronbach must have an alpha (α) value equal to or greater than 0.708. A reliability value of less than 0.60 is considered low, in the 0.70 range is considered moderate, and over 0.80 is considered acceptable (Sekaran & Bougie, 2016). Hence, the CR value should be at least 0.70, preferably between 0.70 and 0.90. However, Hulland (1999) indicated that a reflective indicator loading larger than 0.50 is an appropriate measurement of the latent construct. Table 4.11 and Figure 4.3 display the values of CR of the indicators, namely retirement goal clarity CR = 0.886 and asset ownership (other asset ownership CR = 0.776). This result demonstrated that the constructs were reliable because the results fell within the threshold value range

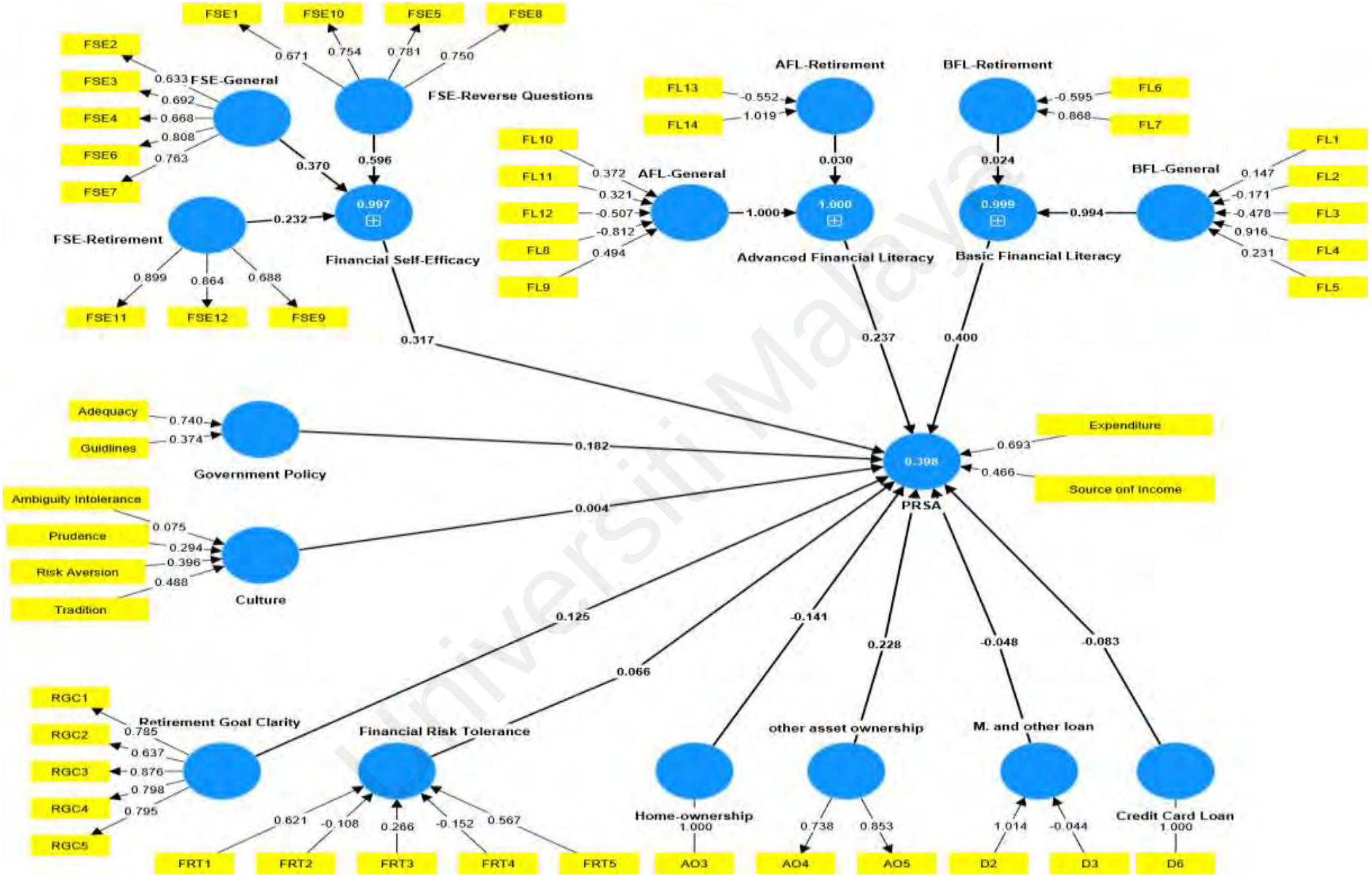


Figure 4.3 Item Reliability Result

4.5.3.2 Convergent Validity

Item loading is the primary indicator of reliability to examine how an indicator intends to measure its latent variable (Urbach & Ahlemann, 2010). Item loadings in the range of 0.40, 0.50, or 0.60 are acceptable, but the range of 0.70 to 0.90 is more accurate. Items may be deleted if their value is lower than 0.70 (Hair et al., 2017a) to complement CR, rho_A, and AVE. In the light of the current study, no reflective indicators from retirement goal clarity and debt were discarded because their AVE and CR values were above the threshold value.

As mentioned in Chapter 3, the AVE threshold value for a construct should be at least 0.50 or above to explain more than 50% of the variance of its items (Zulaihati et al., 2020) to fulfill the convergent requirements. Table 4.11 exhibits the convergent measurement model results for the study. It shows that composite reliability (CR) for retirement goal clarity and other asset ownership were 0.886 and 0.776, respectively, exceeding the 0.70 thresholds. Since both reflective measures are above the stated thresholds, it can be concluded that the research model for reflective measurements has accomplished appropriate convergent validity.

Table 4.11 Reflective Measurements Model – Convergent Validity

Construct / Items	Loading	Cronbach's Alpha	Rho_A	CR	AVE
Retirement Goal Clarity		**0.837**	**0.843**	**0.886**	**0.611**
RGC_1	0.785				
RGC_2	0.637				
RGC_3	0.876				
RGC_4	0798				
RGC_5	0.795				
Other asset ownership		**0.633**	**0.750**	**0.776**	**0.636**
AO_4	0.735				
AO_5	0.855				

4.5.3.3 Discriminant Validity

Discriminant validity is how an item distinguishes itself from other items in a model by empirical standards (Hair et al., 2017a). It is assessed using three criteria: cross-loadings, Fornell-Larcker, and HTMT. Cross-loading is an item's outer loading associated with a construct that must be larger than the item's outer loading on other constructs in a model (Hair et al., 2017a). In other words, the outer loadings of one item linked to a construct are more than all other item's cross-loadings with other constructs.

Fornell-Larcker criterion is another standard examination utilized to define discriminant validity by clarifying the variance of its items rather than the variance of other variables, which appears by the bold values. This test reveals the correlation between the latent variables and their respective measurements as well as with the model's other variables (Chin, 1998; Claes Fornell & Larcker, 1981). Table 4.12 describes the cross-loading criterion, Table 4.13 describes the Fornell-Larcker criterion, while Table 4.14 refers to HTMT results. They report the discriminant validity criterion results, which achieve the requirements.

Table 4.12 Discriminant Validity (Cross-Loading Criterion)

Items	AO	RGC
AO_4	**0.736**	0.169
AO_5	**0.854**	0.070
RGC_1	0.017	**0.785**
RGC_2	0.134	**0.637**
RGC_3	0.140	**0.876**
RGC_4	0.136	**0.798**
RGC_5	0.115	**0.795**

Table 4.13 Discriminant Validity (Fornell-Larcker Criterion)

Constructs /Dimensions	AO	RGC
AO	0.797	-
RGC	0.141	0.782

* The diagonal is the square root of the AVE of the latent variables and indicates the highest in any column or row

For discriminant validity analysis, Table 4.13 of Fornell-Larcker is used to measure shared variance between latent variables (Chin, 2010). The findings have revealed that the square root of all AVE values was more than the inter-construct correlation values, showing the accomplishment of discriminant validity.

As it is well known, the Fornell-Larcker criterion and cross-loadings are the classical approaches to identifying that a lack of discriminant validity in the cross-sectional study may not be reliable (Henseler et al., 2015). The authors suggested and demonstrated that the multitrait-multimethod matrix (HTMT) as a new approach to detect discriminant validity is better than the classical techniques mentioned above. Henseler et al. (2015) determined two points to establish discriminant validity between reflective variables: HTMT 0.85 and HTMT 0.90. If the HTMT ratio did not reach 0.85, no discriminant validity problem would be. According to the HTMT in Table 4.14, the ratio did not reach 0.85. This indicates no discriminant validity issue in the current study.

Table 4.14 Discriminant Validity (HTMT)

Constructs /Dimension	AO	RGC
AO	-	-
RGC	0.265	-

4.5.3.4 Summary of the Reflective Measurement Model

Table 4.15 below summarizes the results of the three criteria for reflective measurements: consistent internal reliability, convergent validity, and discriminant validity. It shows that all reflective measurement exams have accomplished the suggested and acceptable standard threshold values. Consequently, the items' validity and reliability were determined and confirmed, allowing the study to assess formative measurement and, later on, the structural model.

Table 4.15 Summary of the Reflective Measurements

Measurement Test	Type	Results
Internal Consistent Reliability	Cronbach's alpha	$\alpha > 0.70$
	Composite Reliability	CR > 0.70
Convergent validity	Item Loading	All indicators loading > 0.5
	Average Variance Extracted	AVE => 0.5
Discriminant Validity	Cross-Loadings	The square root of the AVE value of one item is more than the square root of the AVE value for other constructs
	Fornell-Larcker	
	HTMT	

4.5.4 Assessment of Formative Measurement

Since the formative measurement model is not the same as the reflective measurement model, this study measures each measurement model separately. In this study, perceived retirement saving adequacy, basic and advanced financial literacy, financial self-efficacy, financial risk tolerance, culture, and government policy were identified by CTA analysis as formative variables. In the formative measurement model, errors are supposed to be free (Diamantopoulos, 2006). Hence, it is not very meaningful to examine convergent and discriminant validity for a reflective measurement model similar to a formative measurement model using the same criteria (Chin, 1998).

The examination of the formative measurement model includes multiple steps: analyzing convergent validity (redundancy analysis), collinearity problems (VIF), and formative item significance and relevance (bootstrap). As mentioned in the previous chapter, this study only examines the second and third criteria to validate the formative measurement. In the following paragraphs, an analysis of the tests will be presented.

4.5.4.1 Assessment for Collinearity Issues

Given that the indicators of the reflective measure model are interchangeable, the correlation between them is expected to be high. However, a high correlation between formative indicators, which is mentioned as collinearity, is unsatisfactory (Hair et al., 2017a; Ramayah et al., 2018). Therefore, this study has calculated the variance inflation factor to evaluate the level of collinearity for formative variables' indicators, which is a suitable method. The following phase in the route model may be easily calculated using PLS-SEM since collinearity among the formative indicators is below the crucial threshold value. The formative measurement values, including the VIF, are presented in Table 4.16 below.

4.5.4.2 Assessment of the Significance and Relevance of Formative Indicators

After examining the formative measurement model's collinearity issues, the formative constructs' outer weights' significance and relevance are then tested. Table 4.16 presents the outer weight and outer loading value, illustrating that most formative items are significant for each construct. This research has found that all formative indicators were significant when applying the bootstrap at the 5% level. However, the outer weights

or loading for basic financial literacy (BFL_1, BFL_2, BFL_5, BFL_6, BFL_7) and advanced financial literacy (AFL_9, AFL_{10}, AFL_{11}, AFL_{13}, AFL_{14}) were non-significant. It has been found that they did not meet the criteria for formative measurement.

However, previous research (Rooij et al., 2011b; Warmath & Zimmerman, 2019) showed that the first five items for basic as well as advanced financial literacy are important to capture changes in general behavior, specifically when it comes to planning for retirement. Hence, the indicators that have accomplished the requirements of formative measurements (e.g., outer weight, outer loading, previous research, or theories) will be retained.

Table 4.16 Evaluation of Formative Measurement Model

Construct	Items	Outer Weights	P-Value	Outer Loading	P-Value	VIF	Result	Decision
Perceived Retirement Saving Adequacy (PRSA)	Expenditure	0.693	0.001	0.911	0.000	1.281	Significant	Kept
	Source of Income	0.466	0.001	0.790	0.000	1.281	Significant	Kept
Basic Financial Literacy (BFL)	FL_1	0.148	0.285	0.247	0.144	1.117	Non-Significant	Kept
	FL_2	-0.170	0.245	0.122	0.310	1.146	Non-Significant	Kept
	FL_3	-0.476	0.041	-0.254	0.174	1.090	Significant	Kept
	FL_4	0.910	0.004	0.854	0.003	1.180	Significant	Kept
	FL_5	0.232	0.159	0.348	0.066	1.146	Non-Significant	Kept
	FL_6	-0.038	0.434	-0.139	0.306	1.011	Non-Significant	Kept
	FL_7	0.001	0.498	0.224	0.108	1.011	Non-Significant	Kept
Advanced Financial Literacy (AFL)	FL_8	-0.813	0.016	-0.682	0.026	1.201	Significant	Kept
	FL_9	0.495	0.102	0.190	0.290	1.326	Non-Significant	Kept
	FL_{10}	0.376	0.141	0.179	0.278	1.122	Non-Significant	Kept
	FL_{11}	0.322	0.183	0.216	0.266	1.132	Non-Significant	Kept
	FL_{12}	-0.505	0.078	-0.418	0.105	1.262	Significant	Kept
	FL_{13}	-0.012	0.488	0.002	0.498	1.132	Non-Significant	Kept
	FL_{14}	0.033	0.470	-0.003	0.497	1.102	Non-Significant	Kept
Financial Self-Efficacy (FSE)	FSE_1	0.207	0.000	0.619	0.000	1.240	Significant	Kept
	FSE_2	0.118	0.012	0.505	0.000	1.261	Significant	Kept
	FSE_3	0.076	0.053	0.494	0.000	1.396	Significant	Kept
	FSE_4	0.097	0.029	0.513	0.000	1.319	Significant	Kept
	FSE_5	0.234	0.000	0.697	0.000	1.487	Significant	Kept
	FSE_6	0.129	0.013	0.673	0.000	1.795	Significant	Kept
	FSE_7	0.099	0.030	0.563	0.000	1.729	Significant	Kept
	FSE_8	0.207	0.000	0.659	0.000	1.391	Significant	Kept
	FSE_9	0.091	0.051	0.581	0.000	1.210	Significant	Kept
	FSE_{10}	0.155	0.003	0.662	0.000	1.446	Significant	Kept
	FSE_{11}	0.090	0.149	0.672	0.000	2.548	Significant	Kept
	FSE_{12}	0.103	0.090	0.645	0.000	2.371	Significant	Kept

Table 4.16, Continued

Construct	Items	Outer Weights	P-Value	Outer Loading	P-Value	VIF	Result	Decision
Financial Risk Tolerance (FRT)	FRT_1	0.621	0.001	0.808	0.000	1.433	Significant	Kept
	FRT_2	-0.108	0.334	0.432	0.010	1.710	Significant	Kept
	FRT_3	0.266	0.091	0.584	0.000	1.469	Significant	Kept
	FRT_4	-0.152	0.290	0.490	0.003	1.944	Significant	Kept
	FRT_5	0.567	0.006	0.818	0.000	1.518	Significant	Kept
Government policy (GP)	Adequacy	0.740	0.000	0.951	0.000	1.470	Significant	Kept
	Guidelines	0.374	0.019	0.792	0.000	1.530	Significant	Kept
Culture	Risk Aversion	0.396	0.018	0.759	0.000	1.490	Significant	Kept
	Ambiguity Intolerance	0.075	0.355	0.610	0.000	1.474	Significant	Kept
	Tradition	0.488	0.013	0.859	0.000	1.717	Significant	Kept
	Prudence	0.294	0.097	0.802	0.000	1.772	Significant	Kept

4.5.5 Final Research Model

In the previous section, reflective and formative measurement models have been evaluated to prove reliability and validity for all variables measurements under the study. Consequently, Figure 4.4 below reveals the final model containing all the suggested items, formative and reflective in this research.

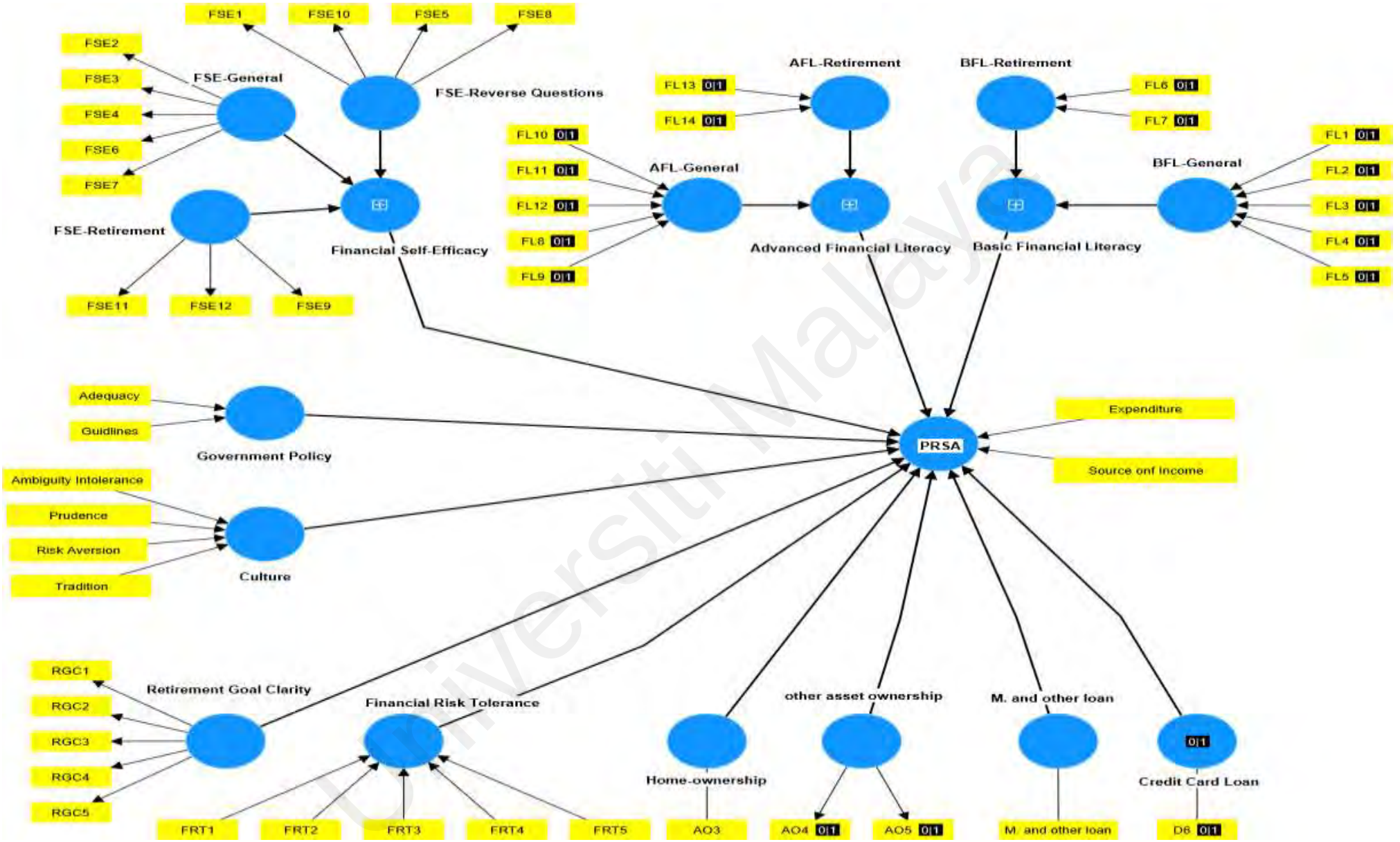


Figure 4.4 Formative Measurement Model

4.6 Primary Data Analysis (Structural Model)

After it has been shown that the formative and reflective measurement models are reliable, the second phase in the process involves analyzing the structural model in order to investigate the hypothesis being tested.

A structural model illustrates the ways in which the latent variables are interrelated with one another. This section describes the tests conducted on the structural model to determine which variable, whether direct or indirect, impacts other variables' values in the model. This involves the following 5 phases of evaluation: 1) collinearity evaluation, 2) significance of the path coefficients P-value, 3) the level of the coefficient of determination R^2, 4) effect size f^2, and finally, 5) predictive relevance Q^2.

4.6.1 Assessing Lateral Collinearity

Table 4.17 below displays the VIF values of all constructs in the study. Since all VIF values are in the acceptable range, which is no further than 5, the results demonstrate that the collinearity issue among the study's variables is not a worry.

Table 4.17 Evaluation of Lateral Collinearity

	Construct	VIF
Independent Variables	Basic Financial Literacy	1.029
	Advance Financial Literacy	1.025
	Financial Self-Efficacy	1.459
	Retirement Goal Clarity	1.640
	Financial Risk Tolerance	1.497
	Debt (credit card loan)	1.018
	Debt (M. and other loans)	1.261
	AO (homeownership)	1.113
	AO (other assets Ownership)	1.118

4.6.2 Assessing Path Coefficient

This part summarises findings for the twenty-one developed hypotheses to answer, examine, and analyze research questions through direct and indirect relationships, such as moderating effects. Using Smart-PLS, these hypotheses have been examined to evaluate the significant relationships between the variables inside the study's model by running bootstrapping to evaluate the p-value and t-value for all variables. The bootstrapping procedure has been applied to 425 respondents with 5000 re-samples. The following paragraphs discuss the hypotheses' results.

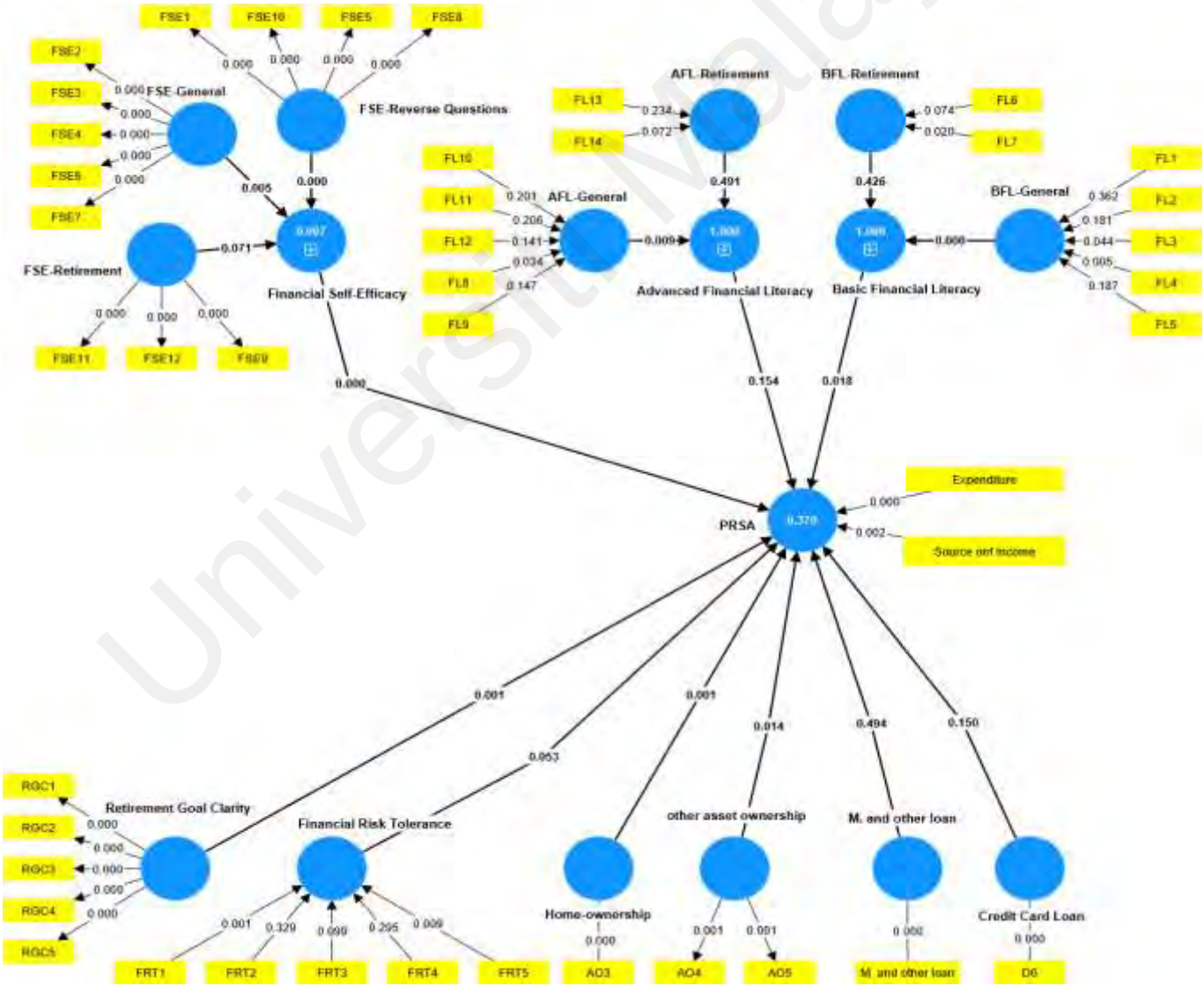


Figure 4.5 Hypothesis Testing: Bootstrapping Direct Effect Results

Table 4.18 Evaluation of Structural Model Path Coefficients

Hypothesis	Relationship	Std Beta	Std Error	T-value	P-value	Decision
H_1	Basic FL -> PRSA	0.411	0.195	2.112	0.018	Supported
H_2	Advanced FL -> PRSA	0.216	0.212	1.019	0.154	Non- Supported
H_3	FSE -> PRSA	0.354	0.056	6.293	0.000	Supported
H_4	RGC -> PRSA	0.176	0.057	3.066	0.001	Supported
H_5	FRT -> PRSA	0.092	0.057	1.617	0.053	Non- Supported
H_6	Homeownership-> PRSA	-0.184	0.059	3.113	0.001	Non- Supported
H_6	Other AO -> PRSA	0.242	0.110	2.205	0.014	Supported
H_7	Credit Card Loan -> PRSA	-0.130	0.125	1.038	0.150	Non- Supported
H_7	M. and other loans -> PRSA	0.001	0.053	0.016	0.494	Non- Supported

Hypothesis 1: Positively, there is a significant relationship between basic FL and PRSA.

According to Table 4.18 above, the SEM results show that the relationship between basic financial literacy and PRSA was as expected. It has shown that basic financial literacy and PRSA had a significant positive relationship (β = 0.411, p 0.018); therefore, H_1 is supported. This means that for each unit increase in the level of basic financial literacy, the value of PRSA will increase by 41.1% among academicians and administrators' staff, implying that the basic FL is a significant predictor of perceived retirement saving adequacy. This result indicates that respondents with basic financial literacy were more likely to answer all questions correctly and recognize how to save adequately for retirement than those without basic financial knowledge.

Hypothesis 2: Positively, there is a significant relationship between advanced financial literacy and PRSA.

Likewise, Table .18 reveals that the relationship between advanced FL and PRSA is positive and insignificant (β = 0. 0.216, p > 0.05). Thus, H_2 is not supported. This finding indicates that literate employees may not save adequately for retirement and

accurately answer all questions in comparison to those without advanced financial literacy.

Hypothesis 3: Positively, there is a significant relationship between FSE and PRSA.

Regarding hypothesis 3, Table 4.18 supports this proposed hypothesis by showing a significant positive relationship between FSE and PRSA ($\beta = 0.354$, $p < 0.01$). So, H_3 is supported. It means that financial self-efficacy explains 35.4% of the variance in PRSA with a p-value of 0.001. Consequently, FSE can enhance the potential of respondents to financially prepare and save adequately for their retirement, allowing them to save enough money before they retire. Based on prior hypotheses (H_1), (H_2), and (H_3), basic financial literacy and financial self-efficacy variables under the capacity dimension are predictors for PRSA.

Hypothesis 4: Positively, there is a significant relationship between RGC and PRSA.

The hypothesis analysis in Table 4.18 shows a positive and significant relationship between RGC and PRSA ($\beta = 0.176$, $p < 0.01$). This result indicates that for each unit increase in the level of RGC, the value of PRSA will increase by 17.6 % among the respondents. It means that the respondents with positive retirement goals were more likely to be optimistic and confident in planning and saving adequately for their future. Therefore, the hypothesized relationship is supported, which means that RGC is a significant predictor of PRSA.

Hypothesis 5: Positively, there is a significant relationship between FRT and PRSA.

This hypothesis's result shows that there is no significant link between FRT and PRSA ($\beta = 0.092$, $p > 0.05$), which is rejected. Consequently, FRT is not a predictor of PRSA and does not support respondents in planning and saving for their future. From hypotheses (H_4) and (H_5), only the retirement goal clarity variable under the willingness dimension predicts PRSA behavior.

Hypothesis 6: Positively, there is a significant relationship between asset ownership and PRSA.

The SEM-PLS outcomes in Table 4.18 indicate that asset ownership was a significant predictor of PRSA. In particular, the results have revealed a negative and statistically significant relationship between homeownership and PRSA ($\beta = -0.154$, $p < 0.01$). Meanwhile, the results have revealed a positive and statistically significant relationship between other asset ownership and PRSA ($\beta = 0.242$, $p < 0.05$). Therefore, H_6 is partially supported. The sample's regression coefficient has revealed that those respondents who own a house were more likely to neglect planning and saving for post-retirement before leaving employment. In contrast, those respondents who own a car, for example, sufficiently have prepared and saved adequately for their retirement.

Hypothesis 7: Negatively, there is a significant relationship between debt and PRSA.

The SEM findings illustrate that credit card loans ($\beta = -0.130$, $p > 0.05$) and mortgage and other loans ($\beta = 0.001$, $p > 0.05$) are non-significant predictors of PRSA. This finding means that a higher or lower debt level did not affect the respondents' PRSA.

As a result, the proposed hypothesis (H_7) shows that debt has a non-significant effect on PRSA, which is not supported.

4.6.3 Assessing the Coefficient of Determination (R^2)

Testing R^2 is considered the third essential criterion in the structural model. This study has calculated the R^2 value, applying an algorithm in smart-PLS to show the amount of variance in the PRSA variable (endogenous) that may be elucidated by all the study's exogenous (Hair et al., 2017a). Table 4.19 shows that the R^2 value was 0.370, which is considered a substantial value based on Cohen (1988) and implies that it has accomplished adequate explanatory power. This result reveals that the independent variables have accounted for 0.370 percent of the variance in perceived retirement saving adequacy. The remaining percentage, 63%, is clarified by other factors excluded from the assessed study's model. As much as the R^2 value for this study becomes large, the predictive capacity of the structural model becomes large too. Urbach and Ahlemann (2010) recommended that R^2 is to be sufficiently high to accomplish the lower level of explanatory power for the study's model.

Table 4.19 Evaluation of Coefficient of Determination (R^2)

Construct	R^2	Explanatory Power
Financial Planning for Retirement	0.370	Strong

4.6.4 Assessing the Effect Size (f^2)

The fourth step in assessing a structural model is calculating the effect size f^2. The following formula is used to figure out the effect size f^2:

$$f^2 = \frac{R^2\ included - R^2\ excluded}{1 - R^2\ included}$$

According to Cohen (1988), if the value of f^2 is equal to or exceeds (0.02 – 0.15 – 0.35), these values consider small, medium, and substantial effects, respectively. Table 4.20 below reveals that other asset ownership ($f^2 = 0.019$), advanced financial literacy ($f^2 = 0.016$), financial risk tolerance ($f^2 = 0.009$), and debt (credit card loan) ($f^2 = 0.002$) have trivial effect sizes. However, financial self-efficacy ($f^2 = 0.136$), basic financial literacy ($f^2 = 0.0.64$), asset ownership (home) ($f^2 = 0.034$), retirement goal clarity ($f^2 = 0.030$) have a small effect size in producing the R^2 for perceived retirement saving adequacy.

Table 4.20 Evaluation of Effect Size (f^2)

Predictors	Endogenous	Effect Size	f^2
Financial Self-Efficacy	PRSA	0.136	Small Effect Size
Basic Financial Literacy	PRSA	0.064	Small Effect Size
Homeownership	PRSA	0.034	Small Effect Size
Retirement Goal Clarity	PRSA	0.030	Small Effect Size
Other Asset Ownership	PRSA	0.019	Trivial Effect Size
Advanced Financial Literacy	PRSA	0.016	Trivial Effect Size
Financial Risk Tolerance	PRSA	0.009	Trivial Effect Size
Credit Card Loan	PRSA	0.002	Trivial Effect Size
M. and Other Loans	PRSA	0.000	No Effect Size

Although Chin et al. (2003) acknowledged that the effect size between 0.02 and 0.15 is considered weak, an effect size below 0.02 does not imply it should be disregarded. According to Hair et al. (2017a), it is not easy to prove that (f^2) is high, trivial, or has no effect on an endogenous construct. The authors mentioned that the

underlying reasons could be the model's sophisticated research field (Hair et al., 2017a) or the particular industries (Sullivan & Feinn, 2012).

4.6.5 Assessing the Moderating Effect

The interaction effect refers to the moderation interaction term to explain the moderation results between exogenous and endogenous variables. If the interaction effect is statistically significant, it means that the moderation effect is significant. To assess the moderator effect, the bootstrapping procedure for 5000 samples was performed with 425 cases to verify the magnitude of the interaction effect of the path coefficient. Preliminarily, fourteen hypotheses (H_{8a} - H_{8g}, H_{9a} - H_{9g}) were developed to check whether culture and government policy moderate the relationship between the seven independent variables and PRSA among staff at Saudi public universities.

To achieve this goal, it is examined whether both moderators – culture and government policy – exert a significant effect on the direct separation relationship between seven independent variables (basic financial literacy, advanced financial literacy, financial self-efficacy, retirement goal clarity, financial risk tolerance, assets ownership, and debt) and the dependent variable (perceived retirement saving adequacy).

Figure 4.6, Figure 4.7, and Table 4.21 show that culture as a moderator significantly and positively affected the relationship between retirement goal clarity ($\beta = 0.104$, $t = 2.105$, $P < 0.05$), partially asset ownership (homeownership) ($\beta = 0.167$, $t = 2.967$, $P < 0.01$), and perceived retirement saving adequacy. This result means the relationship between retirement goal clarity, homeownership, and PRSA was positively

moderated by culture. Therefore, H_{8d} and H_{8f} are supported. However, other interaction terms of culture were non-significant.

The investigation into the moderating influence of culture dimensions on the relationship between RGC and PRSA has revealed that all sub-dimensions, with the exception of ambiguity intolerance, were significant. It means that when individuals avoid talking about their financial concerns with others and avoid taking too many chances to avoid making mistakes in their financial investments, for instance, the influence of their retirement goal clarity on their retirement saving adequacy will increase. Also, by respecting people's customs and traditions, it is more likely to have a high level of clarity regarding their retirement goals, which in turn increases the likelihood that they will save enough money in preparation for the period when they retire from active labor.

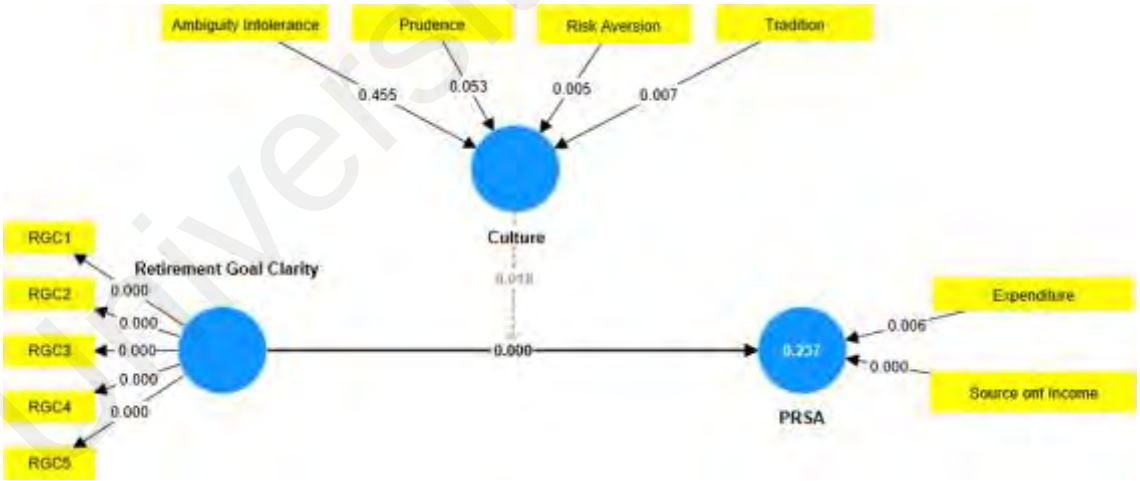


Figure 4.6 Moderation Result of Culture with Retirement Goal Clarity

Similarly, the moderating influence of culture sub-dimensions on the relationship between asset ownership (home ownership) and PRSA has shown that all dimensions, with the exception of ambiguity intolerance and risk aversion, were significant. This

result indicates that the relationship between owning a home and having sufficient funds saved for retirement will be impacted in a way that will depend on how vigorously and wisely one works toward achieving long-term goals and how willingly one is to sacrifice now pleasures in order to gain future achievement.

According to Al-Khraif et al. (2018), they examined the relationship between education, duration of services, and home ownership. They found that homeownership rates tended to rise along with levels of educational attainment since retirees with higher levels of education are more likely to buy homes. Likewise, when an employee has been with the company for a longer period, their financial stability improves, which raises the possibility that they will purchase their own home. Similarly, an individual's salary throughout his or her time of service is a direct economic indication that illustrates his or her influence on homeownership before retirement. Hirayama (2010), and Loxterkamp (2009), illustrated that those who own their homes have an increased sense of safety, privacy, and personal space. It is made possible by the fact that buying a home throughout a person's working life enables them to have adequate savings for retirement.

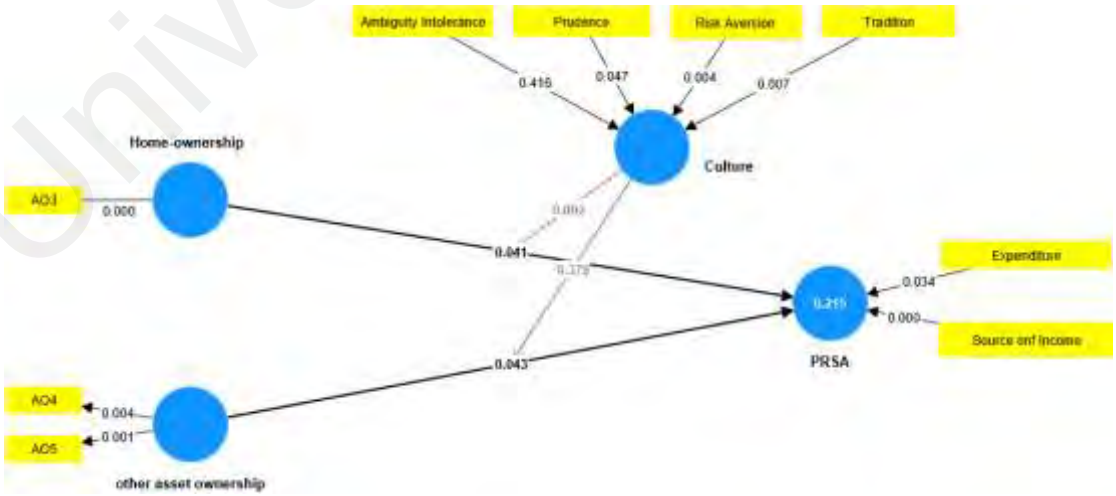


Figure 4.7 Moderation Result of Culture with Asset Ownership

Table 4.21 Evaluation of Culture Moderating Effects

Hypothesis	Relationship	Std. Beta	Std. Dev.	T statistics	P values
	Culture x BFL -> PRSA	-0.001	0.149	0.008	0.497
	RSK x BFL -> PRSA	0.018	0.149	0.120	0.452
H_{8a}	AMB x BFL -> PRSA	-0.036	0.138	0.259	0.398
	TRD x BFL -> PRSA	-0.012	0.175	0.069	0.472
	PRU x BFL -> PRSA	-0.038	0.141	0.269	0.394
	Culture x AFL -> PRSA	-0.189	0.185	1.020	0.154
	RSK x AFL -> PRSA	-0.038	0.176	0.217	0.414
H_{8b}	AMB x AFL -> PRSA	-0.137	0.197	0.695	0.244
	TRD x AFL -> PRSA	-0.311	0.200	1.556	0.060
	PRU x AFL -> PRSA	-0.081	0.162	0.500	0.309
	Culture x FSE -> PRSA	0.044	0.045	0.991	0.161
	RSK x FSE -> PRSA	0.046	0.053	0.875	0.191
H_{8c}	AMB x FSE -> PRSA	0.015	0.046	0.331	0.371
	TRD x FSE -> PRSA	0.055	0.047	1.185	0.118
	PRU x FSE -> PRSA	0.025	0.049	0.518	0.302
	Culture x RGC -> PRSA	0.104	0.049	2.105	0.018
	RSK x RGC -> PRSA	0.118	0.054	2.205	0.014
H_{8d}	AMB x RGC -> PRSA	0.038	0.055	0.699	0.242
	TRD x RGC -> PRSA	0.088	0.052	1.685	0.046
	PRU x RGC -> PRSA	0.104	0.052	1.987	0.024
	Culture x FRT -> PRSA	0.031	0.058	0.545	0.293
	RSK x FRT -> PRSA	0.018	0.064	0.277	0.391
H_{8e}	AMB x FRT -> PRSA	0.026	0.067	0.395	0.346
	TRD x FRT -> PRSA	0.000	0.056	0.001	0.500
	PRU x FRT -> PRSA	0.086	0.054	1.584	0.057
	Culture x Home-ownership -> PRSA	0.167	0.056	2.967	0.002
	RSK x Home-ownership -> PRSA	0.115	0.078	1.487	0.069
H_{8f}	AMB x Home-ownership -> PRSA	0.051	0.072	0.717	0.237
	TRD x Home-ownership -> PRSA	0.157	0.060	2.616	0.005
	PRU x Home-ownership -> PRSA	0.189	0.061	3.113	0.001
	Culture x Other AO -> PRSA	-0.042	0.137	0.310	0.379
	RSK x Other AO -> PRSA	0.038	0.146	0.261	0.397
H_{8f}	AMB x Other AO -> PRSA	-0.168	0.152	1.106	0.135
	TRD x Other AO -> PRSA	-0.163	0.151	1.079	0.141
	PRU x Other AO -> PRSA	-0.015	0.127	0.116	0.454
	Culture x M. and other loans -> PRSA	0.010	0.067	0.153	0.439
	RSK x M. and other loans -> PRSA	0.044	0.074	0.600	0.275
H_{8g}	AMB x M. and other loans -> PRSA	0.026	0.068	0.387	0.349
	TRD x M. and other loans -> PRSA	0.012	0.059	0.205	0.419
	PRU x M. and other loans -> PRSA	0.030	0.059	0.516	0.303

Table 4.21, Continued

Hypothesis	Relationship	Std. Beta	Std. Dev.	T statistics	P values
	Culture x Credit Card Loan -> PRSA	-0.143	0.181	0.788	0.216
	RSK x Credit Card Loan -> PRSA	-0.073	0.187	0.393	0.347
H_{8g}	AMB x Credit Card Loan -> PRSA	-0.098	0.192	0.509	0.306
	TRD x Credit Card Loan -> PRSA	-0.112	0.151	0.745	0.228
	PRU x Credit Card Loan -> PRSA	-0.193	0.185	1.042	0.149

On the other hand, among the interaction terms of government policy, retirement goal clarity ($\beta = 0.095$, $t = 1.789$, $P < 0.05$) and debt (credit card loans) ($\beta = -0.314$, $t = 1.883$, $P < 0.05$) were statistically significant. These results mean that the relationship between retirement goal clarity, debt (credit card loans), and PRSA was moderated by government policy. Therefore, H_{9g} and H_{9d} are supported. Table 4.22, Figure 4.8, and Figure 4.9 depict the moderation effects of government policy between two study variables and perceived retirement saving adequacy.

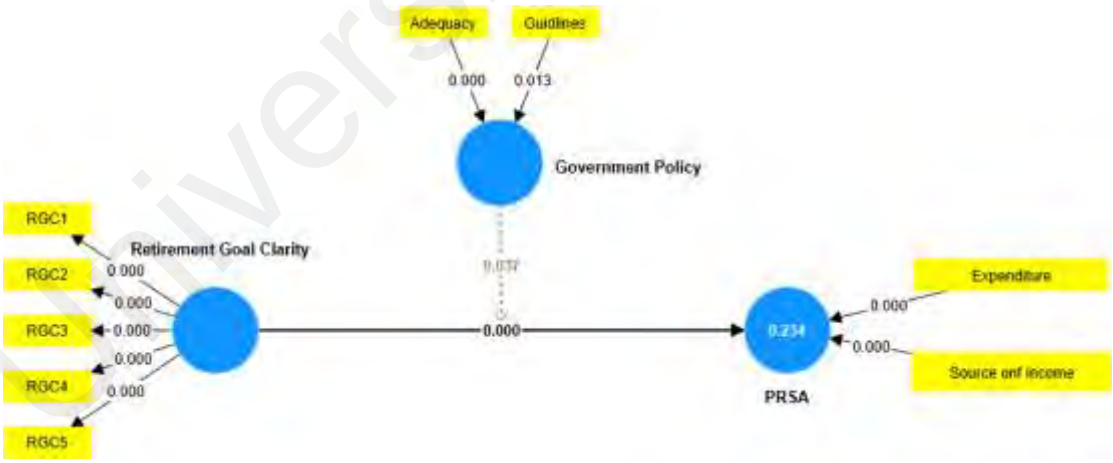


Figure 4.8 Moderation Result of Government Policy with Retirement Goal Clarity

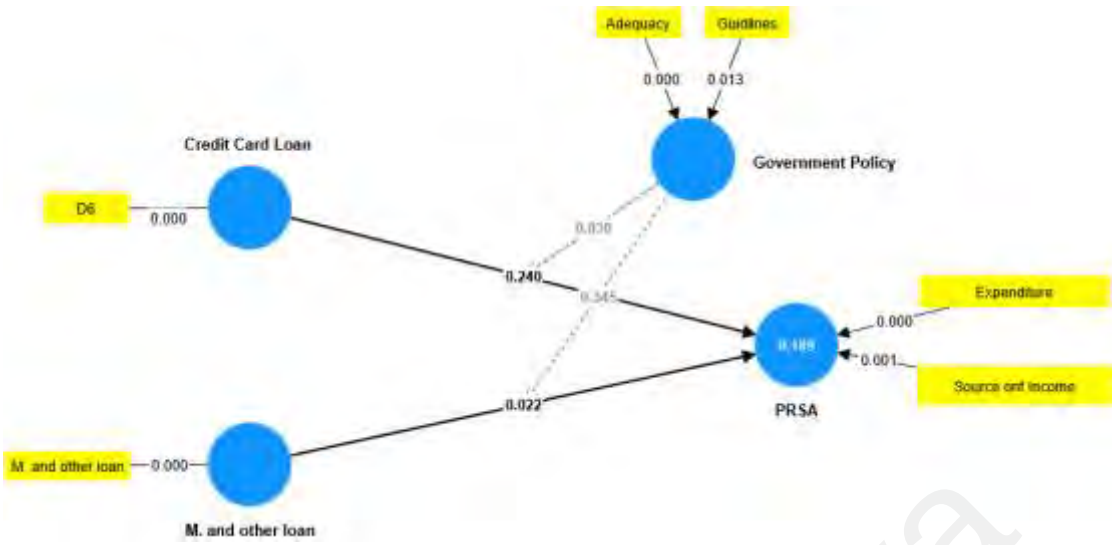


Figure 4.9 Moderation Result of Government Policy with Debt

It can be noted that when a government begins to make changes to pension and retirement policies (e.g., retirement age, contribution rate, and pension benefit) in order to make them more understandable and accessible to the public, it increases retirement goal clarity and decreases credit card debt, which in turn positively effect on the perception of retirement savings sufficiency among Saudi public university employees. This result suggests that when respondents work hard to define their retirement goals and decrease their credit card debts before retirement, government policies aid them in raising their perceived retirement saving sufficiency. Thus, this specifies that government policies significantly moderate the relationship between retirement goal clarity, credit card loan, and retirement saving adequacy, specifically for public university employees.

Generally speaking, the findings of the samples have demonstrated the importance of moderation and the extent of its influence on culture and government policy on the link between exogenous and endogenous factors. The findings have indicated that culture moderates the association between retirement goal clarity, home ownership, and perceived retirement saving adequacy. This conclusion can be drawn

from the fact that retirement goal clarity and asset ownership (homeownership) in terms of perceived retirement saving adequacy were shown to be moderated by culture. On the other hand, government policy outcomes have verified that it moderated the connection between retirement goal clarity, debt (credit card loan), and perceived retirement saving adequacy. From these facts, one may conclude that the results have discovered the moderator role of culture and government policy in some specified relationships in the study's model, while the rest of the hypotheses were rejected.

Table 4.22 Evaluation of Government policy Moderating Effects

Hypotheses	Relationship	Std. Beta	Std. Dev.	T statistics	P values
H_{9a}	GP x BFL -> PRSA	-0.019	0.153	0.124	0.451
H_{9b}	GP x AFL -> PRSA	-0.312	0.218	1.430	0.077
H_{9c}	GP x FSE -> PRSA	-0.030	0.036	0.832	0.203
H_{9d}	GP x RGC -> PRSA	0.095	0.053	1.789	0.037
H_{9e}	GP x FRT -> PRSA	0.086	0.054	1.578	0.058
H_{9f}	GP x Home-ownership -> PRSA	0.091	0.059	1.535	0.063
H_{9f}	GP x Other Asset Ownership -> PRSA	0.161	0.151	1.069	0.143
H_{9g}	GP x Credit Card Loan -> PRSA	-0.314	0.167	1.883	0.030
H_{9g}	GP x M. and Other Loans -> PRSA	0.025	0.064	0.398	0.345

4.7 Multigroup Analysis (PLS-MGA)

An additional analysis using the PLS-MGA technique has been carried out as part of this study in order to assess whether or not there is a likely group difference in terms of route coefficient between academicians and administrators, despite the fact that there is no stated comparison in the study's objectives. Differences between academic and non-academic path coefficients are presented in Table 4.23.

Table 4.23 Results of PLS-MGA

Hypothesis	Path	Academic (330)		Administrators (195)		Parametric Test		PLS-MGA	
		Std. Beta	P-value	Std. Beta	P-value	Std. Beta	P-value	Std. Beta	P-value
H_1	BFL -> PRSA	0.481	0.146	0.307	0.190	0.174	0.394	0.174	0.329
H_2	AFL -> PRSA	0.090	0.324	0.553	0.122	-0.463	0.152	-0.463	0.148
H_3	FSE -> PRSA	**0.427**	0.000	0.141	0.152	**0.286**	**0.024**	**0.286**	**0.023**
H_4	RGC -> PRSA	0.177	0.006	0.001	0.498	0.176	0.092	0.176	0.106
H_5	FRT -> PRSA	0.117	0.026	0.162	0.128	-0.045	0.371	-0.045	0.319
H_6	AO (home) -> PRSA	-0.090	0.062	-0.248	0.034	0.158	0.112	0.158	0.132
H_6	AO (other) -> PRSA	0.107	0.189	0.057	0.398	0.050	0.416	0.050	0.431
H_7	Debt (Mortgage and other loans) -> PRSA	-0.004	0.474	0.018	0.432	-0.022	0.422	-0.022	0.425
H_7	Credit Card Loan -> PRSA	-0.054	0.344	-0.344	0.178	0.291	0.195	0.291	0.216

According to the parametric test, the causal relationship between capacity variables (financial self-efficacy H_3) and perceived retirement saving adequacy differed significantly across academicians and administrators based on parametric and PLS-MGA tests. This result indicates that the financial self-efficacy variable significantly impacts academicians compared to administrators in perceived retirement saving adequacy (β academicians > β administrators).

4.8 Chapter Summary

This chapter introduces data analysis into four sections: response rate, preliminary data analysis, descriptive stat analysis, and primary data analysis: measurement model assessment and structural model assessment. Initially, it provides information about the response rate and the participants' intention to leave the workforce. The preliminary data analysis process also evaluates screening and cleaning the data, outliers, normality, common method bias, and exploratory factor analysis. The data preparation for descriptive and preliminary data analysis was analyzed using Microsoft Excel and SPSS (version 29).

Once it was finished from preliminary and descriptive analysis, Partial Least Square Structural Equation Modeling (PLS-SEM) was applied to present the PLS outcomes of measurement and the structural model showing the internal consistency reliability, convergent validity, and discriminant validity as tools to assess reflective measurements. Also, it presents the outcome of collinearity issues and the significance and relevance as tools to evaluate formative measurements. A confirmatory tetrad analysis approach was also conducted to determine whether the variables' items were reflective or formative.

As for the structural model, it is performed to examine the collinearity, path coefficient, coefficient determination R^2, effect size f^2, and moderating effect. Lastly, PLS-MGA has been conducted to determine the significant differences between academic and non-academic staff. Table 4.24 shows that some hypotheses were accepted, and others were rejected. The next chapter provides an explanation and discussion of the outcomes.

Table 4.24 Summary of Hypothesis Tests for the Data

Hypothesis	Path	P-value	Remarks
H_1	Basic FL -> PRSA	0.018	Supported
H_2	Advanced FL -> PRSA	0.154	Not Supported
H_3	FSE -> PRSA	0.001	Supported
H_4	RGC -> PRSA	0.001	Supported
H_5	FRT -> PRSA	0.053	Not Supported
H_6	Homeownership -> PRSA	0.001	Not Supported
H_6	Other AO -> PRSA	0.014	Supported
H_7	Credit Card Loan -> PRSA	0.150	Not Supported
H_7	M. and other loans -> PRSA	0.494	Not Supported
H_{8a}	Culture -> BFL and PRSA	0.497	Not Supported
H_{8b}	Culture -> AFL and PRSA	0.154	Not Supported
H_{8c}	Culture -> FSE and PRSA	0.161	Not Supported
H_{8d}	Culture -> RGC and PRSA	0.018	Supported
H_{8e}	Culture -> FRT and PRSA	0.293	Not Supported
H_{8f}	Culture -> Homeownership and PRSA	0.002	Supported

Table 4.24, Continued

Hypothesis	Path	P-value	Remarks
H_{8f}	Culture -> Other AO -> PRSA	0.379	Not Supported
H_{8g}	Culture -> Credit Card Loan and PRSA	0.216	Not Supported
H_{8g}	Culture -> M. and other loans -> PRSA	0.439	Not Supported
H_{9a}	GP -> BFL and PRSA	0.451	Not Supported
H_{9b}	GP -> AFL and PRSA	0.077	Not Supported
H_{9c}	GP ->FSE and PRSA	0.203	Not Supported
H_{9d}	GP -> RGC and PRSA	0.037	Supported
H_{9e}	GP -> FRT and PRSA	0.058	Not Supported
H_{9f}	GP -> Homeownership and PRSA	0.063	Not Supported
H_{9f}	GP -> Other Asset Ownership and PRSA	0.143	Not Supported
H_{9g}	GP -> Credit Card Loan and PRSA	0.030	Supported
H_{9g}	GP -> M. and Other Loans and PRSA	0.345	Not Supported

*BFL means basic financial literacy
*AFL means advanced financial literacy
*RGC means retirement goal clarity
*AO means Asset ownership
*PRSA means perceived retirement saving adequacy
*FSE means financial self-efficacy
*FRT means financial risk tolerance
*GP means government policy

CHAPTER 5

DISCUSSIONS OF RESULTS

5.1 Introduction

This chapter aims to discuss the study's outcomes revealed in the previous chapter to extract the valuable underlying information behind the results. The content of this chapter is discussed in three sections. The second section introduces a comprehensive review of the study, and the third section shows the experimental results of testing the hypotheses developed by previous studies.

5.2 Study Review

Retirement planning indicates the steps individuals perform during full-time active employment to secure themselves financially in retirement. These steps have positive consequences for people, such as improving their financial, psychological, and healthy well-being (Elder, 1999; Noone, Stephens, & Alpass, 2009), increased knowledge and skills for the ability to manage financial resources to meet up with upcoming financial needs (Mahapatra et al., 2019). Besides, the awareness of social roles and norms may positively affect the tendency to plan and save for post-retirement (Hershey et al., 2012). Therefore, this study's main objective is to examine the influence of external, psychological, and capacity variables of PRSA on academic and non-academic staff working at Saudi public universities. More precisely, how do financial literacy, financial self-efficacy, retirement goal clarity, financial risk tolerance, asset

ownership, and debt influence individuals' financial planning for retirement performance?

In order to accomplish the study's objectives, this research is conducted in three phases: (1) conducting a systematic literature review on (PRSA) conceptual models, (2) collecting and analyzing the data, and (3) discussing the study's findings. The first phase begins with a systematic literature review (SLR) to provide information about conceptual models used to study PRSA and to review the prior literature on variables, samples, contexts, and theories in retirement planning. Also, to identify the factors that authors have suggested for future studies to develop the CWO model, such as debt and financial resources (Jiménez et al., 2019; Palací et al., 2018). Moreover, to provide a comprehensive picture of PRSA in terms of samples, samplings, the context in which PRSA models are used, and more.

Mainly, SLR supports achieving the objective of this study. It has found five variables that represent three distinct categories of people's intentions: (1) capacity variables (i.e., financial literacy, financial self-efficacy), (2) psychology variables (i.e., retirement goal clarity, financial risk tolerance), (3) external variables (i.e., assets ownership, debt). These five evaluation variables are considered relevant determinants of an individual's perceived retirement saving adequacy in decreased decision effort, increased decision value, and satisfaction, making PRSA practice more likely to help employees have well-being in retirement. Similarly, culture and government policy were applied as moderators to solve inconsistent results between independent and dependent variables. They were derived from the intentional change theory and life cycle hypothesis to the research model in terms of identification.

The second phase to accomplish the study's objectives is to determine the study's population and sample, investigation tools, and data collection process. A technique known as non-probability sampling, also known as convenience sampling, was utilized to gather data from twenty-nine public colleges in Saudi Arabia, resulting in 355 academic and 203 non-academic respondents. The questionnaire was developed using previously published works, and a back-to-back translation was performed before the final version of the questionnaire was sent out to the study's participants. After that, the survey questionnaire was distributed digitally to the targeted respondents to collect the data. Microsoft Excel, the Statistical Package for the Social Sciences (SPSS), and Smart-PLS were the statistical programs that were utilized to check the validity and reliability of the study's data.

The data collected were analyzed in three stages: preliminary, descriptive, and primary. The preliminary data analysis was conducted in several steps, such as screening and cleaning the data, assessing outliers, normality, and common method bias using SPSS and Microsoft excel to test the data's goodness. The descriptive data analysis has focused on respondents' profiles, determination of sampling weights, retirement age, source of income, and homeownership analysis. Meanwhile, the primary analysis has concentrated on measurement and structural model using Partial Least Square Structural Equation Modelling (PLS-SEM) to investigate the reliability and validity of the latent variables. The third phase to conduct the study's objectives is to analyze the gathered data and discuss its results. Also, to examine the study's hypothesis and underlying theories: LCH & ICT.

As mentioned in the previous chapter, the study's findings have indicated that the majority of the hypothesis, four out of seven variables, were significant. Assessing path

coefficient results have demonstrated that basic financial literacy, financial self-efficacy, retirement goal clarity, and partial asset ownership (other asset ownership) significantly positively correlated with PRSA. However, homeownership has a significant negative relationship with PRSA. Details of these results are discussed in the next section.

5.3 Discussions of the Findings

This study has attempted to answer five research questions: (1) Does the capacity to plan and save (basic and advanced financial literacy, financial self-efficacy) influence PRSA among employees in Saudi government universities? (2) Does the willingness to plan and save (retirement goal clarity and financial risk tolerance) influence PRSA among employees in Saudi government universities? (3) Does the opportunity to plan and save (assets ownership and debt) influence PRSA among employees in Saudi government universities? (4) Does culture moderate the relationship between capacity, willingness, opportunity variables, and PRSA? (5) Does government policy moderate the relationship between capacity, willingness, opportunity variables, and PRSA?

Regarding these questions, the study has developed the research objectives that investigate: (1) the influence of capacity variables in the capacity dimension toward PRSA, (2) the influence of psychological variables in the willingness dimension toward PRSA, and (3) the influence of external variables in opportunity dimension toward PRSA. Moreover, the study has investigated whether culture and government policy moderate the relationship between the study's variables and PRSA.

Consistent with the research objectives, the analyses were conducted based on the CWO model using Smart-PLS software to evaluate the study results comprehensively. Given the evidence viewing the existence of few empirical studies that have examined the influence of multidisciplinary variables on perceived retirement saving adequacy, the theoretical model of this study has been developed to assess the influence of capacity, psychological, and economic variables empirically on perceived retirement saving adequacy among public university employees who were eligible for regular payments after they retire in Saudi public universities based on the life cycle hypothesis and intentional change theory, which in retirement and saving behavior literature are in their infancy stage.

Nevertheless, LCH has broadly been used in economy and finance studies, which commonly show how individuals plan and save their financial resources based on their future revenues throughout their lifetimes. In contrast, the Intentional Change Theory has widely been employed in the psychological literature to help people make appropriate changes to improve their education, training, and behavior (Boyatzis, 2006). Therefore, the gaps in empirical and theoretical studies about the influence of the mentioned variables on intentional behavior for saving and planning for retirement encourage the researcher to carry out this research objective. The following paragraphs summarize each study objective and provide an in-depth analysis of whether or not the corresponding hypotheses have been rejected.

5.3.1 The Research Objective 1

The first objective of the present research is to test the impact of the capacity variables on PRSA among employees in Saudi government universities. To achieve this objective, three hypotheses have been examined: perceived retirement saving adequacy is significantly positively influenced by (1) basic financial literacy, (2) advanced financial literacy, and (3) financial self-efficacy.

5.3.1.1 Basic Financial Literacy (BFL)

In terms of the first hypothesis, the analysis results of structural equation modeling have shown that basic FL had a positive and significant relationship with perceived retirement saving adequacy among academic and administrative staff. This outcome is in line with Boisclair et al. (2017) who conducted their study in Canada, Ricci and Caratelli (2017) in Italy, Moure (2016) in Chile, Fornero and Monticone (2011) in Italy, Sekita (2011) in Japan, and Lusardi and Mitchell (2008) in the USA, who stated that basic financial literacy has a positive and significant relationship with retirement saving adequacy. However, the result is opposed to the finding of Brahmana et al. (2016) in Malaysia, Crossan (2011) in New Zealand, and Rooij et al. (2011b) in the Netherlands. This relationship between basic financial literacy provided to workers and PRSA is considered one of the essential points of personal financial planning. Table 4.18 presents the regression coefficients of this correlation for public university employees, which is ($\beta = 0.411$, $p = 0.018$).

The study's findings confirmed earlier findings about the strong positive correlation between basic financial literacy and perceived retirement saving adequacy. Referring to the Intention Change Theory, people are more likely to do self-evaluations when they are in less-than-ideal financial situations, allowing them to identify their areas of weakness and then work hard to improve their overall well-being. For example, individuals' knowledge and skills in personal finance will significantly enhance and improve their retirement planning and saving practices, supporting them in investing and saving their financial assets before retirement.

The findings have shown that those who got the fundamental FL questions right (compound of interest rate, time value of money, simple math, the effect of inflation, and money illusion) might have a firm grasp on their meaning, as evidenced by the results. This implies they are more likely to plan and save adequately for retirement, have a positive attitude about PRSA, and have retirement investments. Whether public university employees have solid or weak knowledge of basic financial literacy that would affect PRSA behavior, this outcome is relevant (e.g., increase in living cost, inflation, and the rate of unemployment) in view of recent modifications to Saudi Arabia's retirement systems based on the 2030 Vision and the financial challenges people currently confront.

Although the MGA-PLS result in Table 4.23 has indicated no significant differences between the study's sample for basic financial literacy, the beta coefficient becomes more critical among academicians ($\beta = 0.481$) than administrators ($\beta = 0.307$). The higher academicians' beta coefficient implies that proactive mechanisms positively impact perceived retirement saving adequacy. One of the reasons academicians are more affected than administrators is the level of financial literacy. According to the study's result, administrators had lower financial literacy levels than academics. Therefore,

academicians are more interactive than administrators regarding exposure to basic financial concepts, such as the time value of money, to improve their financial literacy. This is because these topics are considered background to academicians.

5.3.1.2 Advanced Financial Literacy (AFL)

For the second hypothesis, the results of the structural equation modeling analysis unexpectedly indicated that the advanced FL had a non-significant relation to the PRSA ($\beta = 0.216$, $p = 0.154$). The result is uncommon and unlike the results obtained by Baker et al. (2021), Brahmana et al. (2016) in Malaysia, Almenberg & Save-Soderbergh (2011) in Sweden, and Rooij et al. (2011b) in the Netherlands.

It was hypothesized that there would be a correlation between advanced financial literacy and PRSA. However, as shown in Table 4.18, this correlation was not found to be statistically significant among respondents. This result might be due to a variety of reasons. The first probable explanation is that responders may feel overconfident. Rooij et al. (2012) indicated that high-confidence savers are more likely to make educated guesses about their retirement fund needs. The authors were worried, however, that respondents' overconfidence in their ability to make complex decisions about retirement savings may make it harder for them to plan and figure out how much they need to save. In the same vein, a recent study showed that a high level of education per capita reduces the probability of preparing for financial retirement (Bačová & Kostovičová, 2018).

The second possible explanation of this finding is the extent of one's knowledge of financial matters. Even though multiple studies have shown that financial literacy significantly impacts people's propensity to save for retirement (Farrar et al., 2019; Klapper & Lusardi, 2020), previous studies showed that Saudi Arabia has a level of financial literacy that was below average (Diaw, 2017a; Alghamdi et al., 2021; Khan & Tayachi, 2021; Mian, 2014). According to the research findings, respondents' financial literacy levels ranged from 2.71 to 4, indicating that they had adequate basic financial literacy but less advanced financial literacy (2.14 to 4). This is due to the fact that the individuals who participated in this study came from a wide variety of educational backgrounds and not necessarily from business schools. Nga and Yeoh (2018) noted that Malaysians have inadequate or minimal planning and a lack of retirement savings due to low levels of financial literacy, leading to poor financial practices (e.g., indebtedness), which is somewhat analogous to the Saudi context.

The third potential interpretation that may lead to such an outcome is gender. This study has indicated that 181 (34%) of those surveyed were women. According to Pearson's correlation test in Table 4.3, the results have indicated a slight negative (-0.20) correlation between gender and financial literacy and almost no correlation between gender and perceived retirement saving adequacy (-0.05). This means that the level of financial literacy will be reduced if more women participate in the study, which will almost lead to no plan and saving for retirement.

Bucher-Koenen et al. (2021) and Potrich, Vieira, and Kirch (2018) demonstrated that the level of financial literacy among women was an exceptional concern because of a lack of proficiency in the basic concepts of financial literacy. Due to low financial literacy, women were exposed to many problems, such as low business growth (Baporikar

& Akino, 2020) and low perceived retirement saving adequacy (Kumar et al., 2019b; Noone, Alpass, & Stephens, 2010a). Also, they made less money than men (Axelrad & Mcnamara, 2018) and spent fewer hours planning for a stage after leaving their careers (Arano et al., 2010). This indicates a gap between women's retirement saving adequacy and their level of advanced financial literacy. Based on studies mentioned earlier, it concluded that having women in the study sample could be one reason why there was no link between advanced financial literacy and perceived retirement saving adequacy.

Fourthly, although the retirement funding system has been changed from the defined benefit plan to the defined contribution in most pension systems worldwide (Bernstein, 2004; Schuabb et al., 2019), the pension system in Saudi Arabia still follows defined benefits. This indicates that the PPA is responsible for retirement by ensuring employees' retirement income security. This reliance on the pension system may cause workers a lack sophisticated financial literacy to plan and save adequately for a successful retirement. In terms of this study, Saudi employees may not consider having in-depth knowledge of personal finance (e.g., stock and bonds) that might help them invest in the financial markets to meet their post-retirement financial needs. A study by Crossan et al. (2011) examined the influence of financial literacy on financial planning for retirement among two tribes in New Zealand and found that the relationship was insignificant. This insignificant relationship was given because of the retirement income that New Zealand's public pension system provides to the people of New Zealand. The same reason can also apply to the respondents of this study.

An ultimate explanation that might cause this result is age. In the current study, Pearson's correlation results have indicated there was almost no correlation between age and perceived retirement saving adequacy (-0.02). Even though previous research found that older workers were more likely to plan and save adequately for retirement to secure their future (Crossan et al., 2011; Jiménez et al., 2019; van der Velde et al., 2017), Bucher-Koenen and Lusardi (2011) reported no significant differences in financial planning for retirement by age.

5.3.1.3 Financial Self-Efficacy (FSE)

Per the third hypothesis, SEM's analysis revealed that FSE had a positive and significant relationship with PRSA among university employees ($\beta = 0.354$, $p = 0.001$). This outcome is consistent with research by Farrell et al. (2016), who conducted their research in Australia, and Asebedo and Payne (2019) in the USA. The interpretation of the study's result has shown that a feeling of financial self-assuredness among university employers' capabilities was high, which provides them the ability to plan, save, and invest their money to meet any additional risks and crises in the future, such as over-indebtedness. It reveals that university employers with high financial self-efficacy exit the workforce early and then pursue some activities after retirement.

According to the MGA-PLS result in Table 4.23, the findings have revealed that academicians' financial self-efficacy was more influenced than administrators' in terms of perceived retirement savings adequacy. This result implies that academics are capable of successfully managing and resolving complex financial issues if they put forth their best effort to identify an appropriate solution. In conclusion, increasing the level of FSE

allows people to make more confident retirement savings decisions, positively impacting their financial well-being after retirement. The Consumer Financial Protection Bureau (2015) found that those with higher financial self-efficacy levels were more willing to apply their knowledge in practice.

However, a high degree of financial self-efficacy does not necessarily imply that these individuals are proficient in financial management behaviors. Lusardi (2011) revealed that respondents who ranked themselves among the best place to manage their financial duties experienced terrible behaviors, such as overdraft of their banking accounts and excessive credit card usage.

5.3.2 The Research Objective 2

The second objective of this research is to investigate the impact of the willingness variables on PRSA among employees in Saudi government universities. To discuss this objective, two hypotheses will be assessed as follows: (1) retirement goal clarity has a significant positive relationship with perceived retirement saving adequacy (2) financial risk tolerance has a significant positive relationship with perceived retirement saving adequacy.

5.3.2.1 Retirement Goal Clarity (RGC)

The results have demonstrated that RGC had a positive and significant relationship with financial retirement preparation among respondents ($\beta = 0.176$, $p =$

0.001). This positive result agrees with the previous studies results of Stawski et al. (2007) in the USA, Aluodi and Njuguna (2017) in Kenya, França and Hershey (2018) in Brazil, Jiménez et al. (2019) in Spain, Schuabb et al. (2019) in Brazil, Tomar et al. (2021a) in India. However, it contradicts Chou et al. (2015) results in Hong Kong.

In this light, academics can achieve their financial goals more than non-academic staff. This result is likely attributable to the higher education and income levels of the academicians compared to the administrators' staff. It is a known fact that a master's degree or higher is required for an academician to be considered a member of the academic staff in a college. In contrast, a high school diploma is sufficient for an administrator to be considered a member of the administrative staff. Regarding financial resources, academic staff members have more than one opportunity to raise their income over one's university basic wage, such as working as a consultant (Menachemi, Morrisey, & Ginter, 2010).

Hershey et al. (2007a) examined psychological variables that underlie the retirement preparation between Dutch and American employees. The authors found that the retirement goal clarity among Americans was more than in Dutch, showing Americans' inclination to be more involved in retirement financial planning activities. This indicates that having obvious and meaningful financial targets before retiring is a reason to plan and save for superannuation successfully. The second reason is that academic participants can be older than administrative respondents. Stawski et al. (2007) stated that aged people were expected to have sharper retirement goals than younger people.

5.3.2.2 Financial Risk Tolerance (FRT)

Hypothesis five is proposed to examine the positive relationship between FRT and PRSA. However, the outcome did not support the hypothesis that FRT positively influences PRSA among participants ($\beta = 0.092$, $p = 0.053$). This result is consistent with Alkhawaja and Albaity (2020), who examined their study in the UAE, Larisa et al. (2020) in Indonesia, Hershey et al. (2017) in German and Netherlands, Koposko et al. (2015) in the USA, and Croy et al. (2010) in Australian, who stated that the relationship between risk tolerance and savings practices was not significant. However, it disagrees with Jacobs-Lawson & Hershey (2005), Parker et al. (2012), and Larson et al. (2016), who conducted their studies in the USA. They indicated there was a strong positive correlation between financial risk tolerance and retirement financial planning, while significantly negative with Tomar et al. (2021a) in India.

This result has indicated that FRT did not influence PRSA behavior for academic and non-academic staff. The unexpected results of the ongoing research might be due to various reasons. First, workers who enroll in PPA receive fixed monthly payments when they leave their jobs, which may eliminate the effect of FRT on PRSA. Therefore, financial risk tolerance's influence on PRSA among government employees may have been trivial.

The second reason for this finding is its possible association with financial literacy. The associated empirical literature clearly has indicated that individuals' financial risk tolerance is influenced by their level of financial literacy. The capacity of sophisticated people in financial literacy and investment experience leads to greater financial risk tolerance (Awais et al., 2016; Bayar et al., 2020; Dwyer et al., 2002).

Theoretically, they expect to engage in risky investments and make more informed investment decisions to achieve high returns through efficient investment management. However, lower levels of financial literacy translate into lower levels of financial risk tolerance. In such a situation, it is likely that people are planning investments with minimal risk. Due to the level of financial literacy among Saudi people is under average (Alyahya, 2017; Diaw, 2017a; Khan & Tayachi, 2021; Mian, 2014), which could be one of the reasons why there is no link between financial risk tolerance and retirement saving adequacy.

5.3.3 The Research Objective 3

The third objective of this investigation is to examine the impact of the opportunity dimension on PRSA among employees in Saudi government universities. To discuss this objective, two hypotheses will be assessed as follows: (1) asset ownership has a significant positive relationship with financial planning for retirement, and (2) debt has a significant negative relationship with financial planning for retirement.

5.3.3.1 Assets Ownership (AO)

It represents by homeownership and other assets. According to SEM analysis, outcomes have shown that homeownership was not supported because the beta was negative (β = -0.184, p = 0.001). This result is consistent with Torricelli et al. (2016). However, other assets (e.g., cars) were supported because the beta was positive (β = 0.242, p = 0.014). This finding is consistent with DeVaney and Chiremba (2005) in the

USA, Fontes (2011) in the USA, Rooij et al. (2011b) in the Netherlands, Sekita (2011) in Japan, and Vivel-Búa et al. (2019) in Spain.

Although this result is partially not supported, this relationship between adults, aged workers, and financial resources in retirement saving adequacy indicates some matters of crucial personal finance. Homeownership is shown with a negative, significant sign because it may indicate that those who do not own a home have more reason than those who do to worry about the financial security of their future retirement (Crossan et al., 2011). On the other hand, those who own a home do not have this additional cause for concern. Holding a mortgage is a second cause for the unfavorable link between owning assets (homeownership) and adequately saving for retirement. According to Vivel-Búa et al. (2019), homeowners holding a mortgage on their properties revealed fewer probabilities of planning for their finances in the late adulthood stage.

A third reason may be due to the number of children. Increasing the number of children in a household has a negative impact on savings adequacy for retirement. A recent study conducted by Al-Khraif et al. (2020) showed that the average household size in Saudi Arabia remains largely similar to the other Gulf countries. This is because many household financial resources are devoted to raising their children (Vivel-Búa et al., 2019). Ginn (2003), Price (2007), and Foster and Smetherham (2013) found that having children for women had an adverse impact on participation in retirement.

5.3.3.2 Debt

Following the sixth hypothesis, it is speculated that debt (credit card loans & mortgages and other loans) negatively influences PRSA among employees who work in Saudi government universities. However, SEM analysis findings for this study illustrated that this hypothesis was not supported in terms of credit card loans ($\beta = -0.130$, $p = 0.150$) and mortgage and other loans ($\beta = 0.001$, $p = 0.494$). This means there was no effect of debt on PRSA among academicians and administrators staff. This study's result is consistent with Rutledge et al. (2016) and Butrica and Karamcheva (2020) conducted in the USA. However, it contradicted Lahey et al. (2006), Lusardi et al. (2020) result conducted in the USA, and Leinonen et al. (2020) result in Finland, who found a positive relationship between debt and PRSA.

This result provides a hint at a phenomenon that the LCH view of perceived retirement saving adequacy may not explain. According to LCH, as mentioned above, individuals at youth age borrow money to meet their life requirements but begin repaying the debt in middle age once they start working. At old age, they use their savings to fill the gap between salary and retirement income. Causal interpretations of the insignificant relationship between debt and retirement saving adequacy can be problematic in this context.

There might be several reasons behind this anomaly. First, age could explain the insignificant outcome. Among those aged 30, Rutledge et al. (2016) conducted a study to assess the link between student loans and retirement planning practices and found that the result was statistically insignificant. Another reason that could affect the study's result is installment loans, which have many forms. The current study has shown that 67 (12%)

of respondents had credit card loans, and 133 (23%) had mortgages. Those who had installment debt were much less likely to prepare for retirement savings, as found by Cavanagh and Sharpe (2002).

Third, the design of the research may explain the negligible result. Previous studies looked at the effects of debt accumulation on the retirement behaviors of individuals using the longitudinal structure (Bédard & Michaud, 2021; Lusardi et al., 2020; Mann, 2011). They found a negative relationship between debt and retirement preparation. This type of research would allow researchers to learn more about causal relationships, as they are considered precious results. However, since this is a given point in time to examine the impact of debt on retirement financial planning among the respondents, it is not easy to draw causal relations from the cross-sectional analysis (Setia, 2016). The cross-sectional structure may not fully affect a sample of public university employees at the start of the survey.

5.3.4 The Research Objective 4

The fourth objective examines the moderation effect of culture on the study's conceptual model. An attempt has been made to explore the possibility of any moderation effect of culture on capacity, willingness, opportunity variables, and perceived retirement saving adequacy. The results have indicated two significant moderating relationships of culture. Namely, the culture has significantly and positively moderated the direct relationship between respondents' retirement goal clarity (H_{8d}) and asset ownership (homeownership) (H_{8f}) toward perceived retirement saving adequacy. This indicates that as the value of cultural sub-dimensions (risk aversion, tradition, and prudence) increases,

the relationship between retirement goal clarity and asset ownership with perceived retirement saving adequacy will become increasingly robust. Such dimensions (long-term orientation, uncertainty avoidance) were responsible for enhancing the retirement goal of academicians and administrators' staff, as well as the increase in the number of those individuals who owned properties to save for their retirement effectively.

5.3.5 The Research Objective 5

The final objective is to look at the moderating effect of government policy on the conceptual model of the study. Efforts have been made to investigate the possibility of a moderating effect of government policy on capacity, willingness, opportunity variables, and perceived retirement saving adequacy. Based on SEM results, there were two significant moderating effects of government policy. Specifically, government policy has moderated the direct relationship between respondents' retirement goal clarity (H_{9d}) and perceived retirement saving adequacy significantly and positively. On the other hand, it has significantly and negatively moderated the direct association between the respondents' debt (credit card loans) (H_{9g}) and their perceived retirement saving adequacy. It has displayed that government policy strengthens the relationship between RGC and PRSA while weakening the relationship between debt (credit card loans) and PRSA.

The practical explanation of these results is related to the fact that the government of Saudi Arabia continues to enact and amend legislation on both institutions, the Public Pension Agency (PPA) and the General Organization for Social Insurance (GOSI), to give members a clearer understanding of their rights and benefits from their pension

plans. Due to vision 2030, for example, the government of Saudi Arabia has decided to incorporate PPA and GOSI to achieve the highest standards of organization and performance to develop insurance protection for employees to achieve future gains and quality (Al-Matri, 2021). Similarly, the Financial Sector Development Program was introduced in 2017 to foster and enhance financial planning at the organizational and personal levels. The Housing program was launched in 2018 to create a dynamic environment for society.

These amendments may affect the respondents' relationship between debt, retirement goal clarity, and perceived retirement saving adequacy. These changes, for example, may persuade professionals to limit their use of credit card debt in order to retain their financial stability after retirement. At the same time, employees may be prompted to learn more about these improvements in Vision 2030, which could help them to clear their retirement goals. Brought together, the dimensions of the study's model: capacity, willingness, and opportunity provide an essential prediction of perceived retirement saving adequacy, although financial risk tolerance has shown a non-significant relationship with PRSA.

CHAPTER 6

CONCLUSION

6.1 Introduction

This chapter concludes the results of this study. It is divided into five sections. The second section discusses the academic and practical implications of the finding. The following section presents the limitation of this study. Meanwhile, the fourth section outlines future directions for research. Finally, the fifth section summarizes the chapter.

6.2 Implications of the Study

Theoretically, the outcomes of this study enrich the literature on personal financial planning by providing new evidence on the impact of capacity, psychological, and external factors on PRSA. In practice, the findings have a number of implications that can be structured in terms of essential practices for financial decision-makers and personal financial management firms. The practical implications of the study's results are discussed below.

6.2.1 Practical Implications

This study's outcomes disclosed that basic financial literacy (β = 0.411) and financial self-efficacy (β = 0.354) were the most significant predictor of perceived retirement saving adequacy among public university employees. There are several practical implications that the findings suggest.

With respect to capacity variables, the results help individuals and policymakers understand the importance of capacity variables in enhancing PRSA. The findings assist decision-makers in promoting programs and workshops to increase the level of financial knowledge and skills needed for PRSA practices. These programs help public and private sector employees manage their financial resources upon leaving the workforce. Also, the results enable policymakers to produce and develop government policies in the framework of the economic plan commonly referred to as Saudi Vision 2030 to improve people's financial well-being pre-and post-retirement.

For instance, the Ministry of Education may work with PPA and the GOSI to fulfill job promotion requirements by offering training programs for staff. These training workshops might be beneficial for generals and professionals who wish to share their expertise in retirement planning. Moreover, the Ministry of Education in Saudi needs to introduce compulsory personal financial planning core courses or classes in schools and universities to increase awareness of the importance of retirement planning and saving adequately for modern generations. Palací et al. (2017) highlighted that improving students' financial literacy and financial self-efficacy through courses gives them the power to understand the information they get from newsletters, TV, social media, and other people. This helps decision-makers and employers identify the factors that underlie

the low level of PRSA in other groups of society. In a similar vein, it recognizes the way in which people obtain a high level of PRSA. Policymakers must therefore develop the financial capacity of employees by involving financial services companies and financial training institutes.

Besides capacity variables, the final result of willingness variables has pointed out that financial risk tolerance had an insignificant relationship with PRSA. However, it has shown that retirement goal clarity strongly influenced the PRSA behavior of the study's participants, partially supporting the role of psychological variables that drive financial decisions. Policymakers need to make meaningful efforts to develop strategies that raise employees' awareness of how to specify their retirement objectives by guiding them in future planning (Zhu & Chou, 2018). Further, they recommend training workshops for workers from time to time by welcoming members of financial institutions, pensioners, and experts (e.g., PPA and GOSI members) to share their past experiences. This will strengthen their retirement goal clarity and consider future consequences in financial planning for retirement.

Besides the capacity and willingness variables above, the findings of opportunity variables have highlighted the crucial role of asset ownership in the perceived retirement saving adequacy practices among members of educational institutions. Due to economic challenges, limited financial resources, and decreased pension after retirement, it becomes difficult for people to retire without financial preparation and to save adequacy for retirement. According to the study's findings, many university employees were likely to be at the tail end of that range in terms of planning and saving for a period after leaving a job. Generally, administrators typically earn less salary than academicians, which translates into less care for their families because of their financial limitations and the

rising cost of living. Therefore, they force to delay their retirement decision to ensure that they will not face any financial resources shortage during their retirement life. Thus, asset ownership is critical to being highlighted by researchers.

The fourth and fifth objectives of this study highlight the role played by culture and government policy, respectively. The variance of dimensions in the CWO model has explained the perceived retirement saving adequacy behavior, and both moderators were approved as an antecedent of the perceived retirement saving adequacy behavior. Apparently, culture and government policies were critical variables that significantly impacted the relationship of capacity, psychological, and external variables in perceived retirement saving adequacy among public university employees.

As for government policy, it is imperative to facilitate government policies, as they can help inculcate retirement-saving behavior among employees. On the other hand, cultural values have also influenced retirement planning, saving, and investing. Therefore, increasing the value of uncertainty avoidance and a long-term orientation, as exemplified by culture and government policies, is required to inculcate retirement planning and save sufficiency behavior among employees. The performance and sustainability of the PPA policy will be improved, and it will play a vital role in achieving Vision 2030 by fostering a positive workplace culture that reflects uncertainty avoidance and long-term orientation.

On the whole, the results of this research might be helpful for Saudi public and private university employees. Public university employees are advised to engage in saving and investment practices by increasing their financial knowledge: improving and enhancing their ability to manage their financial resources effectively and efficiently, and

determining their retirement needs. Also, they are encouraged to determine part of their monthly salary and deposit it into a retirement account, if they have one, for their future needs. This should be done for the sake of retirement purposes instead of saving and planning for a different purpose.

6.3 Study Limitations

Even though this study provides many theoretical contributions and practical implications, its limitations could influence the study outcomes. These limitations may suggest future studies in retirement saving and planning behavior. Firstly, this study was conducted in Saudi Arabia; therefore, the results might not be generalized to developing countries, such as Pakistan, India, and Argentina. The capacity, psychological, and economic variables that positively impact perceived retirement saving adequacy might not be predictive in other nations. Therefore, applying the CWO model to other developing countries helps researchers confirm whether it could generalize the study's result to other populations.

The second limitation is that the study focuses only on academic and non-academic respondents at Saudi public universities. This group of workers may plan for retirement in different ways and have different attitudes than employees who work in private universities or other government sectors. In other words, the willingness of public university employees to save adequacy for retirement may differ from those employed in private universities. Moreover, other employees in the government and private sectors may have different knowledge levels on perceived retirement saving adequacy based on their cultural values and experiences.

Similarly, the quantitative approach and the cross-sectional time horizon were utilized in the current study, which proved to be adequate for data analysis. However, the cross-sectional method may not be useful for determining temporal and causal links between research variables at different times because there is no longitudinal time horizon. For instance, the results have found no correlation between the debt and the PRSA, despite the fact that such a correlation was demonstrated in the literature. This is partly because a cross-sectional method was used. Applying a questionnaire technique to gather the study's data has many advantages. However, an interview method to collect data may provide more valuable information on the topic.

6.4 Recommendations

Recommendations for future studies can be discussed under several headings. First, participants in the study were only employees who work for the Ministry of Education, primarily academicians and non-academician staff at Saudi public universities. Hence, it provides a narrow room for the findings to be generalized. Future research is advised to conduct this study on the scope of academicians and non-academician staff working in Saudi private universities to provide a big picture of PRSA. However, researching private universities could not be the same as government universities because of the restrictions and policies. Likewise, future studies could be reviewed by a variety of government sectors, such as the Department of Health or the Department of Finance. Perhaps the next step would be to uncover the PRSA in all aspects through a comparative review. For example, it may conduct another PRSA study with members of the Ministry of Finance, the Department of Health, or financial institutions and compare its findings with those of this study.

Second, it is proposed to extend this study in order to understand the PRSA behavior of various countries. Applying intentional change theory may help to understand how employees in different countries change their behavior to fit the intended ones. The Gulf States, such as Kuwait and the United Arab Emirates, may be appropriate to extend this study to employees employed by the Ministry of Higher Education.

Third, the R^2 of this study was 0.370. This implied that over 0.50 of R^2 should be explained by other possible capacity, psychological, economic, and external variables that were not part of the study model. It is recommended to examine other capacity, psychological, and economic variables, directly and indirectly, to identify all PRSA perspectives (Topa et al., 2018a), expand the literature, and enhance their knowledge of PRSA.

For example, one of the recommended variables is financial literacy. Due to the significance of the financial literacy construct, numerous researchers employ it as a moderator in their studies (Adomako et al., 2016; Owusu et al., 2019; Songling et al., 2018) and as a mediator (Palaci et al., 2017). Therefore, including financial literacy as a moderator or mediator in future studies could find new contributions to the knowledge body, particularly in the perceived retirement saving adequacy context.

For future PRSA studies, several suggested variables are included in the CWO model for consideration in the Middle East context. It is recommended that consideration be given to the retirement planning metacognitions and retirement goals within the capacity dimension; self-control and future time perspective are better examined under the willingness dimension, while pension schemes, unexpected inheritance, cultural and

social norms, cost of living, and health issues may investigate under the opportunity dimension.

Fourth, the current study is constructed under the quantitative method and cross-sectional time. One advantage of a longitudinal study is that it helps researchers improve their understanding of the historical and causal relationships among the independent research variables during the study's time. However, future studies may benefit from adopting a longitudinal approach to facilitate more generalization and facilitate a deeper comprehension of the connections between variables that evolve over time.

6.5 Concluding Remarks

Personal financial planning becomes an important financial well-being tool for all stages of life. Recognizing this perspective, this study examines the impact of capacity, psychological, and economic variables on the perceived retirement saving adequacy of employees working in Saudi public universities.

In support of earlier research, studies applied the CWO model to examine perceived retirement saving adequacy from different perspectives. This study has followed the CWO model and developed assumptions based on previous studies. The fundamental theories applied in this study were the Life-Cycle Hypothesis and Intentional Change Theory to describe the causal connections between the determinants of perceived retirement saving adequacy and employees' retirement saving adequacy behavior.

This study has used the questionnaire's quantitative approach to collect the necessary data from 29 public universities in Saudi Arabia. These data were analyzed using PLS-SEM, SPSS, and Excel as statistical software. The SPSS and Excel worksheets are used to conduct the initial descriptive analysis to gain an understanding of the study data. Meanwhile, the PLS-SEM is used to examine the main hypothetical relationships mentioned in this research. The findings have indicated that the relationships between basic financial literacy, retirement goal clarity, financial self-efficacy, other asset ownership, and perceived retirement saving adequacy among academic and non-academic staff were significant. However, asset ownership (homeownership) negatively impacted perceived retirement saving adequacy but was contrary to the study's assumption. However, the relationship between debt, financial risk tolerance, advanced financial literacy, and perceived retirement saving adequacy has not been supported.

This study has presented both academic and practical contributions based on these conclusions. Similar to other studies, the current research has had some limitations that have been discussed. Study recommendations and directions for future research were also presented. As mentioned earlier, even though additional research has to be performed to confirm the postulations of this study, the general conclusions indicate that the CWO conceptual model predicts the perceived retirement saving adequacy of employees of public universities.

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