

**DETERMINANTS OF GENERATION Y (GEN Y) SAVING
BEHAVIOUR: AN APPLICATION OF THE INTEGRATED
BEHAVIOURAL MODEL**

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**FACULTY OF BUSINESS AND ECONOMICS
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ABSTRACT

The issue of saving behaviour is an important research agenda and has often been a key topic of discussion among researchers and policymakers across the globe. This issue is expected to gain greater importance in the coming decades due to longer life expectancies, intensified with countries having to deal with ageing populations and significant increase in old-age dependency ratio. The main objective of this study is to investigate the determinants of saving behaviour among Malaysia's income-earning Gen Ys – born in the years 1980 to 1995 - using Integrated Behavioural Model (IBM). Gen Y is chosen as it is a fast-growing income-earning generational cohort, and with considerable number of working years left before retirement. Another motivation to target Gen Y is because prior studies revealed Gen Ys to be experiencing financial stress and anxiety and are not prepared for long-term financial security. This study applied the IBM, which primarily includes constructs from Theory of Planned Behaviour (TPB) to evaluate determinants influencing Gen Y's saving behaviour, namely, whether Attitude (experiential, instrumental), Perceived Norm (injunctive, descriptive), and Personal Agency (perceived Control, self-efficacy) influence intention to save regularly. In addition to intention to save regularly as a direct predictor of regular saving behaviour, this study includes two additional direct predictors of saving behaviour, namely financial literacy, and time preference. The study was conducted in three phases. In the first phase, interviews were conducted to elicit underlying beliefs that influence Attitude, Perceived Norm, and Personal Agency. In the second phase, a study using survey questionnaire was conducted on a sample of 500 Gen Y respondents. Analysis conducted using PLS-SEM revealed that there were positive relationships among Instrumental Attitude, Injunctive Norm, Perceived Control, Self-efficacy, and intention to save regularly. Only for Experiential Attitude and Descriptive Norm, significant relationships were not found. As for the direct predictors of regular saving behaviour, intention to save regularly, time preference, and financial literacy were

all found to have significant positive associations with regular saving behaviour. In the third phase, an experimental study to investigate the impact of participating in an online financial awareness programme revealed that such an intervention positively impacts the path coefficients of Instrumental Attitude and Self-efficacy to intention to save regularly. This study's theoretical contribution is it uses an Integrated Behavioural Model to explain performance of regular saving. It incorporated six predictors of intention to save to identify the predictive power of each, instead of the standard three predictors of intention in TPB. In addition, there are three predictors of regular saving behaviour. A further contribution of this study is in the conduct of three phases of data collection. Policy makers may find this study useful as the results reveal the determinants of saving behaviour of Gen Ys in Malaysia, and policies could then be formulated to improve Gen Y's saving behaviour. For education and programme providers, this study showed that financial awareness programmes could be effective in promoting regular, long-term saving behaviour through the enhancement of Instrumental Attitude and Self-efficacy among Gen Ys in Malaysia.

Keywords: Saving behaviour, Gen Y, Integrated Behavioural Model, Time preference, Financial literacy

ABSTRAK

Isu tingkah laku penabungan adalah agenda penyelidikan yang penting dan sering menjadi topik utama perbincangan di kalangan penyelidik dan pembuat dasar di seluruh dunia. Isu ini dijangka menjadi lebih penting dalam dekad yang akan datang kerana jangkaan jangka hayat yang lebih lama, dipergiatkan dengan negara-negara yang perlu berurusan dengan populasi yang semakin tua dan peningkatan ketara dalam nisbah pergantungan usia tua. Objektif utama kajian ini adalah untuk menyiasat penentu tingkah laku penabungan di kalangan Gen Y - dilahirkan di antara tahun 1980 hingga 1995 - yang menjana pendapatan di Malaysia dengan menggunakan Model Tingkah Laku Bersepadu (IBM). Gen Y dipilih kerana ia adalah kohort generasi berpendapatan yang berkembang pesat, dan masih mempunyai jangka hayat bekerja yang lama sebelum bersara. Motivasi lain untuk menyasarkan Gen Y adalah kerana kajian terdahulu telah mendedahkan bahawa Gen Y mengalami tekanan dan kegelisahan kewangan dan tidak bersedia untuk keselamatan kewangan jangka panjang. Kajian ini menggunakan IBM, yang terutamanya mempunyai konstruk dari Teori Tingkah Laku Terancang (TPB) untuk menilai penentu yang mempengaruhi tingkah laku penabungan Gen Y, iaitu, sama ada Sikap (perasaan, penilaian), Norma yang Dilihat (injunktif, deskriptif), dan Agensi Peribadi (kawalan yang dilihat, keberkesanan diri) mempengaruhi niat untuk menabung secara berkala. Sebagai tambahan kepada niat untuk menabung secara berkala sebagai peramal langsung tingkah laku penabungan berkala, kajian ini telah merangkumi dua peramal langsung tambahan untuk tingkah laku penabungan, iaitu literasi kewangan, dan pilihan masa. Kajian ini dijalankan dalam tiga fasa. Pada fasa pertama, wawancara dijalankan untuk mendapatkan kepercayaan asas yang mempengaruhi Sikap, Norma yang Dilihat, dan Agensi Peribadi. Pada fasa kedua, kajian menggunakan soal selidik tinjauan telah dijalankan ke atas sampel 500 responden Gen Y. Analisis yang dijalankan menggunakan PLS-SEM mendedahkan bahawa terdapat hubungan positif di kalangan Penilaian Sikap, Norma Injunktif, Kawalan

yang Dilihat, Keberkesanan Diri, dan niat untuk menabung secara berkala. Hanya untuk Perasaan Sikap dan Norma Deskriptif, hubungan ketara tidak dijumpai. Bagi peramal langsung tingkah laku penabungan berkala, niat untuk menabung secara berkala, pilihan masa, dan literasi kewangan semuanya didapati mempunyai hubungan positif yang ketara dengan tingkah laku penabungan yang berkala. Pada fasa ketiga, kajian eksperimen untuk menyiasat kesan menyertai program kesedaran kewangan dalam talian mendedahkan bahawa intervensi sedemikian memberi kesan positif kepada hubungan antara Penilaian Sikap dan Keberkesanan Diri terhadap niat untuk menyimpan secara berkala. Sumbangan teori kajian ini adalah ia menggunakan Model Tingkah Laku Bersepadu untuk menerangkan tingkah laku penabungan berkala. Ia menggabungkan enam peramal niat untuk melakukan penabungan untuk mengenal pasti kuasa ramalan masing-masing, dan bukannya sekadar tiga peramal niat dalam TPB. Di samping itu, terdapat tiga peramal tingkah laku penabungan berkala. Sumbangan lanjut kajian ini adalah dalam menjalankan tiga fasa pengumpulan data. Pembuat dasar mungkin mendapati kajian ini berguna kerana hasilnya mendedahkan penentu tingkah laku penabungan Gen Y di Malaysia, dan dasar-dasar boleh digubal untuk meningkatkan tingkah laku penabungan Gen Y. Bagi pemberi pendidikan dan program, kajian ini menunjukkan bahawa program kesedaran kewangan boleh berkesan dalam mempromosikan tingkah laku penabungan jangka panjang yang berkala melalui peningkatan Penilaian Sikap dan Keberkesanan diri di kalangan Gen Y di Malaysia.

Kata kunci: Tingkah laku penabungan, Gen Y, Model Tingkah Laku Bersepadu, Pilihan masa, Literasi kewangan

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TABLE OF CONTENTS

| | |
|--|-------|
| Abstract..... | iii |
| Abstrak..... | v |
| Acknowledgements..... | vii |
| Table of Contents..... | viii |
| List of Figures..... | xviii |
| List of Tables..... | xix |
| List of Symbols and Abbreviations..... | xxiii |
| List of Appendices..... | xxv |

CHAPTER 1: INTRODUCTION.....1

| | | |
|-------|---|----|
| 1.1 | Background of study..... | 1 |
| 1.2 | Prior studies on saving behaviour..... | 2 |
| 1.3 | Motivation of the study..... | 8 |
| 1.3.1 | The need for interdisciplinary research on saving behaviour..... | 9 |
| 1.3.2 | Relatively less studies using experiments and interviews..... | 9 |
| 1.3.3 | Further theory development on determinants of saving behaviour..... | 10 |
| 1.4 | Context of study..... | 11 |
| 1.5 | Problem Statement..... | 14 |
| 1.5.1 | First sub-problem..... | 16 |
| 1.5.2 | Second sub-problem..... | 16 |
| 1.5.3 | Third sub-problem | 17 |
| 1.6 | Research Questions and Research Objectives..... | 19 |
| 1.6.1 | Research Objectives..... | 19 |
| 1.6.2 | Research Questions..... | 20 |
| 1.7 | Significance of this study..... | 20 |

| | | |
|---|--|-----------|
| 1.8 | Organisation of thesis..... | 23 |
| CHAPTER 2:LITERATURE REVIEW..... | | 26 |
| 2.1 | Introduction..... | 26 |
| 2.2 | Savings, saving and saving behaviour..... | 27 |
| 2.2.1 | Savings..... | 27 |
| 2.2.1.1 | Statistics on individual and household savings..... | 31 |
| 2.2.1.2 | Factors that influence variation in savings..... | 31 |
| 2.2.2 | Saving..... | 35 |
| 2.2.2.2 | Saving motives..... | 35 |
| 2.2.2.2 | Factors that influence likelihood to save..... | 36 |
| 2.2.3 | Saving behaviour..... | 38 |
| 2.2.3.1 | Psychological factors..... | 39 |
| 2.2.3.2 | Financial factors..... | 39 |
| 2.2.3.3 | Socio-demographic and cultural factors..... | 40 |
| 2.2.3.4 | Others..... | 40 |
| 2.3 | Theories of saving..... | 41 |
| 2.3.1 | Life-Cycle Hypothesis (LCH)..... | 41 |
| 2.3.2 | The Behavioural Life-Cycle (BLC) Hypothesis..... | 44 |
| 2.3.3 | Theories of Behaviour: Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)..... | 46 |
| 2.4 | Integrated Behavioural Model (IBM)..... | 52 |
| 2.5 | Financial literacy..... | 56 |
| 2.5.1 | Definition of financial literacy..... | 56 |
| 2.5.2 | Financial literacy levels..... | 58 |
| 2.5.3 | Financial literacy and financial outcomes..... | 61 |

| | | |
|--|---|-----------|
| 2.6 | Time preference (hyperbolic discounting) | 63 |
| 2.7 | Gaps in the literatures..... | 66 |
| 2.7.1 | Lack of generalisability in the relevance of TPB constructs..... | 66 |
| 2.7.2 | Lack of financial literacy studies using experimental approaches..... | 67 |
| 2.7.3 | There are gaps in studies examining Gen Y saving behaviour in the emerging market context..... | 68 |
| 2.8 | Conceptual framework..... | 69 |
| 2.9 | Hypothesis development: survey..... | 71 |
| 2.9.1 | Attitude, perceived norm, and personal agency..... | 71 |
| 2.9.2 | Intention to save regularly..... | 73 |
| 2.9.3 | Financial literacy..... | 73 |
| 2.9.4 | Time preference (hyperbolic discounting) | 74 |
| 2.10 | Hypothesis development: experimental study..... | 75 |
| 2.11 | Chapter summary..... | 76 |
| CHAPTER 3: METHODOLOGY AND RESEARCH DESIGN..... | | 77 |
| 3.1 | Introduction..... | 77 |
| 3.2 | Philosophical assumption..... | 77 |
| 3.3 | Research paradigm and research methodologies..... | 80 |
| 3.3.1 | Research paradigm..... | 80 |
| 3.3.2 | Research methodologies..... | 82 |
| 3.4 | Research methods..... | 83 |
| 3.4.1 | Elicitation interviews..... | 83 |
| 3.4.2 | Survey..... | 83 |
| 3.4.2.1 | Construction of questionnaire..... | 83 |
| 3.4.2.2 | Data analysis tool..... | 86 |

| | | |
|-------|-----------------------------|----|
| 3.4.3 | Experimental study..... | 87 |
| 3.5 | Population..... | 88 |
| 3.6 | Sampling technique..... | 89 |
| 3.7 | Sample size..... | 90 |
| 3.7.1 | Elicitation interviews..... | 90 |
| 3.7.2 | Survey..... | 91 |
| 3.7.3 | Experimental study..... | 95 |
| 3.8 | Study design..... | 96 |
| 3.9 | Ethical issues..... | 97 |
| 3.10 | Chapter summary..... | 98 |

CHAPTER 4: FINDINGS FROM ELICITATION INTERVIEWS

| | | |
|---------|--|------------|
| | (PHASE ONE) | 100 |
| 4.1 | Introduction..... | 100 |
| 4.2 | Beliefs about behaviour..... | 100 |
| 4.3 | Research objective and research questions..... | 101 |
| 4.4 | Interview questions..... | 101 |
| 4.5 | Sampling techniques..... | 102 |
| 4.6 | Data collection..... | 103 |
| 4.7 | Participants..... | 104 |
| 4.8 | Data analysis..... | 106 |
| 4.9 | Findings..... | 109 |
| 4.9.1 | Experiential attitude..... | 109 |
| 4.9.1.1 | Positive feelings..... | 109 |
| 4.9.1.2 | Negative feelings..... | 110 |
| 4.9.2 | Instrumental attitude..... | 111 |

| | | |
|--|---|------------|
| 4.9.3 | Perceived norm..... | 112 |
| 4.9.3.1 | People who expect them to save..... | 112 |
| 4.9.3.2 | People who disapprove of them saving..... | 113 |
| 4.9.3.3 | Whether people they know perform regular saving behaviour..... | 114 |
| 4.9.4 | Perceived control..... | 115 |
| 4.9.4.1 | Environmental factors that facilitate regular saving behaviour..... | 115 |
| 4.9.4.2 | Environmental factors that impede regular saving behaviour..... | 116 |
| 4.9.5 | Self-efficacy..... | 117 |
| 4.9.5.1 | Situational factors that facilitate regular saving behaviour..... | 117 |
| 4.9.5.2 | Situational factors that impede regular saving behaviour..... | 119 |
| 4.10 | Other findings..... | 121 |
| 4.10.1 | Do participants consider themselves as Gen Y?..... | 121 |
| 4.10.2 | Participants' purpose of saving..... | 122 |
| 4.10.3 | Participants' subjective assessment of their financial knowledge..... | 122 |
| 4.11 | Summary of Phase One findings..... | 123 |
| CHAPTER 5: FINDINGS FROM SURVEY (PHASE TWO) | | 127 |
| 5.1 | Introduction..... | 127 |
| 5.2 | Questionnaire design..... | 127 |
| 5.2.1 | Attitude (experiential and instrumental) | 128 |
| 5.2.2 | Perceived norm (injunctive and descriptive) | 130 |
| 5.2.3 | Personal Agency (Perceived Control and Self-efficacy) | 132 |
| 5.2.4 | Intention to save regularly..... | 133 |
| 5.2.5 | Regular Saving Behaviour..... | 135 |
| 5.2.6 | Financial Literacy..... | 135 |
| 5.2.7 | Time preference (hyperbolic discounting)..... | 139 |

| | | |
|---------|---|-----|
| 5.2.8 | Demographic variables..... | 140 |
| 5.3 | Pretesting of Questionnaire..... | 141 |
| 5.3.1 | Purpose and method of pretesting..... | 141 |
| 5.3.2 | Results of pretesting..... | 142 |
| 5.4 | Pilot Testing of Questionnaire..... | 144 |
| 5.4.1 | Demographic profile of respondents..... | 145 |
| 5.4.2 | Internal Consistency..... | 146 |
| 5.5 | Further amendments to the questionnaire..... | 147 |
| 5.6 | English to Malay translation of questionnaire..... | 150 |
| 5.7 | Sampling techniques..... | 151 |
| 5.8 | Data collection..... | 151 |
| 5.9 | Preparation of data for analysis..... | 152 |
| 5.9.1 | Data cleaning..... | 152 |
| 5.9.2 | Combining data sets..... | 156 |
| 5.9.2.1 | English Language versus Malay Language..... | 156 |
| 5.9.2.2 | Online-based responses versus hardcopy responses..... | 157 |
| 5.9.3 | Common Method Variance (CMV)..... | 157 |
| 5.9.3.1 | CMV and its sources..... | 157 |
| 5.9.3.2 | Remedies to counter CMV..... | 159 |
| 5.9.3.3 | Procedures to address CMV in this study..... | 160 |
| 5.10 | Main results..... | 165 |
| 5.10.1 | Demographic profile of respondents..... | 165 |
| 5.10.2 | Saving planning horizon, saving habit, and saving goals..... | 167 |
| 5.10.3 | Descriptive statistics of latent variables..... | 168 |
| 5.11 | Partial Least Squares Structural Equation Modelling (PLS-SEM) | 169 |
| 5.11.1 | Assessment of reflective measurement model..... | 170 |

| | | |
|----------|---|-----|
| 5.11.1.1 | Convergent Validity..... | 170 |
| 5.11.1.2 | Indicator Loadings (Outer Loadings) | 172 |
| 5.11.1.3 | Internal Consistency Reliability..... | 174 |
| 5.11.1.4 | Discriminant Validity..... | 177 |
| 5.11.2 | Assessment of structural model..... | 182 |
| 5.11.2.1 | Assessment of structural model for lateral collinearity issues..... | 182 |
| 5.11.2.2 | Assess the significance and relevance of the structural model relationships..... | 184 |
| 5.11.2.3 | Assess the model's predictive relevance..... | 188 |
| 5.11.3 | Further analysis: assessment of Moderator Analysis..... | 196 |
| 5.11.3.1 | Financial literacy as moderator..... | 197 |
| 5.11.3.2 | Gender as moderator..... | 200 |
| 5.11.3.3 | Birth cohort as moderator..... | 202 |
| 5.11.4 | Further analysis: modification of the model..... | 205 |
| 5.12 | Summary of findings..... | 206 |

CHAPTER 6: FINDINGS FROM EXPERIMENTAL STUDY

| | | |
|-----|----------------------------------|------------|
| | (PHASE THREE) | 208 |
| 6.1 | Introduction..... | 208 |
| 6.2 | Research objective..... | 209 |
| 6.3 | Participants..... | 209 |
| 6.4 | Segregation of participants..... | 209 |
| 6.5 | The experiment..... | 212 |
| 6.6 | Financial awareness topics..... | 212 |
| 6.7 | Data collection..... | 217 |

| | | |
|---|---|------------|
| 6.8 | Research hypotheses..... | 218 |
| 6.9 | Data analysis..... | 219 |
| 6.9.1 | Descriptive statistics of latent variables..... | 219 |
| 6.9.2. | Two samples t-test using SPSS..... | 220 |
| 6.9.2.1 | Reliability of Phase Two and Phase Three reported saving behaviour..... | 221 |
| 6.9.2.2 | Reliability of Phase One and Phase Two assessments of financial literacy..... | 222 |
| 6.9.2.3 | Group comparison of Phase Three assessment of financial literacy..... | 223 |
| 6.9.3. | Basic moderation analysis..... | 223 |
| 6.9.3.1 | Control Group..... | 224 |
| 6.9.3.2 | Treatment Group..... | 227 |
| 6.9.4 | Multi Group Analysis (MGA)..... | 230 |
| 6.9.4.1 | Measurement model evaluation..... | 231 |
| 6.9.4.2 | Measurement invariance test..... | 234 |
| 6.9.4.3 | Structural model assessment..... | 238 |
| 6.9.5 | Multi Group Analysis (MGA)..... | 240 |
| 6.10 | Summary of findings..... | 241 |
| CHAPTER 7:DISCUSSION AND CONCLUSION..... | | 243 |
| 7.1 | Introduction..... | 243 |
| 7.2 | Summary of research..... | 243 |
| 7.3 | Research findings..... | 245 |
| 7.3.1 | RO1: Salient beliefs underlying regular saving behaviour among Gen Ys in Malaysia..... | 248 |

| | | |
|-------|--|-----|
| 7.3.2 | RO2: Relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly..... | 249 |
| 7.3.3 | RO3: Relationship between intention to save regularly, financial literacy, time preference and regular saving behaviour..... | 249 |
| 7.3.4 | RO4: Whether participation in a financial awareness programme influences the relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly..... | 250 |
| 7.3.5 | RO5: Whether participation in a financial awareness programme influences the relationships between intention to save, financial literacy, time preference and regular saving behaviour..... | 250 |
| 7.4 | Discussion of research findings..... | 254 |
| 7.4.1 | RO1: Salient beliefs underlying intention to save regularly among Gen Ys in Malaysia..... | 254 |
| 7.4.2 | RO2: Relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly..... | 255 |
| 7.4.3 | RO3: Relationship between intention to save regularly, financial literacy, time preference and actual saving behaviour..... | 258 |
| 7.4.4 | RO4: Whether participation in a financial awareness programme influences the relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly..... | 261 |

| | | |
|-------|---|-----|
| 7.4.5 | RO5: Whether participation in a financial awareness programme influences the relationships between intention to save, financial literacy, time preference and regular saving behaviour..... | 264 |
| 7.5 | Contributions of study..... | 264 |
| 7.5.1 | Theoretical contributions..... | 264 |
| 7.5.2 | Methodological contributions..... | 266 |
| 7.5.3 | Practical contribution..... | 268 |
| 7.6 | Implications of study..... | 269 |
| 7.7 | Limitations of study..... | 271 |
| 7.8 | Future research..... | 273 |
| | References..... | 275 |
| | List of Publications and Papers Presented..... | 309 |
| | Appendices..... | 310 |

LIST OF FIGURES

| | | |
|-------------|--|-----|
| Figure 2.1: | The basic Life-Cycle Hypothesis..... | .42 |
| Figure 2.2: | Theory of planned behaviour..... | .49 |
| Figure 2.3: | Integrated Behavioural Model..... | .54 |
| Figure 2.4: | Conceptual Framework..... | .70 |
| Figure 3.1: | Screen of the software G*Power 3.1.9.2 with the calculation of minimum sample size for basic model..... | .94 |
| Figure 3.2: | Screen of the software G*Power 3.1.9.2 with the calculation of minimum sample size for model with moderation analysis..... | .94 |
| Figure 3.3: | Sample size for MGA..... | .96 |
| Figure 3.4: | Sequential design of this study..... | .97 |
| Figure 4.1: | Summary of findings..... | 124 |
| Figure 5.1: | AVE after removal of FL12..... | 172 |
| Figure 5.2: | Outer Loadings..... | 173 |
| Figure 5.3: | Conceptual framework for Phase Two study..... | 184 |
| Figure 5.4: | Interaction effect (Intention*FL) model..... | 199 |
| Figure 5.5: | Main effect model with Gender as a moderator..... | 201 |
| Figure 5.6: | Main effect model with Birth Cohort as a moderator..... | 203 |
| Figure 5.7: | Interaction plots to analyse interaction effect of Birth Cohort..... | 204 |
| Figure 5.8: | Modified model..... | 205 |
| Figure 6.1: | Conceptual Framework..... | 218 |
| Figure 6.2: | Average Variance Extracted (AVE) and Outer Loadings (Control Group)..... | 225 |
| Figure 6.3: | Average Variance Extracted (AVE) and Outer Loadings (Treatment Group)..... | 228 |

LIST OF TABLES

| | | |
|-------------|--|-----|
| Table 1.1: | Factors found to influence saving behaviour..... | 6 |
| Table 1.2: | Personal saving rates (%)..... | 15 |
| Table 2.1: | Household savings rates (2019,2020)..... | 29 |
| Table 2.2: | Other major theories of behaviour and behaviour change..... | 52 |
| Table 3.1: | Pertinent information in the construction of questionnaire..... | 83 |
| Table 3.2: | Second-generation statistical methods associated with multivariate data analysis..... | 86 |
| Table 4.1: | Interview guide assessing participant's beliefs towards regular saving behaviour..... | 102 |
| Table 4.2: | Stratification of interviewees..... | 103 |
| Table 4.3: | Details of interview participants..... | 104 |
| Table 4.4: | Elicited beliefs..... | 107 |
| Table 4.5: | Interviewees' perception of Gen Y characteristics..... | 121 |
| Table 5.1: | Adjectives for Attitude (from prior studies)..... | 129 |
| Table 5.2: | Adjectives for Experiential Attitude..... | 129 |
| Table 5.3; | Adjectives for Instrumental Attitude..... | 130 |
| Table 5.4: | Measurement items for Injunctive Norm..... | 131 |
| Table 5.5: | Measurement items for Descriptive Norm..... | 132 |
| Table 5.6: | Measurement items for Perceived Control..... | 132 |
| Table 5.7: | Measurement items for Self-efficacy..... | 133 |
| Table 5.8: | Measurement items for Intention to save regularly..... | 134 |
| Table 5.9: | Measurement items for Regular Saving Behaviour..... | 135 |
| Table 5.10: | Measurement items for Financial Literacy..... | 138 |
| Table 5.11: | Measurement items for Time Preference/Hyperbolic Discounting..... | 140 |
| Table 5.12: | Revised measurement items for Descriptive Norm..... | 142 |
| Table 5.13: | Revised measurement items for Perceived Control..... | 143 |

| | | |
|-------------|--|-----|
| Table 5.14: | Revised measurement items for Self-efficacy..... | 143 |
| Table 5.15: | Revised measurement items for Intention to save regularly..... | 145 |
| Table 5.16: | Demographic profile of pilot study respondents..... | 151 |
| Table 5.17: | Cronbach's Alpha for all constructs..... | 147 |
| Table 5.18: | Revised measurement items..... | 148 |
| Table 5.19: | Details of responses..... | 152 |
| Table 5.20: | Details of responses removed..... | 155 |
| Table 5.21: | Details of useable responses..... | 156 |
| Table 5.22: | Results of full collinearity test..... | 164 |
| Table 5.23: | Profile of respondents..... | 165 |
| Table 5.24: | Respondents' saving planning horizon..... | 167 |
| Table 5.25: | Respondents' saving habit..... | 168 |
| Table 5.26: | Respondents' saving goals..... | 168 |
| Table 5.27: | Descriptive Statistics..... | 169 |
| Table 5.28: | Measures of internal consistency..... | 176 |
| Table 5.29: | Measurement model..... | 176 |
| Table 5.30: | Fornell-Larcker criterion results..... | 178 |
| Table 5.31: | Heterotrait-monotrait ratio (HTMT) criterion..... | 179 |
| Table 5.32: | Heterotrait-monotrait ratio (HTMT) inference using bootstrapping technique..... | 180 |
| Table 5.33: | Lateral Collinearity Assessment using Inner VIF values..... | 183 |
| Table 5.34: | Hypothesis Testing..... | 185 |
| Table 5.35: | Confidence Interval Bias Corrected..... | 188 |
| Table 5.36: | Effect Size (f^2)..... | 190 |
| Table 5.37: | PLSpredict results..... | 195 |
| Table 5.38: | Results of moderation analysis (Financial literacy as moderator).. | 200 |

| | | |
|-------------|--|-----|
| Table 5.39: | Results of moderation analysis (Gender as moderator)..... | 202 |
| Table 5.40: | Results of moderation analysis (Birth Cohort as moderator)..... | 204 |
| Table 5.41: | Hypothesis Testing (Modified model)..... | 206 |
| Table 5.42: | Findings of Phase Two study..... | 206 |
| Table 6.1: | Composition of Groups..... | 210 |
| Table 6.2: | Summary of weekly financial literacy programme..... | 213 |
| Table 6.3: | Descriptive Statistics of Latent Variables (Treatment Group)..... | 219 |
| Table 6.4: | Descriptive Statistics of Latent Variables (Control Group)..... | 220 |
| Table 6.5: | Paired samples correlations..... | 221 |
| Table 6.6: | Paired samples test results..... | 221 |
| Table 6.7: | Paired samples test results for average score for Regular Saving Behaviour..... | 222 |
| Table 6.8: | Paired samples test results for average score for Financial Literacy..... | 222 |
| Table 6.9: | Independent samples test results for average score for Financial Literacy..... | 223 |
| Table 6.10: | Reliability assessment measures of the main effect model: control group..... | 226 |
| Table 6.11: | Extract of Bootstrapping Result: control group..... | 227 |
| Table 6.12: | Reliability assessment measures of the main effect model: treatment group..... | 229 |
| Table 6.13: | Extract of Bootstrapping Result: treatment group..... | 230 |
| Table 6.14: | AVE and composite reliability values (reduced model)..... | 232 |
| Table 6.15: | Discriminant validity assessment results (reduced model): Control Group..... | 233 |
| Table 6.16: | Discriminant validity assessment results (reduced model): Treatment Group..... | 233 |
| Table 6.17: | Compositional invariance assessment..... | 236 |
| Table 6.18: | Assessing equal mean values and variances..... | 237 |
| Table 6.19: | Inner VIF values..... | 238 |

| | | |
|-------------|--|-----|
| Table 6.20: | Q^2 | 239 |
| Table 6.21: | R^2 | 239 |
| Table 6.22: | PLS-MGA results..... | 240 |
| Table 7.1: | Comparison of the three phases of this study..... | 246 |
| Table 7.2: | Summary of Research Study and Research Findings..... | 251 |

Universiti Malaya

LIST OF SYMBOLS AND ABBREVIATIONS

| Abbreviation | |
|--------------|---|
| AKPK | Credit Counselling and Debt Management Agency (<i>Malay: Agensi Kaunseling dan Pengurusan Kredit</i>) |
| Ave | Average |
| AVE | Average Variance Extracted |
| BC | Birth Cohort |
| BLC | Behavioural Life-Cycle |
| CA | Cronbach's Alpha |
| CB-SEM | Covariance-based Structural Equation Modelling |
| CFA | Confirmatory Factor Analysis |
| CMB | Common Method Bias |
| CMV | Common Method Variance |
| CR | Composite Reliability |
| CVC | Cross-Validated Communalities |
| CVR | Cross-Validated Redundancy |
| DN | Descriptive Norm |
| EA | Experiential Attitude |
| EPF | Employees Provident Fund |
| FL | Financial Literacy |
| HD | Hyperbolic Discounting |
| HTMT | Heterotrait-Monotrait Ratio |
| IA | Instrumental Attitude |
| IBM | Integrated Behavioural Model |
| IN | Injunctive Norm |
| INFE | International Network on Financial Education |

| | |
|---------|---|
| INT | Intention to save regularly |
| LCH | Life-Cycle Hypothesis |
| LM | Linear Regression Model |
| LRT | Light Rail Transit |
| MAE | Mean Absolute Error |
| MGA | Multi Group Analysis |
| PC | Perceived Control |
| PLS-SEM | Partial Least Squares Structural Equation Modeling |
| PRS | Private Retirement Scheme |
| PTPTN | National Higher Education Fund Corporation (<i>Malay: Perbadanan Tabung Pendidikan Tinggi Nasional</i>) |
| RMSE | Root Mean Squared Error |
| RSB | Regular Saving Behaviour |
| SE | Self-efficacy |
| TP | Time Preference |
| TRA | Theory of Reasoned Action |
| TPB | Theory of Planned Behaviour |
| VIFs | Variance Inflation Factors |

Symbols

| | |
|----------|---|
| c | Original composite score correlations |
| f^2 | Effect size |
| p | Probability |
| Q^2 | Blindfolding-based cross-validated redundancy measure |
| R^2 | Coefficient of Determination |
| α | Alpha |
| ρ_A | Dijkstra-Henseler's rho |

LIST OF APPENDICES

| | | |
|-------------|---|-----|
| Appendix A: | Sample size computation using Raosoft calculator..... | 310 |
| Appendix B: | Participant's Information Sheet..... | 311 |
| Appendix C: | Consent Form..... | 312 |
| Appendix D: | Questionnaire for pretesting..... | 313 |
| Appendix E: | Questionnaire (English)..... | 325 |
| Appendix F: | Questionnaire (Malay)..... | 340 |
| Appendix G: | Harman's Single-Factor Test..... | 354 |
| Appendix H: | AVE Phase Two (Full data set)..... | 356 |
| Appendix I: | Phase Two Outer Loading results..... | 357 |
| Appendix J: | Phase Two Cross Loading results..... | 359 |
| Appendix K: | Details of weekly financial awareness programme..... | 361 |
| Appendix L: | The MICOM procedure (Henseler et al., 2016, p.412)..... | 389 |

CHAPTER 1: INTRODUCTION

1.1 Background of study

Savings adequacy and the measures to promote it have been highlighted globally (e.g., Copur & Gutter, 2019; Piotrowska, 2019; Baidoo et al., 2018; Feng, 2017). These issues interest researchers and policymakers due to implications of savings inadequacy on the ability of individuals to cope with income and health challenges (Buccioli & Trucchi, 2021). Further, due to increased life expectancies, this issue (of inadequacy of savings) is expected to gain greater importance in the coming decades with countries having to deal with ageing populations and a significant increase in old-age dependency ratio (Pascual-Saez et al., 2020; Feng, 2017). Factors found to correlate with savings include *macro* level factors, such as fertility, labour force participation rate, population age structure, economic growth, inflation rate, real interest rates, urbanisation rate, social security, culture, government incentives, and availability of consumer credit; and *micro* level factors, such as educational level, income level, homeownership, wealth, household sizes, sector of employment, financial capability, and financial literacy (Ye et al., 2021; Gu et al., 2020; Morgan & Long, 2020; Pascual-Saez et al., 2020; Tang et al., 2020; Copur & Gutter, 2019; Horioka, 2019; Reyers, 2019; Baidoo et al., 2018; Lersch & Dewilde, 2018; Grigoli et al., 2018; Murendo & Mutsonziwa, 2017; Chamon et al., 2013).

Given the afore-mentioned issues, the focus of this study is individual saving behaviour. As the act of individual saving is part of a larger, broader process of individual financial management, a study on saving behaviour is perceived to be both complex and challenging (Allom et al., 2018; Eriksson & Hermansson, 2014). Added to this is the existence of an intricate psychological network that explains saving behaviour (Asebedo et al., 2019). These characteristics greatly increases the complexities of research on saving behaviour.

1.2 Prior studies on saving behaviour

The focus of prior research on saving behaviour (e.g., Brown & Taylor, 2016; Cronqvist & Siegel, 2015; Rószkiewicz, 2014) was on the factors that influence it. The difference was these studies varied in their target populations (i.e., children, working adults, households), thus, identifying varied factors that could influence saving behaviour. Income level was found to be a necessary condition (Grigoli et al., 2017; Chamon et al., 2013) - those have wealth and earn substantial income are more likely to save (Newmeyer et al., 2021; Reyers, 2019; Baidoo et al., 2018; Murendo & Mutsonziwa, 2017).

Studies have also investigated the impact of family influence, particularly the influence of parents, on financial behaviour, saving behaviour, money-management, and financial planning for retirement (Robertson-Rose, 2020; Sharif et al., 2020; Hanson & Olson, 2018; LeBaron et al., 2018; Jorgensen et al., 2017; Kagotho et al., 2017; Palaci et al., 2017; Tang, 2017; Grohmann et al., 2015; Tang et al., 2015). This influence is termed financial socialisation, where social interactions form financial values, norms, attitudes, and habits (Drever et al., 2015). Youths and emerging adults who received financial instructions from parents and caregivers are more likely to exhibit better saving, money-management, and other financial behaviours (Sharif et al., 2020; LeBaron et al., 2018; Kagotho et al., 2017; Jorgensen et al., 2017; Tang et al., 2015), in addition to possessing greater financial knowledge (Hanson & Olson, 2018). This familial involvement can continue beyond adolescence, even when planning for retirement (Robertson-Rose, 2020). Family financial socialisation is also important for elementary to middle school children between the ages of 6 and 12 (Drever et al., 2015), and was found to have a positive impact on financial literacy of children (Grohmann et al., 2015). In addition,

children who grew up in loving families, with adequate financial and emotional support, are likely to save money for the future (Duh, 2016).

Saving behaviour in adulthood is positively influenced by childhood saving habits (Brown & Taylor, 2016). In addition, parents' wealth, and the head of household's financial expectations impact saving behaviour - children of optimistic (pessimistic) parents have a lower (higher) probability of saving (Brown & Taylor, 2016). There seems to be conflicting findings as to whether there is an intergenerational correlation in behaviour. Brown and Taylor (2016) found no evidence, but Tang (2017) observed intergenerational consistency in financial behaviour, with the influence of parents moderated by parent-child relationship. Cronqvist and Siegel (2015), on the other hand, found that parenting contributes to the variation in savings rates among younger individuals, but its effect diminishes over time.

Studies have also focussed on psychological characteristics influencing individual saving behaviour. One psychological characteristic is locus of control, found to be significant in explaining the decision to plan for retirement (Piotrowska, 2019), and a vital psychological attribute during COVID-19 pandemic (Mahmoud et al., 2022; Krampe et al., 2021; Sigurvinsdottir et al., 2020). Locus of control (internal, external) refers to how strongly people believe they have control over the situations that affect their lives (Buccioli & Trucchi, 2021). Having internal locus of control was found to stimulate saving (Buccioli & Trucchi, 2021; Piotrowska, 2019; Cobb-Clark et al., 2016); an individual who has an internal locus of control saves more and saves in forms that are harder to access (Cobb-Clark et al., 2016). However, the effect of internal locus of control is indirect, largely driven (mediated) by saving motives (Buccioli & Trucchi, 2021), but external locus of control has a direct effect. Individuals with an external locus of control

are less likely to save, and they save less (Buccioli & Trucchi, 2021; Cobb-Clark et al., 2016); thus, any intervention to increase savings should target this group.

Self-efficacy, another factor that influences saving behaviour, is related to locus of control. While locus of control relates to the amount of control a person perceives he/she has over a situation, self-efficacy is a person's belief in his/her ability to control and influence various aspects of life (Tang, 2021). Hence, those with high self-efficacy will most likely have high internal locus of control. Perceived financial self-efficacy was found to have a direct positive relationship to saving behaviour (Tang, 2021; Asebedo et al., 2019; Magendans et al., 2017; Lown et al., 2015).

Personality traits were found to indirectly explain saving behaviour (Asebedo et al., 2019), with conscientiousness and extroversion found to indirectly support saving behaviour, while openness to experience and neuroticism indirectly undermine saving behaviour. Studies have also explored behavioural constraints (pessimism, procrastination, buying impulsiveness, compulsive buying), and self-control on saving (Trzcińska et al., 2021; Piotrowska, 2019; Allom et al., 2018; Gerhard et al., 2018). It was found that the impact of personality traits, behavioural constraints, and self-control on saving behaviour varies across different socio-demographic groups (Gerhard et al., 2018).

Determinants of saving behaviour may also differ according to demographic characteristics. For example, in terms of age (Rolison et al., 2017), ethnicity (Fisher & Hsu, 2012), educational level (Baidoo et al., 2018), gender (Dang & Nguyen, 2021; Murendo & Mutsonziwa, 2017), and marital status (Knoll et al., 2012). Gender effects are evident during COVID-19 pandemic where women were found to have the tendency

to reduce their current consumption and increase savings (Dang & Nguyen, 2021). This is attributed to women more likely to suffer adverse economic effects of the pandemic compared to men, such as permanently lose their jobs and experience fall in incomes.

As for the relationship between financial literacy and saving behaviour, findings are contradictory. On one hand, it appears that financial literacy and awareness of the importance of saving are not enough for individuals to start saving (García & Vila, 2020) or significantly increase saving (Abebe et al., 2018). On the other hand, there are studies that find financial literacy positively influencing attitudes about personal finance, likelihood to save and saving behaviour (Baidoo et al., 2018; Murendo & Mutsonziwa, 2017; Batty et al., 2015; Nurul Shahnaz Mahdzan & Tabiani, 2013; Delafrooz & Laily Paim, 2011). This inconclusiveness led to a suggestion that experimental studies should ideally be done to investigate the effectiveness of financial literacy in influencing saving behaviour (Lusardi & Mitchell, 2014).

A factor that seems to be as significant as financial literacy in affecting saving behaviour is mortality beliefs (Heimer et al., 2019). Heimer et al. (2019) found that those who are pessimistic about their survival have a greater propensity not to save or to rely excessively on credit cards on a month-to-month basis.

A study of a large sample of identical and fraternal twins with the focus on preretirement saving behaviour found that saving behaviour is genetically correlated with income growth, smoking, and obesity (Cronqvist & Siegel, 2015). As smoking behaviour and physical activity were found to have associations with time preferences (Miura, 2019; Hunter et al, 2018), this suggests that time preference play an important role in determining saving behaviour (Ye et al., 2021; Choi & Han, 2017. Time preference has

also been linked to happiness (Güven, 2012); happier people save more and seem more concerned about the future than the present. Further, time preference was identified as a mediating factor that links the relationship between culture and saving behaviour (Ye et al., 2021). Delving further on the significance of culture, studies done on both individual and household saving behaviour found significant relationships between culture and norms, and saving behaviour (Ye et al., 2021; Fuchs-Schündeln et al., 2020), but this relationship was not found in a study done in Japan (Horioka, 2019).

Providing individuals with new technologies - such as mobile money - positively influences saving behaviour (Ky et al., 2018; Murendo & Mutsonziwa, 2017; Dupas & Robinson, 2013). New technologies seem to be more useful to disadvantaged groups (e.g., rural, female, less educated individuals, and individuals with irregular income) in saving for health emergencies rather than to the relatively advantaged groups (e.g., urban, male, and highly educated individuals) (Ky et al., 2018).

Table 1.1 summarises the above findings.

Table 1.1: Factors found to influence saving behaviour

| Factors | Details | References |
|-------------------------------|--|---|
| Psychological | Locus of control | Buccioli & Trucchi (2021) Piotrowska (2019) Cobb-Clark et al., (2016) |
| | Self-efficacy | Tang (2021) Asebedo et al. (2019) Magendans et al. (2017) Lown et al. (2015) |
| Behavioural constraint | Procrastination | Piotrowska (2019) |
| | Pessimism, buying impulsiveness, compulsive buying, self-control | Trzcińska et al. (2021) Allom et al. (2018) Gerhard et al. (2018) |
| | Pessimism about survival - mortality beliefs | Heimer et al. (2019) |

Table 1.1, continued

| Factors | Details | References |
|--------------------------|--|---|
| Financial | Wealth, income level and its growth rate | Grigoli et al. (2017) Chamon et al. (2013) Newmeyer et al. (2021) Reyers (2019) Baidoo et al. (2018) Murendo & Mutsonziwa, 2017 |
| | | |
| Socio-demographic | Age | Rolison et al. (2017) |
| | Ethnicity | Fisher & Hsu (2012) |
| | Educational level | Baidoo et al. (2018) |
| | Gender | Dang & Nguyen (2021) Murendo & Mutsonziwa (2017) |
| | Marital status | Knoll et al. (2012). |
| Others | Family influence | LeBaron et al. (2018) Sharif et al. (2020) Kagotho et al. (2017) Jorgensen et al. (2017) Tang et al. (2015) Duh (2016) |
| | Financial literacy | Baidoo et al. (2018) Murendo & Mutsonziwa (2017) Batty et al. (2015) Nurul Shahnaz Mahdzan & Tabiani (2013) Delafrroz & Laily Paim (2011) |
| | Personality traits | Asebedo et al. (2019) |
| | Time preference | Ye et al. (2021) Choi & Han (2017) |
| | Culture and norms | Ye et al. (2021) Fuchs-Schündeln et al. (2020) |
| | New technologies | Ky et al. (2018) Murendo & Mutsonziwa (2017) Dupas & Robinson (2013) |
| | Saving habits during childhood | Brown & Taylor (2016) |
| | Parents' wealth | |
| | Financial expectations of head of households | |
| | | |

Studies on saving behaviour in the Malaysian context identified two broad factors that lead to positive saving behaviour. The first is financial literacy, financial knowledge,

financial self-efficacy, self-control, and financial management practice (Aza Azlina Md Kassim et al, 2020; Shafinar Ismail et al., 2020; Shafinar Ismail et al, 2018; Zurina Kamarudin & Jamalludin Helmi Hashim, 2018; Amer Azlan Abdul Jamal et al., 2016). No significant relationship was found between financial attitude, education level, gender, and race with saving behaviour (Aza Azlina Md Kassim et al., 2020; Shafinar Ismail et al., 2020; Amer Azlan Abdul Jamal et al., 2016). The second factor is family socialisation, where parents and family influence were found to have positive relationships with saving behaviour (Aza Azlina Md Kassim et al., 2020; Zurina Kamarudin & Jamalludin Helmi Hashim, 2018; Amer Azlan Abdul Jamal et al., 2016). As for peer influence, findings were contradictory; Amer Azlan Abdul Jamal et al. (2016) found peer influence determines students' saving behaviour but Zurina Kamarudin and Jamalludin Helmi Hashim (2018) study, also on students' saving behaviour, did not find significant relationship between peer influence and saving behaviour. Four other factors could add understanding on Malaysia's savings and Malaysians saving behaviour. These are female-male sex ratio which was found to have a negative impact on private savings in Malaysia (Tang et al., 2020), quality of bank services (Shafinar Ismail et al. 2018), religious belief (Shafinar Ismail et al. 2018), and education programme (Aza Azlina Md Kassim et al., 2020).

1.3 Motivation of the study

As noted in the preceding section, prior studies on saving behaviour have been conducted quite extensively with the main objective to identify the behaviour's determinants (Amer Azlan Abdul Jamal et al., 2016; Baidoo et al., 2018; Delafrooz & Laily Paim, 2011; Fuchs-Schündeln et al., 2020; Magendans et al., 2017; Shafinar Ismail et al., 2020). Nevertheless, the determinants of saving behaviour are diverse and yet to be conclusively identified (Grigoli et al., 2017; Cobb-Clark et al., 2016). There seems to

be no simple answer that explains variation in saving behaviour across individuals (Cronqvist & Siegel, 2015) - thus, studies to further understand the drivers of individuals' saving behaviour continue to be important (Gerhard et al., 2018). In addition, empirical data collection and theory development are encouraged in studies on saving behaviour (van Veldhoven & Groenland, 1993).

1.3.1 The need for interdisciplinary research on saving behaviour

Further research could uncover new factors which are not limited to economic factors but also explore the relevance of sociological and psychological factors to understand saving behaviour (Copur & Gutter, 2019). There is thus a need for interdisciplinary research on saving behaviour that recognises saving as an economic decision made within an existing social context, influenced by individuals' beliefs and their psychological characteristics, to understand the multiple factors that affect saving behaviour.

1.3.2 Relatively less studies using experiments and interviews

Many prior studies were done using panel survey data (Asebedo et al., 2019; Brown & Taylor, 2016; Feng, 2018; Fuchs-Schündeln et al., 2020; Knoll et al., 2012; Lersch & Dewilde, 2018; Murendo & Mutsonziwa, 2017; Reyers, 2019; Ye et al., 2019). Other secondary data sources for studies on saving were also used, these include data from tax filings (Cronqvist & Siegel, 2015), OECD data (Horioka, 2019) and World Bank database (Pascual-Saez et al., 2020). Primary data collection methods were less commonly used. Studies done using primary data used surveys (Copur & Gutter, 2019; Piotrowska, 2019; Baidoo et al., 2018; Ky et al., 2018; Magendans et al., 2017; Shim et al., 2012), interviews or interviews with the aid of a questionnaire (Robertson-Rose, 2020; Robertson-Rose, 2019; Rószkiewicz, 2014), and experiment (Dupas & Robinson, 2013) to collect data.

Thus, comparatively, less studies were done using primary data collection methods, specifically using experiments and interviews.

Narrowing down to studies on saving behaviour of Malaysians, questionnaires were commonly used, with questions adopted from other similar studies. Semi-structured interviews were conducted in Shafinar Ismail et al. (2018) but only to cross-check the quantitative findings. To the best of knowledge, no in-depth studies on saving behaviour in the Malaysian context were done using interviews or experiments.

1.3.3 Further theory development on determinants of saving behaviour

Prior studies on saving behaviour generally did not apply an underlying theory and in the studies that applied an existing theory or model, Theory of Planned Behaviour (TPB) was commonly used. TPB was used either as a base but with new psychological constructs incorporated (Magendans et al., 2017) or combined with other models or theories (Sharif et al., 2020; Copur & Gutter, 2019; Shim et al., 2012). Adding new constructs to the TPB explained considerably more variance in self-reported behaviour than the TPB in its original form (Magendans et al., 2017). The conceptual model in Copur and Gutter (2019) included factors associated with a few theories, which are TPB, Social Cognitive Theory, and Life Cycle Hypothesis (LCH), thus incorporating economic, sociological, and psychological concepts to better understand individual saving behaviour. When investigating how psychological characteristics influence saving behaviour, Asebedo et al. (2019) used 3M Model of Motivation and Personality as a theoretical basis, but this model was found limited in its ability to explain saving behaviour.

Studies done in the Malaysian context did not position any theory. Zurina Kamarudin and Jamalludin Helmi Hashim (2018) and Yong et al. (2018) despite claiming that their studies were based on the TPB, but the factors in their studies, namely financial literacy, parental socialisation, and peer influence, are not TPB-based constructs.

To sum, a study on saving behaviour should be an interdisciplinary research to uncover new factors which are not limited to economic factors but also explore sociological and psychological factors. New methods of research should be used to complement or support prior findings from literature search, panel data studies, and surveys. Lastly, studies should contribute on theory development to predict determinants of saving behaviour.

1.4 Context of study

Children, students, and youths are often the focus of studies on saving behaviour (e.g., Brown & Taylor, 2016; Furnham, 1999; Jorgensen et al., 2017; Kagotho et al., 2017). The reason being children, students and, youths although do not earn income and manage household expenditure, they are at a stage of life where they acquire knowledge, skills, habits, attitudes, and personality traits that will impact their own financial well-being later in life (Drever et al., 2015). Studies on saving behaviour in Malaysia have mainly focused on students (Aza Azlina Md Kassim et al., 2020; Zurina Kamarudin & Jamalludin Helmi Hashim, 2018; Amer Azlan Abdul Jamal et al., 2016), and there is limited research on saving behaviour of employees (Delafronz & Laily Paim, 2011). Using students, particularly university or college students, can be convenient as students can represent young adults (Amer Azlan Abdul Jamal et al., 2016). However, a limitation in using student samples as opposed to working adults is that students most likely do not earn regular income and perhaps depends on funds from parents or scholarships, thus limiting their capability to save, Targeting students - in studies on financial behaviour – can

produce inconsistent results such the impact of peer influence on saving behaviour, where contradictory findings were found in Amer Azlan Abdul Jamal et al. (2016) and Zurina Kamarudin and Jamalludin Helmi Hashim (2018) even though both studies are on students' saving behaviour. Thus, a study investigating regular saving behaviour ideally should target working adults as earning income is an important prerequisite to performance of saving.

This study targets a generational cohort termed as Generation Y (Gen Y). Generational cohorts refer to segmentation of population defined by years of birth, extending 20 to 25 years in duration (Lissitsa & Kol, 2016). In this study, Gen Y refers to individuals born in the years 1980 to 1995. Cohorts are currently defined as Baby Boomers, Gen X, Gen Y or “millennials”, and Gen Z. Each cohort should share same attitudes, ideas, values, and beliefs due to living through common experiences, thus creating a generational identity. There does not seem to be a specific birth-year range to categorise Gen Y. Gen Y has been defined, among others, as the generation born between the late 1970s to the middle of 1990s (Macmillan Dictionary, 2018), between 1980 and 1999 (Lissitsa & Kol, 2016), between 1981 to 2000 (Bolognesi et al., 2020), between 1981 and 1996 (Pew Research Centre, 2019), in the 1980s and early 1990s (Mazzini Muda et al., 2016), or between the early 1980s and mid-1990s (Brüggen et al., 2017).

Gen Y was referred to as *the largest* and as *the most highly educated* generation (Rey-Ares et al., 2021; Bolognesi et al., 2020; Asian Institute of Finance [AIF], 2015). Younger Gen Ys, particularly those born after 1990, are very comfortable with communication technologies and have used them since young (Ting et al., 2018). Older Gen Ys, on the other hand, had to adapt to rapid advancements in technology in addition to recovering from economic crises (Ting et al., 2018). Compared to previous Gen X generation, Gen

Y was found to have a higher rate of internet access (Lissitsa & Kol, 2016), with financial literacy among Gen Ys found to be positively correlated with the percentage of Internet users in the population (Lusardi & Oggero, 2017).

Gen Ys currently tend to be highly indebted with the most common being mortgage and student loan debt (Bolognesi et al., 2020). In terms of buying behaviour, they display a lower level of self-control than other generational cohorts, has impulse-buying behaviour, seemed to want instant gratification and are brand conscious (Rey-Ares et al., 2021; AIF, 2015). Although perceived as being digitally or tech-savvy, most of them are not financially savvy and they mostly use and engage technologies for entertainment purpose (Calvo-Porrall & Pesqueira-Sanchez, 2019). Gen Ys are found to be experiencing financial stress and anxiety (Bolognesi et al., 2020; AIF, 2015) with many of them living beyond their means, trapped in emotional spending, and are not prepared for long-term financial security.

Gen Ys demonstrated lower to medium basic financial literacy levels (Bolognesi et al., 2020; Khan et al., 2019) but found more likely to overestimate their own financial knowledge (Bolognesi et al., 2020; Kim et al., 2019). Among Gen Ys, there appears to be a strong correlation between their financial literacy and holding a financial product such as a bank account (Lusardi & Oggero, 2017). In terms of Gen Ys' saving habits, they have developed positive saving habits (AIF, 2015) but appear less likely to set aside money for emergencies than older working-age adults (Bolognesi et al., 2020).

Despite these observations, in-depth studies on Gen Ys financial behaviour seem to be lacking (Rey-Ares et al., 2021). A study on Malaysian Gen Y's saving behaviour is required as they are already showing signs of financial distress and have sought assistance

(“Millennials Facing Financial Woes,” 2017). The LCH posited that people save during the working lives to meet their expenses during retirement. A survey by AIF (2015) found that income-earning Gen Ys do save, with 64% of working Gen Ys save a portion of their income every month, and older Gen Ys save more than the younger Gen Ys. However, the survey also revealed that Gen Ys carry huge debts.

Gen Y is a significant generational cohort for this study not only because of their financial situation (saving but in debt) but also because Gen Ys are making financial decisions in an increasingly complex financial landscape (Rey-Ares et al., 2021; Bolognesi et al., 2020; Lusardi, 2019). Gen Y is the most recent cohort to enter employment, probably entered employment around the year 2000 and the youngest Gen Ys are beginning to enter employment. Hence, it is a fast-growing income-earning generational cohort (Rohani Mohd et al., 2016), with many years of working life left before retirement, and thus is a suitable cohort to study preference for long-term financial planning.

1.5 Problem Statement

The central problem in this study is the low personal saving rates (Jack, 2022; Murendo & Mutsonziwa, 2017; Brown & Taylor, 2016; Rószkiewicz, 2014), which is a global issue. Table 1.2 shows countries which reported personal saving rates below 10%. The personal savings rate is an important component of financial security, and low personal savings will have repercussions on ability to cope with financial shocks.

Table 1.2: Personal saving rates (%)

| Country | Last | Previous | Reference |
|----------------|------|----------|-----------|
| Australia | 6.9 | 8.7 | Sep/22 |
| Canada | 5.7 | 5.1 | Sep/22 |
| Finland | -3.5 | -2.5 | Sep/22 |
| Hong Kong | 0.55 | 0.42 | Jan/23 |
| Italy | 7.1 | 9.3 | Sep/22 |
| Norway | 2.5 | 7.6 | Sep/22 |
| Portugal | 5.1 | 6 | Sep/22 |
| South Africa | 0.5 | 0.2 | Sep/22 |
| United Kingdom | 9.0 | 7.8 | Sep/22 |
| United States | 3.4 | 2.4 | Dec/22 |

Source: <https://tradingeconomics.com/country-list/personal-savings> (date accessed: Feb 9th, 2023)

Note: Reference refers to the last reported period

Personal saving rates are not reported in Malaysia, but there is concern that Malaysians do not have adequate amount of savings, with four out of five Malaysians have no savings to fall back on in case of loss of income (Ee, 2016). Older adults (aged 40 and above) are reported to have very low amount of savings and assets (Social Wellbeing Research Centre [SWRC], 2021; Aisyah Abdul Hadi, 2019), while Gen Ys are spending beyond their means and have high credit card debts (“Forty per cent of millennials spend beyond their means, says finance minister”, 2021).

Slow wage increases, rising cost of living and a more ‘urbanised consumption-oriented lifestyle’, and lack of financial literacy were cited as reasons for Gen Ys inability to save (Asila Jalil, 2021). These reasons might not be exhaustive and further investigation to understand saving behaviour of Malaysian Gen Ys is pertinent as this cohort has many years left for retirement, has young children, and perhaps burdened with higher childcare

and education costs, and living in an environment of spiralling prices of food, health, and transportation. In addition, due to rising property prices, Gen Ys face housing affordability problem (Ahmad Ariffian Bujang et al., 2015). With such an environment facing them, financial concerns were found to be an acute stressor for Gen Ys especially during crisis such as the pandemic period (Deloitte, 2020). With expectations of longer lifespan for Gen Y compared to previous generations, they might spend longer years in retirement. Measures need to be taken to ensure that Gen Ys will be financially stable both now and in future retirement. A study on saving behaviour of Gen Ys has three sub-problems.

1.5.1 First sub-problem

The *first* sub-problem is that while studies on saving behaviour revealed diverse determinants of saving behaviour, these studies focussed on children, students, emerging adults, and youths (e.g., Trzcińska et al., 2021; Kagotho et al., 2017; Jorgensen et al., 2017; Brown & Taylor, 2016), and the money saved comes in the form of allowances, pocket money and income from part-time work. As such, the determinants identified may not be applicable to income-earning young adults. There seems to be lack of studies on saving and financial behaviour of Gen Ys despite the growing number of Gen Ys entering employment. An exploratory study is thus required.

1.5.2 Second sub-problem

The *second* sub-problem is that Gen Ys although been referred to as the most educated generation (Bolognesi et al., 2020; AIF, 2015), lack the basic skills needed to make savvy financial decisions (Lusardi & Oggero, 2017). Gen Ys in Malaysia although have medium level of financial literacy (Khan et al., 2019), they face financial problems such as burdened with debt at an early stage of working life (“Millennials Facing Financial

Woes,” 2017). Whether the response to this is to increase financial literacy is debateable as the effect of financial literacy on saving behaviour is inconclusive. There are studies that found financial literacy positively influencing attitudes about personal finance, likelihood to save and saving behaviour (e.g., Baidoo et al., 2018; Murendo & Mutsonziwa, 2017; Batty et al., 2015) but there are also studies that found financial literacy and awareness of the importance of saving not enough for individuals to start saving or significantly increase saving (García & Vila, 2020; Abebe et al., 2018).

Experimental studies should ideally be done to investigate the effectiveness of financial literacy in influencing saving behaviour (Lusardi & Mitchell, 2014). Such experiments to estimate the short-term effects of a financial education programme on students’ financial literacy, and their saving or financial behaviour were done (Salas-Velasco, 2022; De Beckker et al, 2021; Zhu et al., 2021; Kalwij et al., 2019; Kuntze et al., 2019; Batty et al., 2015). However, there does not seem to be any such experimental studies beyond student setting, although a survey was done to investigate the effects of employer-based financial education on personal saving (Bernheim & Garrett, 2003), and the impact on employee retirement saving decisions one year after completing an employer-provided Learning Module about retirement planning (Clark et al., 2017).

1.5.3 Third sub-problem

The *third* sub-problem is that Gen Ys seem to have preference for short-term goals and instant gratification (AIF, 2015). A consequence of this is higher consumption and less savings during working lives. In addition, those who subscribe to the motto You Only Live Once (YOLO) might avoid long-term saving goals (such as for retirement) in favour of short-term saving goals (such as for wedding expenses, entertainment, travel). This is detrimental as long-term planning - such as for retirement - must be done as early as

possible to take advantage of compound interest. The preference for short-term goals and instant gratification can be linked to a concept referred as time preference. The basis of time preference is individuals face intertemporal choice of whether to prioritise present consumption or to prioritise the needs of their future self. Saving is a future-oriented act. Hence, those who have future time-preference (future biased) are more likely to save regularly. Vice-versa, those with present time preference (present biased) are more likely to spend in the present and less likely to save for the future (Xiao & Porto, 2019).

Self-control - that is the ability to exercise restraint, control impulses, emotions, desires (Gerhard et al., 2018), and defer spending - has been linked to time preference (Thaler & Shefrin, 1981). People with good self-control are more likely to save regularly (Strömbäck et al., 2017) and are less impulsive (Allom et al., 2018). Hence, impulse buying tendencies of Gen Ys (AIF, 2015) could signify lack of self-control that contributes to present time preference which is detrimental to saving behaviour. In addition, lack of self-control was found to have a stronger role than financial illiteracy in explaining consumer over-indebtedness (Gathergood, 2012). Self-control was also found to be indirectly related to saving behaviour through intention (Allom et al., 2018). Despite these findings, prior studies have overlooked the effect of self-control problems on Gen Ys' financial behaviours and attitudes (Rey-Ares et al., 2021). As self-control is linked to time preference, a study can be done to investigate the significance of time preference as a determinant of regular saving behaviour among Gen Ys.

To address these problems, this study applies an Integrated Behavioural Model (Montaño & Kasprzyk, 2008) - which is based on the well-known Theory of Planned Behaviour - to investigate the determinants of saving behaviour. Based on the model, saving behaviour is primarily influenced by intention to save regularly. Based on the sub-

problems, the effect of financial literacy and time preference on regular saving behaviour can be evaluated as the other direct predictors of behaviour. Further, an experimental study can be conducted to assess the impact of participating in a financial awareness programme on the constructs in the model.

1.6 Research Objectives and Research Questions

1.6.1 Research Objectives

Based on the above-mentioned background of study and problem statement, in the context of Gen Y in Malaysia, the objectives of this study are as follows:

RO1: To identify and explore salient beliefs underlying regular saving behaviour.

RO2: To examine the relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy), and intention to save regularly.

RO3: To examine the relationship between intention to save regularly, financial literacy, time preference, and regular saving behaviour.

RO4: To investigate whether participation in a financial awareness programme influences the relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy), and intention to save regularly.

RO5: To investigate whether participation in a financial awareness programme influences the relationship between intention to save regularly, financial literacy, time preference, and regular saving behaviour.

1.6.2 Research Questions

This study attempts to answer the general research question: *What are the determinants of regular saving behaviour among Gen Ys in Malaysia?* This leads to the following five specific Research Questions:

- RQ1:** What are the underlying beliefs of Gen Y's attitude (experimental, instrumental), perceived norm (injunctive, descriptive), and personal agency (perceived control, self-efficacy) regarding regular saving behaviour?
- RQ2:** What is the relationship between attitude (experimental, instrumental), perceived norm (injunctive, descriptive), personal agency (perceived control, self-efficacy), and intention to save regularly?
- RQ3:** What is the relationship between financial literacy, intention to save regularly, time preference, and regular saving behaviour?
- RQ4:** Does participation in a financial awareness programme influence the relationships between attitude (experimental, instrumental), perceived norm (injunctive, descriptive), personal agency (perceived control, self-efficacy), and intention to save regularly?
- RQ5:** Does participation in a financial awareness programme influence the relationships between intention to save, financial literacy, time preference, and regular saving behaviour?

1.7 Significance of this study

The significance of this study is *three-fold*. The *first* significance is via a theory-driven approach to identify determinants of regular saving behaviour, it adds to a growing body of literature on saving behaviour. To identify the determinants, this study applies the Integrated Behavioural Model (IBM), which has been used in various field, such as, health sciences to investigate determinants of safe and good health practices (Alemayehu

et al., 2021; Gutema et al., 2018), risky road behaviours (Trinh & Vo, 2016), physical activity (Branscum & Bhochhibhoya, 2016; Beville et al., 2014), and recycling behaviour (Davies et al., 2002). However, it appears that no prior study was done using IBM for financial behaviour research. On the other hand, TPB – which IBM is based on - has been validated and used in the study of financial behaviours (Raut, 2020; Magendans et al., 2017; Shim et al., 2012; Loibl et al., 2011; Croy et al., 2010a). Studies on financial behaviour that applied the TPB found the relative importance of attitude, subjective norm, and perceived behavioural control vary for different behaviour domain and populations. In studies on saving behaviour (Satsios & Hadjidakis, 2018; Croy et al., 2010a), subjective norm was found to be the strongest predictor of intention than attitude and perceived behavioural control, while in another study on saving (Radduan Yusof et al., 2018), perceived behavioural control was found to be the strongest predictor, followed by attitude and subjective norms. A study on financial behaviours (Shim et al., 2012), however, found attitude to be the most important predictor of intention, followed by parental norms and perceived behavioural control. Similarly, a study on debt management plan completion behaviour (Xiao & Wu, 2008) found attitude toward the behaviour and perceived behavioural control had positive effects on the behavioural intention but not subjective norm. This study with the three constructs segmented into experiential and instrumental (attitude), injunctive norm and descriptive norm (perceived norm), and perceived control and self-efficacy (personal agency) could better explain the determinants of saving behaviour.

The *second* significance of this study is the conduct of the study in three phases through interviews and surveys. As the framework of this study is based on TPB, interviews - to identify salient beliefs about attitude, perceived norm, and personal agency - were conducted as per the requirements when applying TPB. Previous studies based on TPB

(e.g., Piras et al., 2017; Tan et al., 2016; Padela et al., 2016; Curtis et al., 2010) have conducted interviews. However, it appears that studies on saving behaviour although used TPB as the underlying theory, did not use interviews to identify salient beliefs; instead used past studies to generalise beliefs or totally ignored the requirement to elicit beliefs (e.g., Sharif et al., 2020; Radduan Yusof et al., 2018; Satsios & Hadjidakis, 2018; Magendans et al., 2017; Amer Azlan Abdul Jamal et al., 2016; Shim et al., 2012). Ignoring beliefs and generalising beliefs based on past studies can be considered as methodological limitations when applying TPB. To the best of knowledge, this study's conduct of elicitation interviews to explore beliefs is a first such approach in the research on saving behaviour. This study uses the integrated model to predict not just behavioural intention but also subsequent performance of the behaviour. This contrasts other studies that either predicted intention but not behaviour (Croy et al., 2010a) or predicted behaviour but omitted intention (Sharif et al., 2020; Amer Azlan Abdul Jamal et al., 2016). Past studies (e.g., Magendans et al., 2017) used cross-sectional design where data was collected at a specific point in time, when the actual application of TPB requires a two-period study. During the time lag between end of Phase Two data collection and beginning of Phase Three data collection, an experimental study was conducted over a three-month period where an intervention programme was targeted at a group. This is a significant phase as experiments are more likely to detect changes in knowledge and behaviour (Lusardi & Mitchell, 2014). Past experimental studies (Batty et al., 2015; Gill & Bhattacharya, 2015) found that financial literacy intervention programmes increased financial knowledge relative to a control group.

The *third* significance is it targets a generational cohort - Gen Y - which is currently the largest income-earning cohort. Gen Y's behaviour have been researched, such as their luxury consumption behaviour (Jain, 2020) and, motivations underlying their technology

behaviour (Calvo-Porrall & Pesqueira-Sanchez, 2019). However, on their saving behaviour, apart from Yao and Cheng (2017) which investigated Gen Ys' retirement saving behaviour, studies on their saving behaviour seems to be lacking despite Gen Ys facing many challenges – these include the need to assume more responsibility to prepare financially for retirement (Yao & Cheng, 2017) but are currently not prepared for long-term financial security (Bolognesi et al., 2020; AIF, 2015), need to adapt to rapid advancements in technology (Ting et al., 2018), having to make financial decisions in an increasingly complex financial landscape (Rey-Ares et al., 2021; Bolognesi et al., 2020; Lusardi, 2019), and currently are highly indebted (Bolognesi et al., 2020). As for Malaysian Gen Ys, they are showing signs of financial distress due to huge debts (AIF, 2015) and have sought assistance (“Millennials Facing Financial Woes,” 2017).

Malaysia has been identified as among the countries that need to strengthen its population's financial knowledge (OECD, 2016). A study focused on a segment of Malaysia's population - Gen Y in this case - would provide more information than a study targeted to the Malaysian population in general on how financial awareness programmes should be conducted and what topics to be covered. This study in targeting Gen Ys in assessing the effectiveness of a financial awareness intervention, has its challenges - such as, whether any intervention is too late to be administered when habits are already formed, and social influences have taken hold.

1.8 Organisation of thesis

This research is presented in seven chapters. This Chapter One provides background of study on saving behaviour, the context of this study, problem statements, research objectives and research questions, a summary of this study's research methodology, and significance of this study. The remaining chapters of this thesis are organised as follows.

Chapter Two first differentiates these three terms: saving, savings and saving behaviour. It then presents the underlying theories relevant for this study. This is followed by an explanation of the relevance of the IBM constructs in this study. The relevance of financial literacy and time preference was also detailed in this chapter. Finally, the gaps, Conceptual Framework and hypotheses of this study are presented.

Chapter Three describes the methodology and research design of this study. It first presents this study's philosophical assumptions, its research paradigm and methodology. This is followed by an explanation of the research methods in the three phases of this study, including on the choice of PLS-SEM as the data analysis tool. In addition to presenting the population and sample relevant for this study, this chapter provides justifications on sampling method and sample size. Finally, It presents the ethical issues of this study.

Chapter Four details Phase One of this study; the conduct of interviews. The purpose of the interviews is to identify the salient beliefs underlying intention to save regularly among Gen Ys in Malaysia. The use of interviews does not alter the post positivism paradigm of this study, as the interviews were done guided by the research framework of this study.

Chapter Five detail Phase Two of this study. It starts with detailing the development of this study's questionnaire, followed with the steps involved in data preparation for analysis. Finally, data from survey responses are analysed.

Chapter Six details the conduct of Phase Three of this study, which is an experimental study to assess the effectiveness of a financial awareness programme. This chapter covers the experimental study design, research questions and hypotheses, and analyses conducted.

Chapter Seven discusses the findings from all three phases of research, presents this study's contributions, identifies the implications and limitations of this study, and provides suggestions for future research.

Universiti Malaysia

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter reviews the relevant literature on saving, savings and saving behaviour and is presented based on the research objectives of this study which is to investigate the determinants of regular saving behaviour using the Integrated Behavioural Model (IBM). Thus, the review to a large extent focussed on the constructs in the IBM and its fundamental theories; the Theory of Planned Behaviour (TPB) which is an extension of the Theory of Reasoned Action (TRA). In addition, economists have developed a few major theories of saving (and consumption) behaviour; this includes the Life-Cycle Hypothesis (LCH) by Modigliani and Brumberg (1954) which describes the spending and saving habits of people over the course of a lifetime. LCH is based on some assumptions and may not be able to explain anomalies, which refers to departures from conventional theory. Behavioural finance, however, could rationalise the anomalies. Hence, further to the LCH, Behavioural Life-Cycle (BLC) Hypothesis by Shefrin and Thaler (1988) is also discussed. The other objectives of this study are to assess the significance of financial literacy and time preference as direct predictors of regular saving behaviour. The literature reviewed is not limited to the areas of finance and economics, but also relevant literature published in psychology, business, family issues, and neuroscience journals.

This chapter first distinguishes the concepts of stock of savings, the activity of saving and saving behaviour, and the factors that influence these. It also presents the underlying theories relating to savings, saving, and saving behaviour. It then introduces the Integrated Behavioural Model, providing rationale for the application of this model in the current study. Further factors that are incorporated in this study are financial literacy and time preference. The literature review looks at the interpretation of financial literacy, provides an overview of financial literacy levels, and the association between financial

literacy and financial outcomes. Similarly, the concept of time preference is described, factors determining time preference identified, and measurement of time preference explained. This chapter ends with the gaps in the literature, this study's conceptual framework and hypotheses development.

2.2 Savings, saving and saving behaviour

Wärneryd (1999) posited that a distinction should be made between savings, saving, and saving behaviour. Saving refers to the activity (of saving), defined as refraining from consumption now in favour of future consumption. Saving behaviour, though synonymous to saving, emphasises on the behavioural aspects of savers. Savings is the outcome of saving activities.

2.2.1 Savings

Savings is conventionally defined as excess income (residuals), that is, the difference between income and spending (Copur & Gutter, 2019; Pan, 2016; Feng et al., 2011; Wärneryd, 1999). Positive gap between disposable income and spending is termed as an “unintentional accumulation of financial resources” (Rószkiewicz, 2014, p. 602-603), while negative residual savings as “an unconscious and unintentional loan” (p. 603). Treating savings as residuals could also imply that savers do not have a goal or an objective for saving, and that savings occurred by default and not a consequence of planning or deliberate acts.

In addition to the above conventional definition, there are other definitions of savings. Savings can be defined in the form of a *flow measure* emphasising the changes in savings over a period. Using flow measure, savings was defined as “the difference between monthly real total income and monthly real total consumptive expenditure at household

level” (Aaberge et al., 2017, p.160). The consumptive expenditure at household level could be basic living expenditure, medical expenditure, and education expenditure (Zhou, 2014). Other flow measures of savings have also been used. This includes defining savings as the difference in total net worth (wealth accumulation) over a period (Heimer et al., 2019; Cobb-Clark et al., 2016), where total net worth is defined as the sum of financial wealth, business equity, real estate equity, vehicles, and pensions. Similar approach was used in Cronqvist and Siegel (2015) which measured savings as the change in an individual’s net worth between two relevant time periods but excluding capital gains or losses related to the individual’s primary home. Savings was also defined by the household balance sheet as the net changes in financial wealth (Aaberge et al., 2017; Wang & Wen, 2012). Another measure of savings is the *stock measures* which are based on total savings or total wealth.

2.2.1.1 Statistics on individual and household savings

A commonly held view is that individuals and households are not saving enough or were not able to save, whether the saving is short-term or long-term saving for retirement (Brown & Taylor, 2016) as evidenced by surveys on individual saving: In Zimbabwe, 52% of a sample of 4000 adults surveyed did not save (Murendo & Mutsonziwa, 2017). In Nigeria, a study found that about 32 per cent of adult Nigerians do not save (Adetunji & David-West, 2019). In addition, lack of domestic saving among university employees aged 20 to 64 was observed in Ankara, Turkey (Copur & Gutter, 2019). In Poland, a survey done in 2012 found that only 36.9% (from a sample size of 1479 households) of Polish households were found to be able to save (Rószkiewicz, 2014). On the contrary, China’s household saving rate is distinctly higher than the rest of the world (OECD, 2021), with the latest data being 36.14% in 2016. China has high household savings rates in its urban population (Feng et al., 2011), and its savings rates, although have increased

across all age groups, the young group (age 25 to 40) accounts for as high as 50 percent of the total change (Nie, 2020). Demographic factors, nevertheless, are estimated to play a relatively weak role for China's high saving (Gu et al., 2020). The factors that drove up its saving rate, in terms of importance, are income inequality and habit formation, GDP growth and manufacturing exportation, and fiscal revenue, interest rate, and old dependency (Gu et al., 2020). The US household savings rate was the lowest (since 2000) in 2005 at 3.28%, but raised to 9.14% in 2012, dropped to 7.96% in 2018 but expected to increase to 8.2% in 2023 (OECD, 2022). Japan which in 1975 had the second highest household saving rate in the OECD of 22.8% (Horioka, 2019), recorded 8.85% in 2000, dropped further to 4.29% in 2018, and expected to drop further to 3.3% in 2023 (OECD, 2022). The European Union which recorded between 5.10% and 7.59% savings rates in the years 2000-2019 recorded a sharp increase to 12.57% in 2020, the year of the global pandemic. The magnitude of the rise in the savings rates which was also seen in some European countries, presented in Table 2.1, has been described as stunning (Smith, 2020) as the huge increase in household saving rates happened when world GDP growth was -3.593% in 2020 (OECD, 2021). This trend is consistent with a belief that periods of crises and periods of recession are usually accompanied by an increase in the level of household savings to survive the difficult and uncertain period caused by the crisis (Szustak et al., 2021; Smith, 2020). The reason for this trend in 2020 is that many have cut back on their spending especially at the early stage of the pandemic in March and April (Bachas et al., 2020). In addition, there was the forced reduction of consumer demand for products and services due to implementation of lockdowns (Szustak et al., 2021).

Table 2.1: Household savings rates (2019,2020)

| Country | 2019 | 2020 |
|----------------|-------------|-------------|
| Finland | 0.54 | 5.60 |
| Canada | 1.24 | 14.28 |
| Norway | 7.61 | 15.52 |
| Italy | 2.49 | 10.32 |

Source: OECD (2021)

Malaysians too were found to have insufficient savings (Ee, 2016; Sharifah Haron et al., 2013). As Malaysia's household savings rate is not publicly available (Khazanah Research Institute [KRI], 2016), using an annual report published by Department of Statistics Malaysia, estimates for total savings by households from 2006 to 2013 were done (KRI, 2016). For 2013, the last year for which such data was publicly available, household savings stood at 1.4% of adjusted disposable income, and averaged at 1.6% for 2006 to 2013. The estimated 2013 Malaysia's household savings rate (1.4%), when compared with data of other countries in OECD (OECD, 2021), was one of the lowest savings rates in the world. Malaysia has low household savings rate despite taking account Employee Provident Fund (EPF) monthly contributions. EPF is an important institution in Malaysia regarding retirement planning. It receives and manages the mandatory contributions of its members - employees of the private and non-pensionable public sectors as well as voluntary contributions by those in the informal sector - where employees are obliged to contribute at least 11% of gross salaries, and employers 12%. As not all households save with the EPF, compounded by numerous withdrawals allowed from the EPF, these have contributed to lower EPF savings across all households on a net basis. Although Malaysians seem to have the culture of saving (Atkinson & Messy, 2012), supported by an OECD study that 84.9% of Malaysian adults actively save money (OECD, 2020), but nearly 80% of Malaysians have no savings to fall back on in the event of loss of income (Ee, 2016). The amount saved seemed inadequate as they had to resort to borrowings to finance basic needs (Atkinson & Messy, 2012). A study done on older Malay Muslims in Malaysia using data from the 2004 Economic and Financial Aspects of Aging in Malaysia found that more than half of older Malay Muslims had no savings with many of them barely surviving economically (Sharifah Haron et al, 2013).

2.2.1.2 Factors that influence variations in savings

Variation in savings in the world can be attributed to macro level and micro level factors.

Macro level factors

First, the availability of safety net in the form of government-run pension systems (Curtis et al., 2017) where a more generous pension reduces saving rate (Ye et al., 2021) as this lowers retirees' need to rely on personal saving. Conversely, when pensions are reduced, private and household savings are found or expected to increase (Curtis et al., 2017; Alessie et al., 2013; Chamon et al., 2013; Feng et al., 2011), as a less generous pension makes it necessary to save in preparation for life during retirement (Horioka, 2019). The availability of *mandatory* pension saving was also found to correlate with workers to have partly and at most totally lower their *voluntary* household saving (Grigoli et al., 2017). Another form of safety net is a family-based safety net. In China, its One-Child policy generation suffers from lack of family-based safety net (Zhou, 2014). As a result, China's younger generation contributes to its high savings rate because individuals of this generation (born in 1979 onwards) do not have siblings and they need to be financially prepared to support their parents. Another form of safety net is the "brothers effect", that is the effect of having an additional brother on an individual's household savings rate; having an additional brother reduces an individual's household savings rate by at least 5 percentage points (Zhou, 2014). This negative effect was observed in both urban and rural areas in China.

Second, countries that experienced higher levels of income and income growth tend to have higher levels of savings (Tang et al., 2020; Grigoli et al., 2018; Grigoli et al., 2017; Lewis & Messy, 2012). There is also evidence that GDP can have a significant and negative correlation with the savings rates (Ye et al., 2021). In the year 2020, when the

world's GDP fell, some countries experienced significant increase in household savings rate. This could be explained by the next factor, uncertainty.

The relationship between uncertainty and saving might not be simple (Wärneryd, 1999). On one hand, uncertainty makes it important to save but, on the other hand, some uncertainties might make saving meaningless. Uncertainty can cause people to build their precautionary savings, so that a larger amount of savings can be accumulated as a buffer against future uncertainty (Gu et al., 2020; Aaberge et al., 2017). Uncertainty can be in the form of job insecurity and pessimism about the future (Lewis & Messy, 2012), political uncertainty (Aaberge et al., 2017), financial crisis (Babiarz & Robb, 2014), increase in the variability of stock market prices (Aaberge et al., 2017), and income uncertainty which could lead to uncertainty about pension benefits (Chamon et al., 2013). The Covid-19 pandemic too seemed to have caused people to be less likely to splurge and to be (more) careful with their saving and spending (Azanis Shahila Aman, 2020). In Malaysia, however, macroeconomic uncertainty was found to have a negative impact on private savings (Tang et al., 2020).

The fourth factor that explains variation in savings in the world is inflation, which can have positive or negative effect. Higher inflation was found to promote private saving (Gu et al., 2020; Grigoli et al., 2018; Grigoli et al., 2017), possibly due to precautionary motives. However, inflation or inflation expectations can also have negative effect on saving (Ye et al, 2021) and saving attitude (Premik & Stanisławska, 2017). Expectation of inflation could encourage activities that have greater financial advantages in terms of interest and profit (Rószkiewicz, 2014), resulting in investment, speculation, and real estate transactions at the expense of savings.

The fifth factor that explains variation in savings in the world is availability of credit or vice-versa, lack of availability of credit due to borrowing constraints. Increased credit availability and a relaxation of domestic borrowing constraints reduces private saving (Grigoli et al., 2018). Vice-versa, lack of credit increases private saving. This factor may have contributed to high household saving rates in Japan between the years 1960s to mid-1980s, and a more widely available consumer credit may explain why Japan's household saving rate has declined since then (Horioka, 2019). Studies that attempted to explain high saving rate in China also suggested borrowing constraints as a probable factor (Ye et al., 2021; Wang & Wen, 2012). This borrowing constraint is more prevalent in rural China as land is owned collectively, and not individually (Ye et al., 2021). This makes access to credit difficult, as individuals do not own assets to be used as collaterals for loans. Hence, in the absence of loans, saving for purchases is required.

Sixth, the ratio of rural population versus urban population, with urbanisation lowering private savings rate due to larger consumption opportunities in urban areas but higher precautionary saving in rural areas due to larger uncertainty from volatile agricultural income (Ye et al. 2021; Grigoli et al., 2018; Grigoli et al., 2017).

Seventh, the effect of future growth expectations on savings. The findings are contradictory. On one hand, higher expected future growth has a positive effect on private saving (Grigoli et al., 2018). On the other hand, optimism of the future causes optimistic individuals to hold less in savings, and stimulate consumption instead of saving (Gerhard et al., 2018; Nor Azam Abdul Razak & Roslan Abdul Hakim, 2017).

Other factors that influence savings are longevity (Pascual-Saez et al., 2020), old-age dependency ratio (Ye et al, 2021; Gu et al., 2020; Pascual-Saez et al., 2020; Tang et al.,

2020; Grigoli et al., 2018), interest rate (Ye et al. 2021; Gu et al., 2020; Grigoli et al., 2018), financial development (Ye et al., 2021; Tang et al., 2020), and cultural factors (Ye et al., 2021, Gu et al., 2020).

Micro level factors

The factors above influence total savings. At individual level, there are other factors that could affect amount of savings.

First is the level of financial capability. Individuals are financially capable if they have high levels of financial knowledge and financial self-efficacy in addition to access to a bank account (Reyers, 2019). Financially capable individuals are more likely to have emergency savings (Reyers, 2019; Kuhnen & Melzer, 2018). However, the effect of financial literacy is inconclusive. On one hand, no evidence was found to suggest a relationship between financial knowledge and emergency savings (Reyers, 2019), but on the other hand, financial literacy was found to have positive effects on financial inclusion, informal and formal savings, and the availability of emergency and precautionary savings (Morgan & Long, 2020; Adetunji & David-West, 2019; Murendo & Mutsonziwa, 2017; Anderson et al., 2017; Babiarz & Robb, 2014; Huston, 2010).

Second, savings seems to be correlated with homeownership. Homeowners were found to save more (Lersch & Dewilde, 2018), and more likely to save for retirement (Xiao & Noring, 1994). Housing bubbles too can cause more savings as a higher amount is required to buy a house (Gu et al., 2020). Thus, early homeownership could be an instrument to instil saving efforts into the younger generation (Holzmann et al., 2019).

2.2.2 Saving

2.2.2.1 Saving motives

Saving originated due to various motives, purposes, or goals. For those with lower self-control, saving motive could act as a commitment device to follow through the act of saving money regularly (Gerhard et al., 2018).

Early work by Keynes (1936, cited in Browning & Lusardi, 1996) categorised motives for saving into eight types. First, the precautionary motive to build up buffer to meet any unforeseen contingencies such as illness, accidents, and unemployment (Horioka, 2019; Brown & Taylor, 2016). Saving for precautionary motive can be done with no specific purpose (Brown & Taylor, 2016). Second is the life-cycle motive, this includes saving for children's education and for retirement – evidenced in Yao et al. (2015). Saving for emergency, retirement and children's education were found to be the most significant saving motives (Yao et al., 2015; Fisher & Montalto, 2010). The other motives are the intertemporal substitution motive, that is to earn interest and therefore higher consumption power in the future (Brown & Taylor, 2016), the improvement motive (to gradually increase expenditure), the independence motive - to enjoy a sense of independence and the power to do things - which Bucciol and Trucchi (2021) found to significantly improve saving, the enterprise motive (to carry out speculative and business projects), the bequest motive (to bequeath a fortune), and the avarice motive (to satisfy pure miserliness). Browning and Lusardi (1996) added an additional motive, the down-payment motive (saving money to accumulate sufficient deposit to buy houses, cars, or other durables).

Saving motives can differ according to ethnicity (Fisher & Hsu, 2012) and according to a hierarchical manner (Sharifah Haron et al., 2013; Xiao & Noring, 1994). While

Hispanic households were more likely to save for emergency, home purchase, education, and bequest motives (Fisher & Hsu, 2012), White households reported retirement motive as their primary motive (Fisher & Hsu, 2012; Knoll et al., 2012). Studies that used Maslow's hierarchy of human needs as a theoretical approach (Sharifah Haron et al., 2013; Xiao & Anderson, 1997), found that the priority is to save to attain lower level needs or survival needs - that is to have basic necessities, followed by saving to fulfil security needs - to provide for the financial security in the future for example, via saving for retirement and finally, saving to meet social needs, growth needs or for self-actualisation. The association of these needs is hierarchical, where savers pursue higher-level needs after they have met their lower-level needs (Xiao & Anderson, 1997). Similarly, Browning and Lusardi (1996) suggested that saving motives of the wealthy might differ from saving motives of the less wealthy – Xiao and Noring (1994) study found that the less wealthy save for daily expenses and purchases while the wealthiest save for retirement, children, and growth.

2.2.2.2 Factors that influence likelihood to save

To explain variation in saving among individuals, variables relating to financial conditions (e.g., income and wealth) and socio-demographics (e.g., education, and sector of employment) are more relevant than psychological variables (Wärneryd, 1999, p.72).

Individuals who earn substantial income, those who have wealth, those with formal education, and private sector employees as well as the self-employed, are more likely to save (Newmeyer et al., 2021; Reyers, 2019; Baidoo et al., 2018; Murendo & Mutsonziwa, 2017). For children, the form of income they receive can affect their likelihood to save. If a child receives income in the form of parental allowances and pocket money, this lowers the probability that a child saves, whereas earnings from part-time work increase

the probability (Brown & Taylor, 2016). In terms of gender, males are more likely to save or save more than females (Nie, 2020; Murendo & Mutsonziwa, 2017), but older generation males are more likely to save than younger generation males (Murendo & Mutsonziwa, 2017). Single households were found to save more than married households at each age (Nie, 2020). Vice-versa, individuals with larger household sizes are found to be less likely to save (Baidoo et al., 2018; Murendo & Mutsonziwa, 2017). A further factor that influences likelihood to save is the financial expectations of the head of household (Brown & Taylor, 2016) - this study found children of optimistic parents have a lower probability of saving and vice-versa, parental financial pessimism is positively associated with children saving.

A psychological characteristic that influences likelihood to save is locus of control. Internal locus of control was found to stimulate saving (Buccioli & Trucchi, 2021; Piotrowska, 2019), in addition to having higher quantum of savings and in forms that are harder to access (Cobb-Clark et al., 2016). Vice-versa, those with external locus of control are less likely to save, and they save less (Buccioli & Trucchi, 2021; Cobb-Clark et al., 2016). Self-efficacy is related to locus of control - those with high self-efficacy will most likely have high internal locus of control. Those with higher self-efficacy was found to have a higher likelihood of saving compared to those with lower self-efficacy (Asebedo et al., 2019; Lown et al., 2015).

The effect of financial literacy on saving is inconclusive. There are studies that found financial literacy positively influencing likelihood to save (Baidoo et al., 2018; Murendo & Mutsonziwa, 2017; Batty et al., 2015; Nurul Shahnaz Mahdzan & Tabiani, 2013). However, there are studies that found financial literacy, and awareness of the importance

of saving, insufficient for individuals to start saving or significantly increase saving (García & Vila, 2020; Abebe et al., 2018).

2.2.3 Saving behaviour

Saving behaviour is conceptually described as “the relative amount of income that is not consumed but saved for future consumption or bequest” (Cronqvist & Siegel, 2015, p.131). Psychological factors are primarily used to explain this behaviour, supplemented by financial and socio-demographic variables (Wärneryd, 1999). While demographic factors are important, these explain only a modest or minor amount of variance (Magendans et al., 2017). Furthermore, demographic factors are not easily modifiable, and do not explain the complexity of influences that underpin saving behaviour (Allom et al., 2018).

2.2.3.1 Psychological factors

A subjective factor which is individual perceptions of one's income and material conditions is identified as a basic factor shaping saving behaviour (Rószkiewicz, 2014). For some, saving is difficult regardless of income (Piotrowska, 2019) due to procrastination - a behavioural constraint. Other behavioural constraints that impact saving behaviour are pessimism, impulsive buying, and compulsive buying (Piotrowska, 2019; Allom et al., 2018). Pessimism about survival – referred to as mortality beliefs (Heimer et al., 2019) – was found to relate to a greater propensity not to save. Heimer et al. (2019) found that younger people tend to underestimate their survival, but as people grow older, they go from underestimating to overestimating their longevity - causing older adults (retirees) to dissave at a slower pace

Self-control defined as “the restraint exercised over one’s own impulses, desires, or emotions” (Rey-Ares et al, 2021) impacts regular saving behaviour - people with good self-control are more likely to save a portion of their income every month (Allom et al., 2018; Strömbäck et al., 2017). However, higher self-control is associated with a greater accumulation of savings for those who are older and has higher income, but not for those who are younger and have lower income (Gerhard et al., 2018). On the contrary, Tang (2017) found a significant correlation between adolescents’ self-control skill and their saving behaviour in young adulthood.

A further psychological characteristic is savers’ limited attention, but reminders to save could mitigate this (Abebe et al., 2018; Karlan et al., 2016). In addition, when savers receive feedback on their savings decisions, this could induce saver’s behavioural change (Raue et al., 2020). Another psychological characteristic is mental imaginary of a distant future event (Macrae et al., 2017), where saving for the future increased when connections between one’s current and future self are strengthened.

2.2.3.2 Financial factors

Wealth, income level and its growth rate are important and necessary (Newmeyer et al., 2021; Reyers, 2019; Baidoo et al., 2019; Grigoli et al., 2018; Murendo & Mutsonziwa, 2017; Chamon et al., 2013). A study done in Nigeria, however, found that income only drives the frequency of informal savings (Adetunji & David-West, 2019). There is also evidence the positive association between income and possibility of systematic saving is weak (Rószkiewicz, 2014). Saving behaviour was also found to correlate with genetic predisposition, with wealth of parents moderating the genetic effects (Cronqvist & Siegel, 2015), in addition to be genetically correlated with income growth.

2.2.3.3 Socio-demographic and cultural factors

The impact of personality traits, behavioural constraints, and self-control on saving behaviour varies across different socio-demographic groups (Gerhard et al., 2018) and depending on how this influence is transmitted (Piotrowska, 2019). In addition, determinants of saving behaviour may differ according to age (Rolison et al., 2017), ethnicity (Fisher & Hsu, 2012), educational level (Baidoo et al., 2018), gender (Dang & Nguyen, 2021; Murendo & Mutsonziwa, 2017), and marital status (Knoll et al., 2012).

Studies done on both individual and household saving behaviour found significant relationships between culture and norms and saving behaviour (Ye et al., 2021; Fuchs-Schündeln et al., 2020) - based on a study using macro panel data in 48 countries from 1990 to 2013 (Ye et al., 2021), and in a study of second-generation immigrants in Germany (Fuchs-Schündeln et al., 2020). Culture's significant effect on saving behaviour is realised, among others, through time preference ((Ye et al., 2021). This relationship between culture and saving behaviour, however, was not found in a study done in Japan (Horioka, 2019).

2.2.3.4 Others

Family influence, particularly parents, can impact saving behaviour, money-management, and financial planning for retirement (Robertson-Rose, 2020; LeBaron et al., 2018; Jorgensen et al., 2017; Kagotho et al., 2017; Palaci et al., 2017; Tang, 2017). This influence was evident in studies involving children (Duh, 2016), youths and emerging adults (LeBaron et al., 2018; Kagotho et al., 2017; Jorgensen et al., 2017; Tang et al., 2015), beyond adolescence, even when planning for retirement (Robertson-Rose, 2020). Saving habit during childhood was found to have a large positive influence on saving behaviour at adulthood (Brown & Taylor, 2016). However, findings are

inconclusive as to whether there is an intergenerational (parents and their offspring) correlation in behaviour.

Personality traits indirectly explain saving behaviour (Asebedo et al., 2019); conscientiousness and extroversion indirectly supporting saving behaviour, while openness to experience and neuroticism indirectly undermining saving behaviour. Saving behaviour was found to be correlated with smoking, and obesity (Cronqvist & Siegel, 2015). Smoking behaviour and physical activity, in turn, are associated with time preferences (Miura, 2019; Hunter et al., 2018).

2.3 Theories of saving

2.3.1 Life-Cycle Hypothesis (LCH)

Theories have evolved over time to explain determinants of individual savings (and consumption). The theories considered income as a primary determinant of consumption and savings. The basis of the most frequently used saving theory, the LCH by Modigliani and Brumberg (1954), is that individuals prefer a constant consumption stream across their lifecycle (Holzmann et al., 2019). Thus, rational, and forward-looking individuals plan their consumption and savings over the life cycle (Horioka, 2019; Feng, 2018). Younger people tend to have consumption needs that exceed their income which are done by taking on debt. As a result, younger people are likely to have little savings, or no savings or are dissaving. This applies also to young families where they are dominated by short-term goals, such as, buying an apartment and its equipment and providing education for children. When individuals are at middle age, earnings generally rise, enabling debts accumulated earlier in life to be paid off and savings to be accumulated, with wealth rising to a peak just before retirement age. Finally, in retirement, income declines and individuals consume out of previously accumulated savings (dissave) or

through liquidation of assets, causing wealth to decline at an almost constant rate and eventually reaching zero at time of death. Figure 2.1 presents the LCH, showing saving, dissaving, actual disposable income, and permanent income.

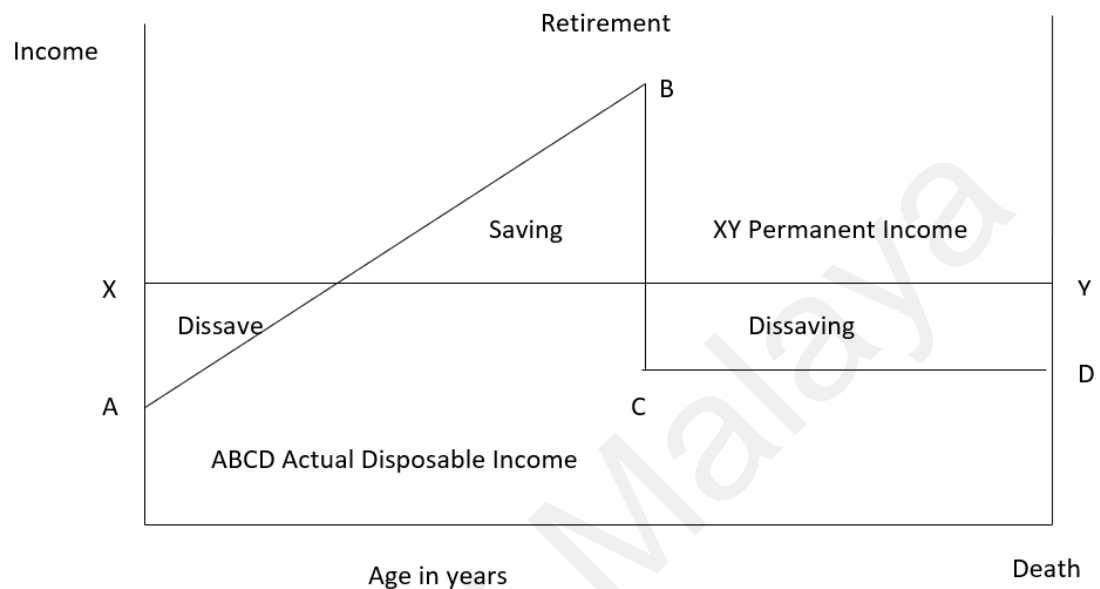


Figure 2.1: The basic Life-Cycle Hypothesis (Wärneryd, 1999, p. 47)

The LCH suggests life cycle stages as the biggest influence on saving behaviour, and saving behaviour is increasingly more likely to occur until one retires (Feng, 2018). Thus, age-saving profile is inverted U-shaped, and this profile was evident in a study of saving behaviour of married households in China (Nie, 2020). Other studies too have supported this hypothesis, that those who are older, within the active labour force, and have higher income, have higher savings (Baidoo et al., 2018; Gerhard et al., 2018). Consistent with this, countries with higher shares of ‘dependent’ population (younger and older than working age) tend to display lower private saving rates, with the elderly financing their consumption needs with accumulated savings (Grigoli et al., 2018; Lewis & Messy, 2012). An example is Japan, where its saving rate has fallen since the mid-1970s due to a large and growing retirement-aged population (Fukuda & Okumura, 2021; Curtis et al.

2017). Although a retirement-aged population reduces saving rate, countries with younger populations, such as China and India, which also have rapid decline in family size have rising household saving rates, rationalised by parents' desire to save for their children's future consumption (Curtis et al., 2017). On the other hand, there are studies that do not seem to support LCH. For instance, downward-sloping age-savings rate profile in China with young, single households saving more than their middle-aged counterparts (Nie, 2020), and a marked increase in savings rate in China among households with younger and older heads (Chamon et al. 2013). Together, these studies suggest that age-savings profile in China is U-shaped. A study done in Malaysia (Nor Azam Abdul Razak & Roslan Abdul Hakim, 2017) suggests that although individuals engage in lifetime saving plan early in their working lives as soon as commencement of employment, their saving falls gradually over time when consumption increases. This supports Heimer et al. (2019) who introduced subjective mortality beliefs into this conventional life-cycle model and found that during preretirement, individuals have higher rate of consumption. This, however, contradicts LCH which posited that younger people might have no savings or are dissaving, and only when individuals are at middle age, savings are accumulated.

The LCH is not without criticisms. One is that in LCH, wealth is treated as fungible and therefore the form in which wealth is received, be this bonus or lottery windfall, was treated as irrelevant (Shefrin & Thaler, 1988). Secondly, the time horizon stops with savers' death, and they do not leave bequests. Time horizon might not stop with own death as savers might also consider their survivors (Wärneryd, 1999). A study of Australian pensioners found that pensioners, on average, preserve financial and residential wealth and leave substantial bequests (Asher et al., 2017). Furthermore, income can continue to be positive beyond retirement age (Nor Azam Abdul Razak &

Roslan Abdul Hakim, 2017). Thirdly, LCH (and other similar theories) have failed to consider the influence of financial literacy on savings (Baidoo et al., 2018). In addition, Modigliani and Brumberg (1954) did not incorporate “uncertainty” in their analysis as the study was meant to explore the implications of their model under certainty, as if households have perfect knowledge about the future (Eriksson & Hermansson, 2014). Modigliani and Brumberg (1954) however noted that the presence of uncertainty could contribute to precautionary motive for saving. A study done on household savings in urban China (Chamon et al., 2013) found that income uncertainty - which could lead to uncertainty about pension benefits - caused younger households to raise their saving rates significantly despite having many years of employment before retirement.

LCH was initially thought to be relevant for developed market economies only (Modigliani & Cao, 2004). In China, for instance, the LCH is a major explanatory factor of household saving surge in its developed years of 1990s and 2000s but was unable to explain the increase in saving during its developing years of 1980s (Chao et al., 2011). The thought that LCH is relevant for developed market economies only was contradicted by Holzmann et al. (2019) who found, using a three-tier life-cycle model by income groups, that only the middle tier behaves as predicted by the LCH. People in the low-income tier do little saving and in consequence little dissaving, and those in the high-income tier save during active life and may profit from bequests, but no dissaving takes place unless hit by a major shock.

2.3.2 The Behavioural Life-Cycle (BLC) Hypothesis

Shefrin and Thaler (1988) attempted to enrich the LCH with psychological factors so that savers’ behaviour can be predicted in a more realistic approach by taking into consideration human limitations. This was done by incorporating these three important

behavioural features, self-control, mental accounting, and framing, said to be usually missing in analyses predicting how actual household saving behaviour differs from what life-cycle model postulates.

Self-control plays a key role when studying saving behaviour (Trzecińska et al., 2021), and beyond saving behaviour to include general financial behaviour (Strömbäck et al., 2017) and consumer over-indebtedness (Gathergood, 2012). As self-control requires restraint over one's own impulses, desires, or emotions (Rey-Ares et al, 2021), it thus incorporates effort. By incorporating effort, the BLC model involves three other elements which are also normally excluded from economic analyses. The first element is internal conflict between the rational and emotional aspects of an individual's personality. To capture this notion of conflict, Shefrin and Thaler (1988) modelled individuals as having a dual preference structure: one as planners concerned about utility over the lifespan and the second as doers who are myopic, present-focused and concerned only with current period consumption. Hence, when a person makes a financial decision, the person faces an ongoing conflict between gaining short-term compensation as a doer and obtaining long-term rewards as a planner (Rey-Ares et al., 2021). As stated in Duckworth et al. (2018, p. 102), "From forgoing dessert to exercising regularly to saving for retirement, many people feel as if they are in a perennial battle with themselves". This battle is due to the second element, temptation, which provides short-term gratification but could impede individuals' long-term goals (Duckworth et al., 2018). The third element is willpower, which represents the real psychic costs of resisting temptation. Willpower is necessary to reduce consumption, increase in willpower effort is painful and becomes increasingly more painful as additional willpower is applied. When willpower effort is zero, the predictions of both the LCH and the BLC are expected to converge (Shefrin &

Thaler, 1988). On the other hand, the predictions of the two models diverge mainly because it is a rarity to find a person with zero willpower costs.

As for mental accounting, “most households act as if they used a system of mental accounts which violate the principle of fungibility” (Shefrin & Thaler, 1988, p. 610), contradicting traditional economic models that view savings held in different categories of assets as interchangeable or fungible. In BLC, wealth is assumed to be divided into three mental accounts: current spendable income (I), current assets (A), and future income (F). An adaptation of Shefrin and Thaler (1988) mental accounting by Xiao and Anderson (1997) found financial needs to be hierarchical, with checking and savings accounts representing the lowest-level survival needs, bonds and stocks representing the highest-level growth needs, and other assets representing middle-level security needs. In BLC, each account has its own marginal propensity to consume wealth; the marginal propensity to consume additions to wealth is said to be greatest for current income (I) and least for future income (F) and in between these two is current assets (A) – this was supported using mental account hierarchy in Xiao and Olson (1993).

Lastly, saving rate can be affected by the way in which increments to wealth are “framed” or described by households. BLC predicts that income paid in the form of a lump sum bonus will be treated differently from regular income even if the bonus is completely anticipated.

2.3.3 Theories of Behaviour: Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)

The aim of both TRA and its extension, the TPB, is to predict and explain human behaviour in specific contexts (Ajzen, 1991), with both theories concerned with

individual motivational factors as determinants of the likelihood of performing a specific behaviour (Montaño & Kasprzyk, 2008). TPB particularly has been documented as a popular, well-accepted, effective, and widely used behavioural model to understand, explain and predict human behaviour in various contexts (Raut, 2020; Ajzen, 1991). In the context of financial behaviour, TRA and TPB have been used for instance to better understand individual investors' behaviour (Raut, 2020; Pascual-Ezama et al., 2014), predicting savings intentions (Croy, et al., 2010a), psychological determinants of financial buffer saving (Magendans et al., 2017), saving in voluntary retirement funds (Radduan Yusof et al., 2018), determinants or drivers of saving behaviour (Satsios & Hadjidakis, 2018; Amer Azlan Abdul Jamal et al., 2016; Ruefenacht et al., 2015), and young adults' financial information seeking behaviour (Sharif et al., 2020).

The assumption in TRA is that the best predictor and the most important direct determinant of behaviour is intention to perform the behaviour. A positive relationship is posited between intention and behaviour, this validated in studies (see Satsios & Hadjidakis, 2018; Magendans et al., 2017; Ajzen & Driver, 1992). Intention to perform a given behaviour is dependent on attitude toward performing the behaviour and subjective norm associated with the behaviour. Attitude toward the behaviour refers to the extent a person has a favourable or unfavourable evaluation of a specific behaviour (Ajzen, 1991). TRA posits that the more favourable or positive the attitude towards a behaviour, the stronger will be the intention to perform the behaviour. This positive relationship was validated in studies linking attitude to intention (see Cheah et al., 2020; Liu et al., 2020; Satsios & Hadjidakis, 2018; Zhang et al., 2018; Seow et al., 2017; Shim et al., 2012). However, Eksail and Afari (2020) in their study on trainee teachers' intention to use technology found no significant relationship between attitude and intention. Subjective norm refers to perceived social pressure to perform or not to

perform a behaviour (Ajzen, 1991). A positive association is also expected between subjective norm and intention, and studies have supported this positive relationship (see Yaseen & El Qirem, 2018; Zhang et al. 2018; Satsios & Hadjidakis, 2018; Seow et al., 2017; Shim et al., 2012; Croy et al., 2010a; Ajzen & Driver, 1992). However, there are studies that found subjective norm do not predict behaviour intention (see Eksail & Afari, 2020; Liu et al., 2020; Singh & Srivastava, 2018; Magendans et al., 2017). Magendans et al. (2017) offered two potential explanations as to why their study found that subjective saving norms did not predict saving intention. First, their sample was overrepresented by highly educated participants, and they are perceived as less likely to consult their social environment about financial matters. This could have lessened the impact of social norms. Second, since students comprised 50% of respondents and with only 40% of respondents employed, it was concluded that majority of their participants have little control over saving money, thus reducing the impact of social norms.

TRA did not consider individuals' volitional control over the behaviour. Volitional control refers to the extent to which individuals can decide whether to perform or not to perform a behaviour. TPB added another construct to the TRA, and this construct is perceived behavioural control over performance of the behaviour, that is, people's perception of the ease or difficulty in performing a behaviour. Perceived control over performance of the behaviour account for factors outside individual control that could affect intentions and behaviours (Montaño & Kasprzyk, 2008). Hence, according to Ajzen (1991), in TPB, performance of behaviour depends on both motivation (intention) and ability (behavioural control), this was validated in Shim et al. (2012). Perceived behavioural control is a substitute for a measure of actual control over the behaviour. By adding perceived behavioural control as another direct determinant of behavioural intention, TPB provides greater predictive power than the TRA (Ajzen & Driver, 1992;

Ajzen, 1991) but subject to accuracy of perceived behavioural control. Perceived behavioural control can also be used directly (in addition to behavioural intention) to predict performance of behaviour. The relationships between attitude toward the behaviour, subjective norm, perceived behavioural control and, intention leading to performance of behaviour is presented in Figure 2.2.

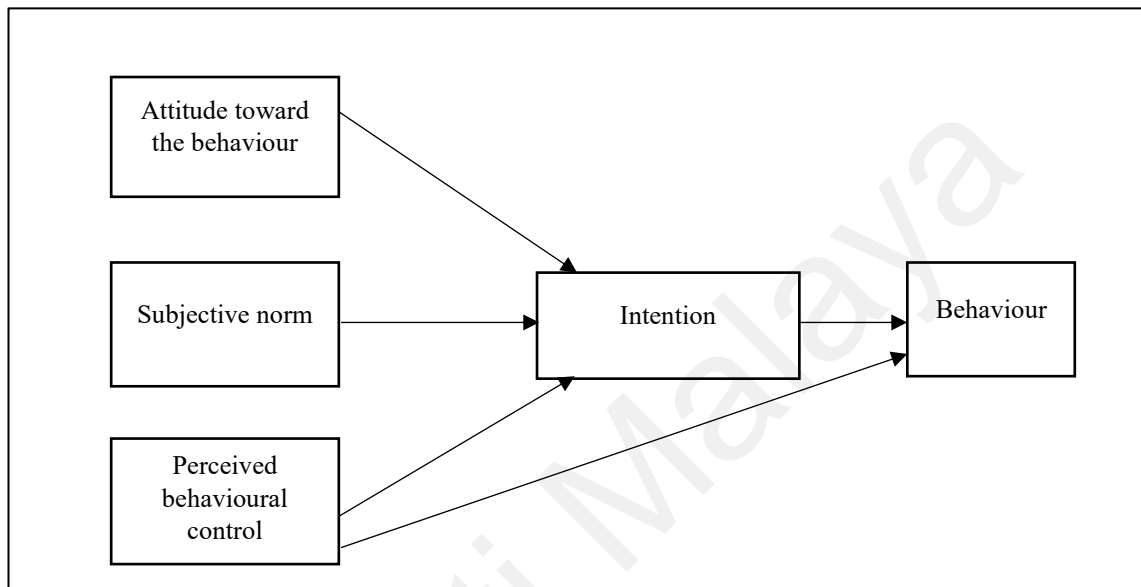


Figure 2.2: Theory of planned behaviour (Ajzen, 1991)

The general rule outlined in Ajzen (1991) is that intention to perform a behaviour is stronger the more favourable the attitude and subjective norm with respect to the behaviour, and the greater the perceived behavioural control with respect to the behaviour. However, the relative importance of attitude, subjective norm, and perceived behavioural control should vary for different behaviour domain and populations (Montaño & Kasprzyk, 2008). In the studies on saving behaviour, subjective norm was found to be the strongest predictor of intention than attitude and perceived behavioural control (see Satsios & Hadjidakis, 2018; Croy et al., 2010a). However, a study on financial behaviours (Shim et al., 2012) found attitude to be the most important predictor of intention, followed by parental norms and perceived behavioural control. In another study on saving (Radduan Yusof et al., 2018), perceived behavioural control was found

to be the strongest predictor, followed by attitude and subjective norms. In other studies, such as young consumers' purchasing intention of Green Housing in China (Zhang et al., 2018) and intention to visit Malaysia for medical tourism (Seow et al., 2017), attitude and subjective norm were found to be significantly associated with intention, but not perceived behavioural control. In another study (Xiao & Wu, 2008) on debt management plan completion behaviour, subjective norm showed no effect on the behavioural intention but attitude toward the behaviour and perceived behavioural control) had positive effects on the behavioural intention.

The goal of TPB (and TRA) is not limited to predicting human behaviour but also to explain human behaviour. Hence, TPB also dealt with the antecedents of attitudes, subjective norms, and perceived behavioural control. TPB postulates that behaviour is a function of salient beliefs relevant to the behaviour (Ajzen, 1991). There are three kinds of salient beliefs; these are behavioural beliefs, normative beliefs, and control beliefs.

Behavioural beliefs are beliefs about a behaviour's likely consequences and are assumed to influence attitudes toward a behaviour. If there exist strong beliefs that a behaviour will result in positively valued outcomes, a person will thus have positive attitude toward the behaviour. Conversely, if there exist strong beliefs a behaviour will have negatively valued outcomes, a person's attitude too will be negative.

Normative beliefs are beliefs about the expectations and behaviours of others and are assumed to determine subjective norms (Ajzen, 1991). Normative beliefs are concerned with the likelihood that important referent individuals or groups approve or disapprove of performing a given behaviour (Ajzen, 1991), weighted by his or her motivation to comply with those referents (Montaño & Kasprzyk, 2008). Thus, a person whose

referents think that a specific behaviour should be performed, and the person is also motivated to meet the expectations of those referents, will have a positive subjective norm. On the other hand, if the referents view that a behaviour is not to be performed, there will be negative subjective norm. However, if a person is less motivated to comply with those referents who think that a behaviour should not be performed will have a relatively neutral subjective norm (Montaño & Kasprzyk, 2008).

Finally, control beliefs provide the basis for perceptions of behavioural control (Ajzen, 1991) which is influenced by the absence or presence of barriers and facilitators to behavioural performance, weighted by the perceived power of each control factor to facilitate or inhibit the behaviour (Montaño & Kasprzyk, 2008). Past experiences with a behaviour may influence control beliefs, but control beliefs will also be influenced by second-hand information from acquaintances and friends based on their experiences performing the behaviour (Ajzen, 1991). Control beliefs are also influenced by factors, such as resources and opportunities, that affect the perceived difficulty of performing a behaviour. If individuals believe that they possess the resources and opportunities, and they anticipate fewer obstacles or impediments, their perceived control over their behaviour should be greater (Ajzen, 1991).

Other factors, and these include personality traits and demographic characteristics, do not independently explain performance of a behaviour; these factors are considered background factors in the TPB and assumed to influence intentions and behaviour indirectly through the model constructs (Ajzen, 2020; Montaño & Kasprzyk, 2008). For instance, household income could mediate the positive relationships between attitude and PBC with energy-saving intention (Liu et al., 2020), age significantly moderates the relationship between subjective norm and intention to use e-banking services (Yaseen &

El Qirem, 2018), and perceived saving barriers mediated the relationship between saving intention and self-reported saving behaviour (Magendans et al., 2017).

2.4 Integrated Behavioural Model (IBM)

Ajzen (1991) encouraged the inclusion of additional predictors that could further increase explained variance in intention or behaviour after the theory's current variables were accounted. An integrated framework to expand TRA and TPB with the inclusion of constructs from other major behavioural theories was proposed by Fishbein et al. (1992). The major behavioural theories are health belief model, social cognitive theory, theory of self-regulation and self-control, and theory of subjective culture and interpersonal relations. All these theories have been utilised in studies of human behaviour but were said to have similar or complementary constructs (Montaño & Kasprzyk, 2008). Table 2.2 summarises the main factors of these theories.

Table 2.2: Other major theories of behaviour and behaviour change

| Theories of behaviour and behaviour change | Major factors |
|--|---|
| Social Cognitive Theory (Albert Bandura) | Beliefs of self-efficacy - individuals must believe in their capability to perform a behaviour under different circumstances Outcome expectancies - expected positive outcomes of performing the behaviour must outweigh expected negative outcomes |
| Health Belief Model (Marshall Becker) | Individuals must feel personally threatened (by a disease) Believe the benefits of taking a preventive action outweigh the perceived barriers to (and/or costs of) preventive action |
| Theory of self-regulation and self-control (Frederick Kanfer) | Identified goal setting (or intentions), self-efficacy, outcome expectancies, skills, and affective states (e.g., mood and emotion) as important determinants of behaviour |
| Theory of subjective culture and interpersonal relations (Harry Triandis) | The likelihood of performing a given behaviour is determined by intentions, habits, and facilitating factors Intentions are, in turn, viewed as a function of perceived consequences of performing a behaviour (i.e., outcome expectancies), social influences (including norms, roles and the self-concept), and emotions |

Source: Fishbein et al. (1992)

Montaño and Kasprzyk (2008) eventually proposed Integrated Behavioural Model (IBM) as an extension of the TRA and TPB.

In the IBM, as in TRA/TPB, the most important determinant of behaviour is intention to perform the behaviour (Montaño & Kasprzyk, 2008). A higher saving intention predicts behaviour as the case in saving behaviour (Magendans, et al., 2017). In addition, four other components are *deemed* to directly affect behaviour. First, knowledge and skills to carry out the behaviour. Second, to encourage performance, environmental constraints should be minimised or eliminated. Magendans et al. (2017), however, found that a type of constraint - perceived saving barriers - did not directly affect saving behaviour, but mediated the relationship between saving intention and saving behaviour. Third is the salience of behaviour, referring to the importance of the behaviour. Greater salience increases the likelihood of a behaviour being performed. Finally, if the behaviour has become habitual, subsequent performance of the behaviour becomes more likely and this diminishes the importance of intention in determining behavioural performance. For performance of regular saving, habit matters (Loibl et al., 2011) but saving habit was found to be indirectly related to saving behaviour through intention (Allom et al., 2018). The IBM in its general form is presented in Figure 2.3.

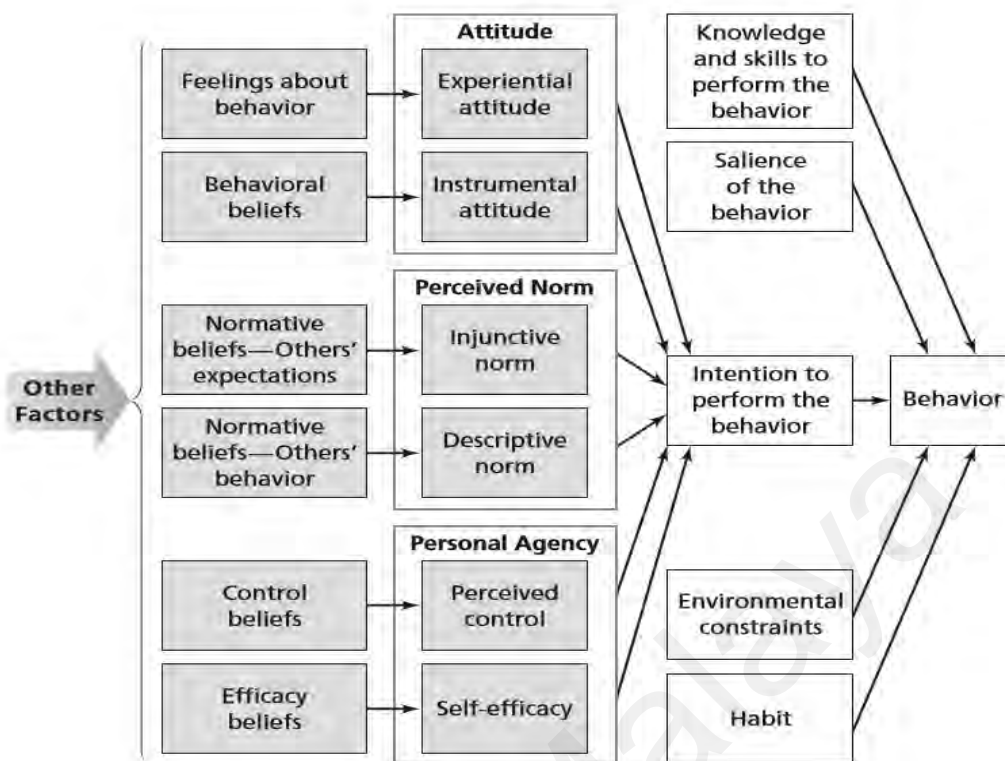


Figure 2.3: Integrated Behavioural Model (Montaño & Kasprzyk, 2008, p.70)

There are six constructs that directly influence intention to perform a behaviour. The first construct that influences behavioural intention is *attitude* toward the behaviour which describes whether the attitude is favourable or unfavourable towards performing the behaviour. Attitude itself is composed of *experiential attitude* and *instrumental attitude*. Experiential attitude (or affect) is an individual's emotional response = such as happy or not happy - to the idea of performing a recommended behaviour. Instrumental attitude is determined by beliefs about outcomes of behavioural performance, whether they believe the behaviour to be advantageous or not advantageous.

The second construct is *perceived norm* which reflects the social pressure one feels to perform or not perform the behaviour. Perceived norm can be in the form of *injunctive norm*, which is normative beliefs about what others relevant or important to a person- e.g., friends, family, and co-workers - think the person should do (Wiener & Doescher,

2008), and thus provide motivation for the person to comply. This injunctive norm is the subjective norm in TPB. One construct missing from TPB that the IBM addresses is *descriptive norm*. Descriptive norm refers to perceptions about what others in one's social or personal networks are doing. Social pressure alone does not make the performance of a behaviour likely, what others around them are doing might influence behaviour. Individual preferences influenced by what others in his or her social circle is doing could be stronger, due to "the belief that one should imitate the behaviour of others" (Wiener & Doescher, 2008, p.148). Social norms are thus powerful nudges because people tend follow the behaviour of others around them (Raue et al., 2020), and induce behavioural changes, such as motivate people to start saving for retirement or increase their current savings (Raue et al., 2020) and increase their health investments (Dupas & Robinson, 2013). Such social pressure could be effective for individuals who perceived their performance (compared to their peers) as being average or below average (Raue et al., 2020) and for individuals who have high time preference or present biased (Dupas & Robinson, 2013).

Finally, *personal agency* which also consists of two constructs; these are *self-efficacy* and *perceived control*. Perceived control is one's perceived amount of control over behavioural performance, determined by one's perception of the degree to which various environmental factors make it easy versus difficult to carry out the behaviour. Perceived control is high when environmental factors have little or no influence on behaviour. Vice-versa, perceived control is low when environmental factors have significant influence on behaviour. Self-efficacy, on the other hand, is a psychological level influence (Tang et al., 2015), referring to an individual's degree of confidence, self-assuredness and 'self-belief' in own ability to perform a behaviour in various situations, and when faced with obstacles or challenges (Farrell et al., 2016; Tang et al., 2015). The concept of perceived

self-efficacy is most compatible and similar with the concept of perceived behavioural control in TPB; if a person feels he is in control, the performance of a behaviour becomes more likely. Having self-efficacy thus ensures that the performance of the behaviour is sustained. Self-efficacy is an important construct for saving behaviour, as this behaviour is not a one-off behaviour but a long-term behaviour until retirement. Perceived behavioural control (perceived financial self-efficacy) was found to be an important predictor of both behavioural intention and actual financial behaviour (Tang, 2021; Reyers, 2019; Magendans et al., 2017; Shim et al., 2012).

An investigation of prior studies applying the IBM revealed that adaptations were made to the direct predictors of behaviour. For example, *parental environment* used instead of *environmental constraints* (Branscum & Bhochhibhoya, 2016), and both *salience of the behaviour* and *habit* removed (Gutema et al., 2018). This study identified two important direct predictors of saving behaviour: financial literacy and a behavioural bias termed time preference. The following sections explain the significance of financial literacy and time preference on saving behaviour.

2.5 Financial literacy

2.5.1 Definition of financial literacy

Studies on financial literacy have used the terms financial knowledge and financial literacy interchangeably (e.g., Bannier & Schwarz, 2018; Bannier & Neubert, 2016). Although financial literacy has been termed as a proxy of financial knowledge (Raut, 2020), financial knowledge is not synonymous to financial literacy. This is because financial literacy reflects not just knowledge, but also use of the knowledge reflected in financial attitudes and financial behaviour (Mahdavi & Horton, 2014; Atkinson & Messy, 2012; Huston, 2010) - financial knowledge is thus considered a subset of financial

literacy. An individual's ability to apply financial knowledge, reflecting in the performance of desirable financial behaviours - and take available financial opportunities - to achieve financial well-being is termed as financial capability (Xiao et al., 2022).

In terms of a standard definition of the concept of financial literacy, none seems to exist (Potrich et al., 2018; Schmeiser & Selligman, 2013; Remund, 2010) as there is still no consensus on the definition, but the term has generally been used not only to describe knowledge and understanding of financial concepts but also the skills, confidence and motivation to apply the knowledge in making financial decisions (Lusardi, 2019; Remund, 2010). A definition of financial literacy that holds true across countries and conveys why financial literacy is a necessary skill to achieve financial wellbeing is the OECD/INFE definition (French & McKillop, 2016; Lusardi, 2015). OECD (2015) defines financial literacy as “a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing” (p.5). This financial literacy definition is multidimensional as it does not only refer to knowledge and understanding of financial concepts or limiting to a specific behaviour such as saving or debt behaviour, but also skills, attitudes, sound financial decision making and behaviour, which would then improve financial well-being (Morgan & Long, 2020; Lusardi, 2019; Drever et al., 2015; Lusardi, 2015).

Dissecting further the above OECD (2015) definition on the requirement for skill, firstly, financial literacy requires cognitive ability (Muñoz-Murillo et al., 2020; French & McKillop, 2016; Farrell et al., 2016); individuals with higher cognitive abilities are more financially literate. Of various dimensions of cognitive ability, mathematical skills appear to be the most important for financial decision making (Agarwal & Mazumder, 2010). As proficiency in mathematics may be beneficial for understanding financial

concepts (Lusardi & Oggero, 2017), deficiencies in mathematics, arithmetic or numeracy skills impacts financial literacy (Huston, 2010) and cause failure to calculate future retirement needs (Von Gaudecker, 2015). On the other hand, consumers with higher mathematics scores are substantially less likely to make financial mistakes later in life (Agarwal & Mazumder, 2010). Whether having studied Economics influence financial literacy, there seems to be ambiguity. Those who have high confidence in their Economics knowledge are more likely to calculate how much they need to save for retirement purposes (van Rooij et al., 2012), but this does not imply that having had Economics in school significantly influence financial literacy (Grohmann et al., 2015). However, having studied Economics in school, and better education at school, can be linked to better numeracy, which in turn improves financial literacy (Grohmann et al., 2015). Numeracy is thus a basic skill supporting financial literacy (Grohmann et al., 2015) and a necessary component of financial literacy (Lusardi, 2015).

In addition to numeracy, a type of behavioural skill - money management skills - is another key component of financial literacy (French & McKillop, 2016), with money management skills found to have a significant relationship with the ratio of debt to income. To have money management skills, financial information seeking behaviour and confidence to effectively manage money are required, both could be attributed to financial socialisation by parents (Sharif & Naghavi, 2020; Grohmann et al., 2015).

2.5.2 Financial literacy levels

Research on financial literacy has found that financial literacy levels are generally low across the world (García & Vila, 2020; OECD, 2020; Lusardi, 2019; Potrich et al., 2018; Anderson et al., 2017; Lusardi, 2015; Lusardi & Mitchell, 2014), even among chief financial officers, chief executive officers, and chief operating officers (Anderson et al.,

2017). Low level of financial literacy was also evident in advanced economies with well-developed financial markets, suggesting that higher national income levels might not produce a more financially literate population (Lusardi, 2019). Young people between the ages of 18 and 29 as well as older people above 60 appear to have lower levels of financial literacy and less prudent financial behaviour, while middle-aged people (aged 30 to 59) were found to have significantly higher financial literacy (OECD, 2020). Income, education, and ethnicity too seems to be associated with financial literacy (Grohmann et al., 2021; Yong et al., 2018).

Findings also suggest that financial literacy is a male-dominated field, with women commonly being more financially illiterate than men (Razen et al., 2020; Bannier & Schwarz, 2018; Potrich et al., 2018; Murendo & Mutsonziwa, 2017; Atkinson & Messy, 2012)). This gender gap in financial literacy is independent of age, education levels, labour force participation and income levels (Lusardi, 2019; Bucher-Koenen et al., 2017), and seems to be more pronounced in more advanced economies (Cupák et al., 2018). Consistent with the male-centric perception, financial literacy scores are positively associated with the educational level of the household's father (Razen et al., 2020). However, there is also evidence of no gender gap in financial literacy based on a sample of 530 middle-class people in Bangkok (Grohmann et al., 2021). Similarly, gender does not explain financial literacy after controlling for cognitive abilities (Muñoz-Murillo et al., 2020).

Among women, financial literacy was found to be low (Bucher-Koenen et al., 2017; Murendo & Mutsonziwa, 2017; Mahdavi & Horton, 2014), even among younger women in the 20s age cohort (Mahdavi & Horton, 2014). Financial illiteracy was found to be severe among single women with lower levels of education and low personal and

household incomes, and widows (Potrich et al., 2018; Bucher-Koenen et al., 2017). Women were found to doubt their own financial acumen and (compared to men) have a higher anxiety about the prospect of encountering complicated financial words (Robertson-Rose, 2019; Gerrans & Hershey, 2017). In addition, women have lower scores in financial knowledge, financial behaviour, and financial well-being (OECD, 2020; Sharif et al., 2020; Cupák et al., 2018; Bucher-Koenen et al., 2017; Tang et al., 2015; Atkinson & Messy, 2012), have a lower probability of having positive savings (Nurul Shahnaz Mahdzan & Tabiani, 2013), and less likely to consult professional financial advisers (Bucher-Koenen et al., 2017). However, in some countries, women have higher behaviour scores (such as in Poland and Russia) and attitude scores (Georgia, Korea, Portugal, Russia, and Thailand) (OECD, 2020). For both men and women, financial literacy rises as education level rises, with a more exponential increase for women than for men (Bannier & Schwarz, 2018). This suggests that programmes specially targeted to females are perhaps needed, to develop financial skills (Sharif & Naghavi, 2020; Razen et al, 2020, Tang et al., 2015). Similarly, parental influence improves women's financial behaviour more than men (Tang et al., 2015).

Financial literacy also appears to differ substantially between the major advanced and emerging economies in the world (Lusardi & Oggero, 2017). In major advanced economies, financial literacy displays an inverse U-shaped profile; financial literacy initially increases with age, reaches a peak between the ages of 36 to 50 but declines later in life (Lusardi & Oggero, 2017), but in emerging economies, individuals aged 15 to 35 have the highest financial literacy. In addition, those residing in rural areas were found to exhibit lower financial literacy compared with individuals residing in urban areas (Murendo & Mutsonziwa, 2017).

2.5.3 Financial literacy and financial outcomes

Financial literacy was found to be positively linked to retirement planning (Anderson et al., 2017; van Rooij, Lusardi, & Alessie, 2012), with decision to save (Baidoo et al., 2018; Murendo & Mutsonziwa, 2017), with household precautionary savings (Anderson et al., 2017), with total household savings (Gerhard et al., 2018), likelihood to hold emergency funds (Babiarz & Robb, 2014), stock market participation (Grohmann et al., 2015; van Rooij et al., 2011), financial wealth (Bannier & Schwarz, 2018), portfolio and asset diversification (Von Gaudecker, 2015; Grohmann et al., 2015), consumer financial behaviours (Shih & Ke, 2014), individuals' credit card repayment patterns (Fazelina Sahul Hamid & Loke, 2021), saving behaviour (Murendo & Mutsonziwa, 2017), and, selection of saving instrument such as fixed deposits and bank accounts (Lusardi & Oggero, 2017; Grohmann et al., 2015).

Prior studies were inconclusive as to the relationship between financial literacy and financial behaviour. Studies (García & Vila, 2020; Tang et al., 2015) have found a weak relationship between financial literacy and responsible financial behaviours, in areas of cash flow management, credit management, and saving. In another study, financial literacy was found to have no influence on financial behaviour (Sharif et al., 2020). Other studies found that financial literacy has a positive relationship with financial behaviour (Razen et al., 2020; Murendo & Mutsonziwa, 2017; Allgood & Walstad, 2016; Shih & Ke, 2014; Babiarz & Robb, 2014), even to the existence of causal effects of financial knowledge on financial behaviour (Fessler et al., 2020). Financial literacy appears to positively influence financial behaviours across five financial topics: credit cards, investments, loans, insurance, and financial advice (Allgood & Walstad, 2016).

As for saving behaviour, findings are also contradictory. On one hand, it appears that financial literacy and awareness of the importance of saving are not enough for individuals to start saving (García & Vila, 2020) nor significantly increase saving (Abebe et al., 2018), but on the other hand, financial literacy was found to have a significant positive impact on individual saving (Murendo & Mutsonziwa, 2017; Nurul Shahnaz Mahdzan & Tabiani, 2013). Similarly, on the link between financial literacy and retirement planning, Tan and Kuppusamy Singaravelloo (2020) found that financial literacy does not correlate with retirement planning but other studies (Anderson et al., 2017; van Rooij et al., 2012) found a positive link between financial literacy and retirement planning.

Although financial literacy positively correlates with the availability of emergency and precautionary savings (Anderson et al., 2017; Babiarz & Robb, 2014; Huston, 2010), the correlations between financial literacy and availability of emergency and precautionary savings, and retirement planning are not driven by actual, objective literacy, i.e., relating to what an individual really knows, rather it is driven by perceived (subjective) literacy, relating to what an individual believes he knows (Anderson et al., 2017). An individual's self-perceived financial literacy can be linked with the individual's self-esteem (Tang & Baker, 2016). Both changes in self-perception about financial literacy and objective financial knowledge may cause changes in financial behaviour – these changes are not solely via enhanced objective financial knowledge (Kramer, 2016; Tang & Baker, 2016). In addition, basic and advanced financial literacy have separate and distinct effects (Almenberg & Dreber, 2015). Basic financial literacy relating to numeracy skills correlates with stock market participation, whereas advanced financial literacy relating to familiarity to financial products and concepts, positively correlates with risk taking.

2.6 Time preference (hyperbolic discounting)

Time preference is a type of behavioural bias where there exists a tendency to choose a smaller-sooner reward rather than a larger-later reward, that is, focuses on the near-term rewards rather than future rewards. The basis of time preference is that individuals face intertemporal choice of whether to prioritise present consumption or to prioritise future consumption. Time preference is measured from the opposite perspective. If there is a preference for present consumption, this is referred as having high time preference or present biased. Vice-versa, there could be a preference to maximise returns and utility in the future, this is referred to as having low time preference or future biased. Hence, time preference is inversely proportional to saving rate, the higher the time preference, the lower the saving rate, vice-versa.

Time preference differs from one person to another (Shavit et al., 2014), and whether a person has high or low time preference depends on many factors. One of the factors is patience (Shavit et al., 2014), which Kuhnen and Melzer (2018) used to quantify time preferences. Patience is positively associated with perception of ability to resist temptations and delay gratification (Razen et al., 2020). Willingness to delay gratification is linked to significantly higher credit scores (Meier & Sprenger, 2012) and lower likelihood to default on debt (Kuhnen & Melzer, 2018). Patient people are not impulsive nor act without thinking (Kuhnen & Melzer, 2018). They are individualistic, independent, and they make plans for their future (Wang et al., 2016). Patience was also found to be positively associated with financial literacy (Razen et al., 2020), and with cognitive ability (Agarwal & Mazumder, 2010). However, with advancing age and approaching retirement, future oriented attitudes were found to be more directly associated with saving regardless of level of financial knowledge (Rolison et al, 2017). Time preferences also seem to evolve based on a field experiment involving children aged

between 3 years to 12 years which found that older children display more patience than younger children (Andreoni et al, 2019).

Another factor that influences time preference is individuals' philosophy of consumerism which promotes the attitude of 'living for the moment' (Rószkiewicz, 2014) causing them to be present-biased. Having high time preference is also related to risk as future events are perceived as more risky than current events (Shavit et al., 2014). The consequences of this high time preference include the tendency to put off the start of a savings plan (Duckworth & Weir, 2016; Dupas & Robinson, 2013), and more loans taken but lower savings in pension funds (Shavit et al., 2014). Although present biased people may realise the need to commit money to savings, to do this requires self-control (Dupas & Robinson, 2013). Wärneryd (1999) attributed individual's time preference to 'time horizon' which is connected to life expectancy where people who do not expect to live long, need not be thrifty and save money. A longer life expectancy seems to be associated with wealth (Wärneryd, 1999) and happiness (Güven, 2012), these encourage saving. People who are happier were found to take more time for making decisions, have more self-control and more concerned about the future than the present (Güven 2012). Poor health, however, discourages saving (Fisher & Montalto, 2010). From another perspective, individuals seem to have their own time preference which is partly genetic (Cronqvist & Siegel, 2015), this finding was corroborated in Brown and van der Pol (2015) which found a highly significant relationship between time preference of mothers and their children aged between 16 and 25 years old. Hofstede's cultural dimensions of Uncertainty Avoidance and Long-term Orientation have also been linked to time preference (Ye et al. 2021; Wang et al., 2016; Hardisty & Pfeffer, 2016); these are cultural indices most directly and closely related to saving rate. Hardisty and Pfeffer (2016) results suggest that perceptions of future uncertainty may lead people to choose

immediate, certain rewards and vice-versa, if the present is uncertain, future rewards are preferred.

Proxies for time preference have been used, these include financial planning horizon (Brown & van der Pol, 2015) and having ever smoked or having ever been a heavy drinker (Kuhnen & Melzer, 2018). However, to measure individual time preference accurately is through the willingness of individuals to sacrifice current utility for future utility with the objective to maximise lifetime utility (Finke & Huston, 2013). Individuals who save today consume less, causing their current utility to decline. Over time, the savings grow, increasing the amount of goods the individuals can consume and in turn, their future utility. This willingness to transfer consumption in early periods to later periods is determined by the discount rate attached to future utility level as theorised by Samuelson (1937) in his Discounted Utility (DU) Model. The DU Model assumes that a person's time preference can be captured by a discount rate; the discount rate is the rate of time preference. For example, if a person chooses 100 units of a product today instead of 110 units of the same product a year from today, this choice merely implies a discount rate of 10 percent per year. The utility of 110 products at the end of the year is the same as getting 100 units now; the future utility has been discounted by 10 percent. According to Finke and Huston (2013), the degree to which future utility is discounted depends on three factors. First, an individual's impatience, where lower discount rates reflect greater patience. The second factor is uncertainty, where those who exhibit high levels of Uncertainty Avoidance has stronger hyperbolic discounting, where a higher discount rate is used over a shorter time period and a lower discount rate over a longer time period (Wang et al., 2016). Wang et al. (2016) large-scale international survey conducted in 53 countries, found that in all countries the immediate future is discounted more than far future. This means all countries exhibit hyperbolic discounting patterns, where discount

rate in the short-term is high but declines for longer time periods. The third factor is their sense of a finite lifespan where those who expect to live long, have lower discount rates.

Financial decisions which might seem suboptimal, cannot be easily categorised as bad decisions if time preferences of individuals are taken into consideration (Frydman & Camerer, 2016). Lower savings, for instance, can be attributed to individual preference and according to Finke and Huston (2013, p.32), “a low rate of savings is a choice and not a mistake”. Time preferences may also be explained by genetic variation. This is because variables associated with time preference, such as income growth, smoking, and obesity, were also found to be correlated with saving behaviour (Cronqvist & Siegel, 2015). Nevertheless, myopic behaviour (high time preference or present-biased) can be detrimental as it prevents individuals from visualising future financial needs. For individuals with self-control problems (contributing to myopic behaviour), reminders to save might not have impact (Karlan et al., 2016), thus imposing individuals who have the tendency to put off their saving plans with some form of saving might be necessary (Dupas & Robinson, 2013; Sahi et al., 2013).

2.7 Gaps in the literature

Based on the review of literature on saving and saving behaviour, the following gaps in the literature are observed, in which this study aims to address.

2.7.1 Lack of generalisability in the relevance of TPB constructs

The lack of generalisability on the relevance of TPB constructs (Attitude, Subjective Norm, and Perceived Behavioural Control) when relating to saving intention points to a possibility that the cause of this could be the categorisation of the constructs. Although Ajzen (1991) referred to attitude toward a behaviour as the extent a person has a

favourable or unfavourable evaluation of this behaviour, Ajzen and Driver (1992) support the distinction between affective and instrumental components of attitude. The effect of experiential attitude (e.g., saving is a pleasant behaviour) could be vastly different than the effect of instrumental attitude (e.g., saving is an important behaviour). On the same note, the effect of injunctive norm (what is commonly approved or disapproved of) could be different than descriptive norm (what is commonly done). For instance, injunctive norms exert greater influence than descriptive norms in predicting retirement savings intentions (Croy et al., 2010b). Hence, in this effort to improve prediction and understanding of saving behaviour, this study instead of analysing the effect of three predictors on intention, studies the effect of six predictors on intention, these being experiential attitude and instrumental attitude (components of attitude), injunctive norm and descriptive norm (components of perceived norm), perceived control and self-efficacy (components of personal agency).

2.7.2 Lack of financial literacy studies using experimental approaches

Studies on financial literacy has been of interest and continue to be researched. Despite vast studies done on financial literacy, there is still much to do, with further studies using experimental approaches are needed (Lusardi & Mitchell, 2014). Allgood and Walstad (2016) too in advocating for the continued research on financial literacy and its effect on behaviour, said

It is this ever-changing and costly financial environment that has stimulated major interest in financial literacy in recent decades. This growing interest has led to increased research among economists and other academics on how financial literacy affects the financial behavior of both adults and youth and their financial capabilities. (p. 675)

Based on these views by Lusardi and Mitchell (2014), and Allgood and Walstad (2016), this study incorporates financial literacy as a predictor of saving behaviour. This is also in line with the IBM framework which considers knowledge and skills to perform a behaviour as a direct determinant of the behaviour. Another avenue is to conduct an experiment to analyse the impact of a financial awareness programme. Financial education programmes have been offered in a variety of ways, and the programmes were found to positively influence financial knowledge (Gill & Bhattacharya, 2019; Yong et al., 2018; Postmus et al., 2015), and stimulate saving, both in general and for retirement (Clark et al., 2017; Bernheim & Garrett, 2003). On the other hand, there is evidence that receiving financial education did not influence financial literacy skills of students (Jerrim et al., 2022), and an intervention targeting the elderly population also found the impact on financial literacy is insignificant although the intervention had a significant effect on confidence and (partly) on overconfidence (Buccioli et al., 2021). Hence, further research on the effectiveness of financial education initiatives is still needed (Lusardi, 2019). An evaluation of the effectiveness of a financial awareness programme, by comparing a group which participated in the programme versus another group which did not, is a gap that can be addressed.

2.7.3 There are gaps in studies examining Gen Y saving behaviour especially in the emerging market context

Gen Ys are found to be highly indebted (Bolognesi et al., 2020), and display a lower level of self-control. Self-control, in turn, has been linked to time preference (Thaler & Shefrin, 1981). Gen Ys are also impulsive in their buying behaviour than other generational cohorts and seemed to want instant gratification (Rey-Ares et al., 2021; AIF, 2015). Impulsiveness has been associated with self-control (Allom et al., 2018), those with good self-control are less impulsive. In addition, Gen Ys seem to have preference

for short-term goals (AIF, 2015), possibly because young people tend to underestimate their survival or mortality (Heimer et al., 2019), and they subscribe to the motto You Only Live Once (YOLO), which is the attitude of ‘living for the moment’. Both these reasons too can be linked to time preference. Studies were done to investigate the association between time preference and saving for retirement (Finke & Huston, 2013), and time preference and saving behaviour in Korea (Choi & Han, 2017). Prior studies seem to have overlooked the effect of self-control problems on Gen Ys’ financial behaviours and attitudes (Rey-Ares et al., 2021). Anderson et al. (2017) suggested that further research be done to understand how behavioural biases affect financial decisions. One type of behavioural bias is time preference. As self-control, impulsiveness and mortality beliefs are linked to time preference, a study can be done to investigate the significance of time preference as a determinant of regular saving behaviour among Gen Ys.

Gen Ys behaviour in an emerging market has been studied, for example, online shopping behaviour (Dabija & Lung, 2019), impulse purchase behaviour (Aruna & Santhi, 2015), green purchase behaviour (Dilotsothle, 2021). However, studies on Gen Ys financial behaviour in an emerging market is limited.

2.8 Conceptual framework

This study adopts Integrated Behavioural Model to examine saving behaviour as presented in Figure 2.4.

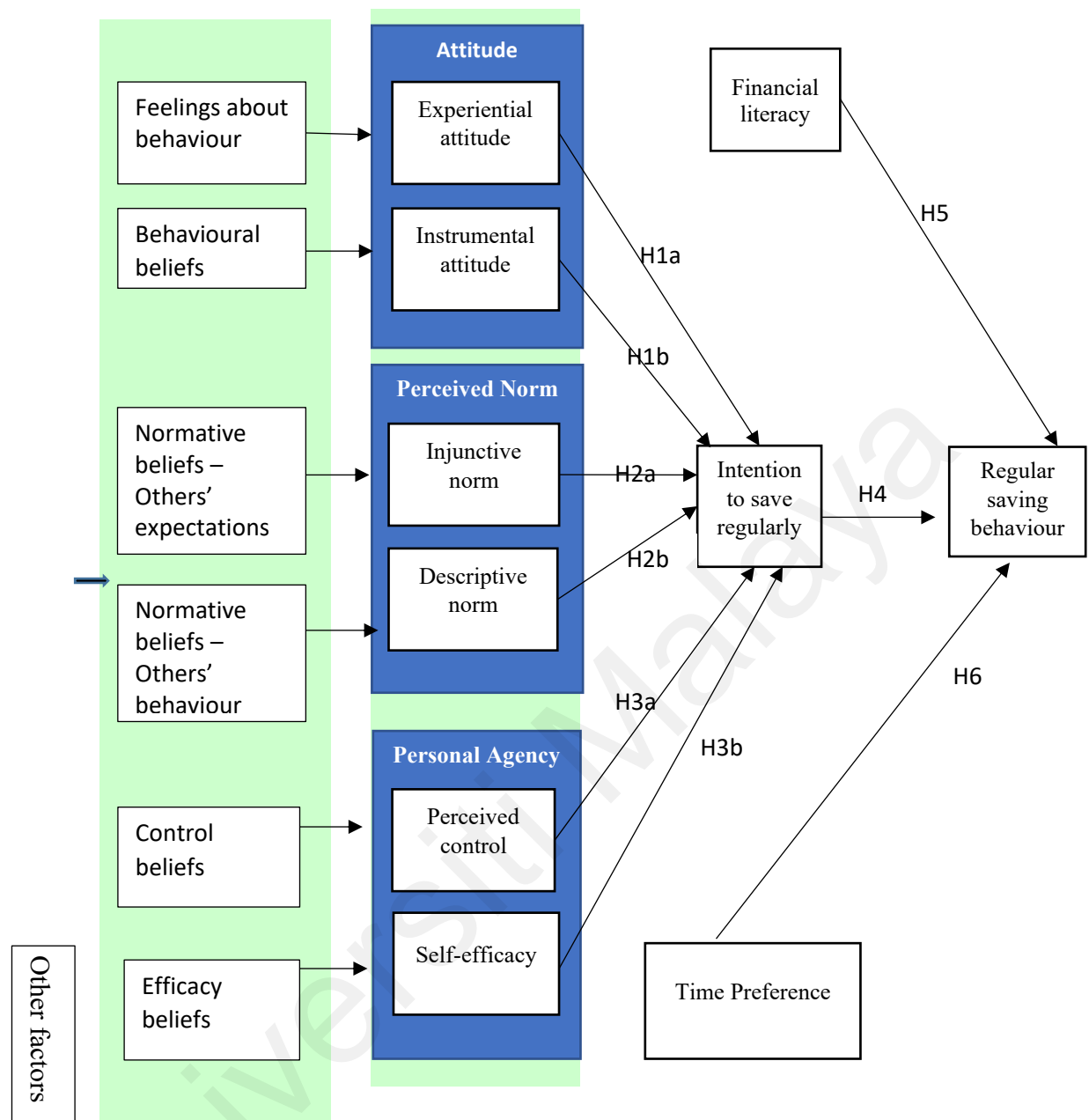


Figure 2.4: Conceptual Framework

The dependent variable is regular saving behaviour. Regular saving relates to saving actively rather than passively, where money is set aside at the end of every month (after receipt of income) - to meet unforeseen expenditures before income is spent or invested. Such savings could be in the form of monthly deposits into savings accounts, monthly savings in mutual funds, or monthly contributions to Private Retirement Scheme (PRS). In this study, saving behaviour relates to performance of regular saving during the preceding three months. According to Ajzen (1991), a measure of past behaviour can

be used to predict future behaviour if all factors that determine a given behaviour is known. If the factors remain unchanged, the behaviour also remains stable over time. He said, the dictum, “past behavior is the best predictor of future behavior” (Ajzen, 1991, p. 202) will be realised when the assumption of stable determinants is met.

As stated in TRA and TPB, Intention (intention to save regularly) is a direct predictor of behaviour (regular saving behaviour). Further, this study’s framework investigated the impact of another two independent variables – financial literacy and time preference - on saving behaviour. Other factors, and these include demographic, personality, and environmental characteristics, do not independently explain performance of a behaviour but these factors are assumed to operate through model constructs (Montaño & Kasprzyk, 2008).

2.9 Hypothesis development: survey

2.9.1 Attitude, perceived norm, and personal agency

Attitude, perceived norm, and personal agency does not directly influence saving behaviour but impacts intention to save regularly.

On the relationship between attitude and behavioural intention, Pascual-Ezama et al. (2014) found that individual investor’s attitude is positively associated with behavioural intentions. Other studies on financial behaviour (Shim et al., 2012; Croy et al., 2010a) also found attitude influences behavioural intention. Financial attitude was also found to mediate causal effect of knowledge on behaviour (Fessler et al., 2020). In this study, both experiential attitude and instrumental attitude are hypothesised to be positively associated with intention to save regularly, consistent with the propositions in the IBM.

H1a & H1b: Gen Y's (a) experiential attitude, and (b) instrumental attitude is positively related to intention to save regularly.

Studies based on the TPB found perceived subjective norms to be significantly related to the likelihood of having a savings account (Copur & Gutter, 2019) and that subjective (injunctive) saving norms forecast saving intention (Shim et al., 2012; Croy et al., 2010a). Shim et al. (2012) study involving young adults found that if a young adult perceives his or her parents' saving expectations as high, the stronger will be this young adult's intention to perform saving. However, there are studies that found subjective saving norms do not predict saving intention (Magendans et al., 2017; Pascual-Ezama et al., 2014). A possible reason suggested in Magendans et al. (2017) is its sample was over-represented by highly educated participants who could be less likely to consult others about financial matters. Further, 50% of its respondents are students who perhaps have little control over saving money. Pascual-Ezama et al. (2014) study, on the other hand, was on individual investor's subjective norms, where a possible reason why positive association was not found with behavioural intentions is that people consider financial transactions to be very private. As such, they could possibly be less influenced by norms. Finally, the norms (injunctive and descriptive) were not found to be of equal significance (Croy et al., 2010b). Croy et al. (2010b) study on retirement savings intentions found that injunctive norm exerts greater influence than descriptive norm. To conclude, there seems to be caveats on the relationships between norms and intention. The following hypotheses are thus based on the propositions in the IBM, that positive saving norms are expected to predict a stronger saving intention.

H2a & H2b: Gen Y's (a) injunctive norm, and (b) descriptive norm, is positively related to intention to save regularly.

Studies based on the TPB found that perceived behavioural control (perceived self-efficacy) influences intention and actual saving behaviour (Magendans et al., 2017; Shim et al., 2012). Studies that did not relate intention to behaviour but investigated the direct relationship between self-efficacy and behaviour found that financial/general self-efficacy have significant positive relationships with elements of personal finance behaviour such as saving behaviour (Asebedo et al., 2019; Kuhnén & Melzer, 2018; Farrell et al., 2016; Lown et al., 2015). Thus, consistent with the proposition in the IBM, this study hypothesised that both perceived control and self-efficacy are positively associated with intention to save regularly.

H3a & H3b: Gen Y's (a) perceived control, and (b) self-efficacy, is positively related to intention to save regularly.

2.9.2 Intention to save regularly

Intention indicates the effort people are willing or planning to exert in performing a behaviour (Ajzen & Driver, 1992). Intention directly affects behaviour (Xiao & Wu, 2008), and the stronger the intention, the more likely a behaviour to be carried out (Ajzen, 1991). Previous studies have shown that intention to save is an important predictor of saving behaviour (Allom et al., 2018; Magendans et al., 2017; Shim et al., 2012). Based on these findings, the hypothesis of this study is:

H4: Gen Y's intention to save regularly is positively related to regular saving behaviour.

2.9.3 Financial literacy

Broadly, studies found that financial literacy has a positive relationship with financial behaviour (Razen et al., 2020; Murendo & Mutsonziwa, 2017; Allgood & Walstad, 2016; Shih & Ke, 2014; Babiarz & Robb, 2014), even to the existence of causal effects of financial knowledge on financial behaviour (Fessler et al., 2020). However, there are

studies that found only a weak relationship between financial literacy and responsible financial behaviours (García & Vila, 2020; Tang et al., 2015). In another study (Sharif et al., 2020), financial literacy was found to have no influence on financial behaviour. Specifically, financial literacy was found to be positively linked to retirement planning (Anderson et al., 2017; van Rooij et al., 2012), with decision to save (Baidoo et al., 2018; Murendo & Mutsonziwa, 2017), with household precautionary savings (Anderson et al., 2017), with total household savings (Gerhard et al., 2018), likelihood to hold emergency funds (Babiarz & Robb, 2014), and selection of saving instrument such as fixed deposits and bank accounts (Lusardi & Oggero, 2017; Grohmann et al., 2015).

Similarly for saving behaviour, on one hand, it appears that financial literacy and awareness of the importance of saving are not enough for individuals to start saving (García & Vila, 2020) nor significantly increase saving (Abebe et al., 2018), but on the other hand, financial literacy was found to have a significant positive impact on individual saving (Murendo & Mutsonziwa, 2017; Nurul Shahnaz Mahdzan & Tabiani, 2013).

The following hypothesis is based on the proposition in the IBM that knowledge and skills to perform a behaviour is positively linked to the performance of the behaviour.

H5: There is a positive relationship between financial literacy and regular saving behaviour.

2.9.4 Time preference (hyperbolic discounting)

Time preference is measured from an opposite perspective. Those with high time preference, with the attitude of 'living for the moment', are present-biased (Rószkiewicz, 2014). They have the tendency to put off the start of a savings plan (Duckworth & Weir, 2016; Dupas & Robinson, 2013), and have more loans taken but lower savings in pension

funds (Shavit et al., 2014). It is therefore hypothesised that those with myopic behaviour do not save regularly nor actively save but instead choose to spend now. Vice-versa, those who are future biased and have low time preference save regularly. Time preference is thus inversely proportional to saving rate, the higher the time preference, the lower the saving rate, vice-versa.

H6: Individuals with low (high) time preference are more (less) likely to have regular saving behaviour.

2.10 Hypothesis development: experimental study

Multi Group Analysis was done to test whether the path coefficients of the Control Group and Treatment Group are significantly different, and the differences can be attributed to participation in a financial awareness programme. Hence, the hypotheses to be tested are:

H7a & H7b: The path coefficient of (a) experiential attitude, and (b) instrumental attitude, and intention to save regularly is different between the two Groups.

H8a & H8b: The path coefficient of (a) injunctive norm, and (b) descriptive norm, and intention to save regularly is different between the two Groups.

H9a & H9b: The path coefficient of (a) perceived control, and (b) self-efficacy, and intention to save regularly is different between the two Groups.

H10: The path coefficient of intention to save regularly and regular saving behaviour is different between the two Groups.

H11: The path coefficient of financial literacy and regular saving behaviour is different between the two Groups.

H12: The path coefficient of time preference and regular saving behaviour is different between the two Groups.

2.11 Chapter summary

This chapter emphasised on the topic of saving and saving behaviour. Many prior studies on behaviour applied the TPB. The limitation of this theory seems to be its lack of generalisability in relating the constructs of attitude, subjective norm, and perceived behavioural control to intention. The framework of this study is the IBM – which is based on the TPB - supplemented with financial literacy and time preference as direct predictors of behaviour. The hypotheses are based on the propositions in the IBM. Attitude, perceived norm, and personal agency are hypothesised to positively relate to intention to save regularly. Higher intention is then hypothesised to positively relate to regular saving behaviour. Higher financial literacy is also hypothesised to have positive relationship with regular saving behaviour. As for time preference, those who have low (high) time-preference are hypothesised to be more (less) likely to have regular saving behaviour. In the experimental phase, hypotheses test whether the path coefficients of the Control Group and Treatment Group are different after a financial awareness intervention was done.

CHAPTER 3: METHODOLOGY AND RESEARCH DESIGN

3.1 Introduction

This chapter first presents the philosophical assumption of this study. It primarily addresses two types of generalisability. The considerations in determining this study's research paradigm are specified. Both research paradigm and methodology of a study are linked. Hence, the methodologies for the three phases of this study are presented. This is followed by a detailed explanation of this study's three phases of data collection and analysis. The following section then describes the population of this study. This is followed by description of sampling techniques used in all phases of this research and considerations for appropriate sample sizes for each phase of study. Next, this study presents its ethical issues, its conceptual framework, and the hypotheses. The final section summarises the key points of this chapter.

3.2 Philosophical assumption

An expectation of behavioural research is whether the findings will be generalisable, with findings that are more generalisable viewed as more desirable than less generalisable findings (Lucas, 2003). This generalisation of research refers to external validity (Lucas, 2003). There are two types of generalisability (Lucas, 2003; Calder et al., 1981). The first is termed as effects application, where the effects obtained from a study can also be expected to be obtained from other studies done in other populations and settings. This also refers to generalising from a sample to a larger population. This means the findings will generalise beyond the parameters of a particular study. The second is termed theory application where the key component of external validity is theory. In this second type of generalisability, a theory is used, and the effects observed are used to assess the status of the theory. Hence, when testing applicability of a theory, it is the theoretical explanation that is expected to be generalisable, meaning that the theory can be

considered adequate to explain the effects (Lucas, 2003; Calder et al., 1981). The difference between effects application and theory application research is not limited to generalisability. Calder et al. (1981) added that each application also has different philosophical assumptions and different methodological implications.

The philosophical assumption of theory application is to test the theory in a specific context. Studies on saving behaviour and financial literacy have targeted specific populations. Postmus et al. (2015) for instance, when evaluating whether financial education could improve financial behaviours and financial well-being targeted domestic violence survivors. In this study, income-earning Gen Ys in Malaysia are targeted. Generational labels (such as Gen Y), however, are based on descriptions from U.S. sources (Ting et al., 2018), and might not be appropriate in another country due to differences in major external events in that country. Similarly, external events which have impacted Malaysians during their formative years are different to the events occurred in the US. Ting et al. (2018) also cautioned that generation cohorts in Malaysia are unknown, with age-ranges and birth years used as proxies. Hence, the findings of this study might not generalise beyond the parameters this study. This study is thus about theory application as opposed to effects application. In theory application, an underlying theory will be rigorously tested and if the theory survives the test, the theory is then applicable in explaining a phenomenon, which in this study is saving behaviour of Gen Ys in Malaysia. Theory application too does not imply that the findings (effects) can be generalisable, only the theory is generalisable. This should not be a limitation of this research as no single study (using the study alone) is expected to provide external validity, as external validity of a study needs to be assessed in terms of results of other studies (Lucas, 2003; McGrath & Brinberg, 1983; Calder et al., 1982). External validity might only be achieved by studies done in a community of researchers who either replicate or

add value to prior studies. The following points by McGrath and Brinberg (1983) are pertinent.

The individual researcher is obliged only to do each study as well as possible within available resources, and to present it publicly for what it is: one study, in one part of the overall research process, bearing on the stated focal problem in certain limited ways. The "field," on the other hand (the collective community of researchers interested in a particular focal problem area), must ensure that all portions of the research process get sufficient attention and exploration, so that the community of researchers can increase their confidence (reduce their uncertainty) about the focal problem findings and their meanings. (p.123)

This means to examine whether a study's model can be generalised across the board, the model needs to be tested and supported in diverse populations and in diverse replications (Shim et al, 2012; Lucas, 2003).

The above viewpoint was rebutted by Lynch (1983) whose own view is that if external validity is considered not important in theoretical research, this diminishes the role of exogenous variables that could alter the effects of theoretical variables. According to Calder et al. (1982), external factors must be minimised, controlled, or held constant when testing applicability of a theory. Only theoretical constructs, its measures and the relationships between the constructs are relevant (Calder et al., 1982). To test the applicability of a theory, a maximally homogeneous sample on non-theoretical variables – such as age, education - is ideal (Calder et al., 1981). The findings are therefore not generalisable to a heterogeneous population or "real" population which an individual researcher is not obliged to study (McGrath & Brinberg, 1983). A representative sample is thus not required (McGrath & Brinberg, 1983) as statistical generalisation of the

findings is not the goal. Nevertheless, the study should attempt to achieve statistical conclusion validity in addition to internal validity and construct validity.

The actual application of theory requires designing an intervention predicted to have some effect in the real world (Calder et al., 1981). The intervention in this study is a weekly financial awareness programme. If this intervention succeeds in strengthening the relationship between the constructs of this study, the interpretation is that there should be greater confidence that this intervention is viable in the real world.

3.3 Research paradigm and research methodologies

3.3.1 Research paradigm

Paradigm is the philosophical worldview assumptions that researchers bring to a study (Creswell, 2014). The postpositivist and positivist paradigms, and the interpretivist or constructivist paradigm are a few common types of research paradigm. A positivist paradigm is when a researcher takes an objective and detached approach on the research. Being detached means the researcher takes an outsider's view at the research. Objectivity in positivism means there is a scientific method in research and that everything can be measured using a standard research instrument, which is a questionnaire. The aim of positivists is to test a theory (Mackenzie & Knipe, 2006) while postpositivist assumes that any piece of research is influenced by not just one well-developed theory but other theories as well. In post-positivism, theories are held provisional and new understandings may challenge the whole theoretical framework. On the other hand, researchers using an interpretivist paradigm believe that objectivity is never possible. Using this interpretivist paradigm, the concern is not about measurement, but to interact with participants to know the truth about a situation. The researcher thus becomes an integral part of a research process (Marshall, 1996). Unlike positivists who test hypotheses to validate some

theories, interpretivists are in actual purpose building theory based on their interpretation of reality.

In any research, both research paradigm and methodology are linked (Mackenzie & Knipe, 2006) with positivism and post-positivism most often aligned with quantitative research methodologies. According to Creswell and Creswell (2005, p.323), a design in which the investigator has a survey, and several smaller qualitative interviews is more of a postpositivist paradigm. In addition, the choice between quantitative and qualitative research methodologies is guided by the research questions and not by a researcher's preference (Marshall, 1996). Qualitative research methodology is preferable if a researcher wants to know the 'why' and 'how' of a certain phenomenon in the real world, that is, to explore complex human issues. On the other hand, if the research questions are "what" questions, quantitative research methodologies are useful (Marshall, 1996). Quantitative research methodology requires an underlying theory to be available. Based on this underlying theory, a theoretical model is developed. This is followed by formulation of a series of hypotheses that might reflect the strength and directions of relationships between constructs. Data are collected using a standard set of questions via a questionnaire and using these data, hypotheses are tested. The key advantage of this approach is its objectivity as hypotheses are tested using data collected.

There were three considerations in determining this study's research paradigm. First, based on this study's research question, which is: *What* are the determinants of regular saving behaviour among Gen-Ys in Malaysia? Hence, this study is aligned with quantitative research methodologies. Secondly, this study's Research Framework is the Integrated Behavioural Model (IBM) which is rooted on the Theory of Planned Behaviour (TPB) supplemented with constructs by other major behavioural theories. This study thus

assumes that saving behaviour is influenced by not just one well-developed theory but other theories as well. Thirdly, in addition to survey, interviews and an experimental study were done. Based on these three considerations, the paradigm appropriate for this study is the post positivist paradigm.

3.3.2 Research methodologies

Two methodologies of research were applied in this study. The first is qualitative research methodology in Phase One; this is in line with the requirements for studies based on TPB and its extended version - the IBM – for elicitation interviews to be conducted in a target population to identify salient beliefs regarding a behaviour. In an exploratory study to understand behavior, interviews are useful to probe personal opinions, beliefs, and values of individuals (Sahi et al., 2013). The interviews are not just ‘theoretically necessary’, but an important phase as its findings impact subsequent phases (Curtis et al., 2010) especially when developing behavioural intervention policies (Balu Ramoo et al., 2018; Webb & Sheeran, 2006). Despite using a qualitative approach, the interviews in this study were done guided by the IBM with questions asked with the objective to explore the IBM constructs.

The second is quantitative research methodology in both Phase Two and Three. In Phase Two, the purpose is to evaluate the significance of each predictor variable to a criterion variable based on the hypothesised relationships in the Conceptual Framework. In Phase Three, the purpose is to evaluate whether there were significant differences in the relationships between the variables after a financial awareness intervention was administered.

3.4 Research methods

Opposed to methodology, which is linked to research paradigm, methods refer to the procedures used for collection and analysis of data (Mackenzie & Knipe, 2006). This section describes the data collection and analysis done in this study's three phases: elicitation interviews, survey, and experimental study.

3.4.1 Elicitation interviews

Questions were asked with the intention to explore the IBM constructs. The interviews first explored Gen Y's feelings about regular saving behaviour. Second, identifies the people in the interviewees' social and personal networks who expect the interviewees to save. Third, the external circumstances that made regular saving possible or not possible. Fourth, to what extent interviewees feel they would be able to continue to save regularly even if challenges were to emerge.

3.4.2 Survey

3.4.2.1 Construction of questionnaire

Once beliefs are identified, appropriate measures of the IBM constructs for this study were designed. A questionnaire was drafted, pre-tested, and pilot tested. Further changes were made to the questionnaire content and wording after pre-testing and pilot testing. Table 3.1 summarises some pertinent information in the construction of the questionnaire.

Table 3.1: Pertinent information in the construction of questionnaire

| Construct | Operational definition | Number of items | Measurement items | Source |
|-----------------------|--|-----------------|--|--|
| Experiential attitude | Emotional response to the idea of performing a behaviour | 4 | Unpleasant – pleasant Unenjoyable - enjoyable Unsatisfying - satisfying Stressful - stress free | Loibl et al. (2011) Croy et al. (2010a) Phase One Interviews |

Table 3.1 continued

| Construct | Operational definition | Number of items | Measurement items | Source |
|------------------------------|--|-----------------|--|---|
| Instrumental attitude | Beliefs about outcomes of behavioural performance | 7 | Not important – important Not necessary - necessary Bad-good Irresponsible-responsible Irrational – rational Foolish - wise Worthless-valuable | Loibl et al. (2011) Croy et al. (2010a) Phase One Interviews |
| Injunctive norm | Beliefs about what others important to a person think the person should do | 3 | Most people who are important to me, or whose opinion I value, <i>think</i> that I should save some money every month. Most people who are important to me, or whose opinion I value, <i>expect</i> me to save some money every month. Most people who are important to me, or whose opinion I value, would <i>approve</i> of me to save some money every month. | Magendans et al. (2017) Croy et al. (2010a) Loibl et al. (2011) |
| Descriptive norm | Perceptions about what others in an individual's social and personal networks are doing | 4 | Most of my family members save money every month. Most of my friends save money every month. Most people like me save money every month. Most of the people that I know save money every month | Magendans et al. (2017) |
| Perceived control | Perceived amount of control over behavioural performance, determined by influence of environmental factors | 3 | If I want to, I could save money on monthly basis. It would be very easy for me to save money on monthly basis. My decision to save money on monthly basis would be completely under my control. | Pascual-Ezama et al. (2014) |
| Self-efficacy | Degree of confidence in ability to perform a behaviour in various situations | 3 | For the next three months, I am certain I can save money on monthly basis even if (1) unexpected expenses arise (2) I face with a financial challenge (3) I face temptations to spend | Phase One Interviews |

Table 3.1 continued

| Construct | Operational definition | Number of items | Measurement items | Source |
|------------------------------------|---|-----------------|--|---|
| Intention to save regularly | Perceived likelihood of performing the behaviour | 4 | I <i>expect/intend/will try/plan</i> to save some money every month. | Croy et al. (2010a) Magendans et al. (2017). |
| Regular saving behaviour | Setting aside a predetermined amount of money every time an income is received before the income is used for spending | 4 | In the past three months, I have saved money every month. I have saved money every month for unexpected expenditures. I have saved money every month even though I do not have a saving goal. Although I have already accumulated adequate savings through past regular saving, I will save money on monthly basis in the future. | Magendans et al. (2017) |
| Financial literacy | Awareness, knowledge, skill, attitude, and behaviour necessary to make sound financial decisions | 14 | Compared to my friends, I know a lot about financial matters. My general knowledge of money matters is high. I know a lot about the different options for saving money. I know enough about money matters to feel quite confident when making a financial decision. I feel that I am very aware about money matters. In my circle of friends, I am one of the “expert” when it comes to money matters. If I compare myself to other people, I do know much about money matters. I often check what the current saving interest rates are. I always find managing money matters to be easy. I save money with an automatic monthly saving plan. I have put my savings into a long-term deposit. I would switch to another bank if I would get a higher saving interest rate. I am familiar with the Deposit Insurance System in Malaysia. I know what bank saving really is. | Magendans et al. (2017) |
| Time preference | A tendency to choose a smaller-sooner reward rather than a larger-later reward | 5 | I make future financial plans. I find it more satisfying to save money for the long term than to spend money now. I set long term financial goals and strive to achieve them. Money is to be saved first and spent second. I save money in saving plans that might only provide returns in the long run. | Lee & Veld-Merkoulova (2016) Phase One Interviews OECD (2020) |

3.4.2.2 Data analysis tool

According to Hair Jr et al. (2017), researchers initially relied on univariate and bivariate analysis to understand data and relationships, but current research directions require them to comprehend more complex relationships where application of more sophisticated multivariate data analysis methods, which simultaneously analyse multiple variables, is necessary. Multivariate data analysis techniques comprise of first generation and second-generation techniques. In addition, the techniques can be categorised as primarily exploratory and primarily confirmatory. Table 3.2 displays two types of statistical methods associated with second-generation multivariate data analysis.

Table 3.2: Second-generation statistical methods associated with multivariate data analysis

| | Primarily Exploratory | Primarily Confirmatory |
|-------------------------------------|---|---|
| Second-generation techniques | Partial least squares structural equation modelling (PLS-SEM) | Covariance-based structural equation modelling (CB-SEM) |

Source: Hair Jr et al. (2017)

These methods in second-generation techniques are referred to as structural equation modelling (SEM). SEM enables researchers to incorporate unobservable variables measured indirectly by indicator variables (Hair Jr et al. 2017). Partial Least Squares Structural Equation Modelling (PLS-SEM, also called PLS path modelling) is a second-generation primarily exploratory data analysis technique. Covariance-based Structural Equation Modelling (CB-SEM) is another second-generation technique, but it is primarily confirmatory. The choice of data analysis technique depends on research context. A primarily confirmatory method is used to confirm a priori established theory. On the other hand, a primarily exploratory method is used when there is no or only little prior knowledge on how the variables are related (Hair Jr et al. 2017) and when there are

additional independent variables with the objective to identify which independent variables are better predictors of the dependent variable.

This study's data was analysed using PLS-SEM. Based on Hair et al. (2019), these are the justifications for PLS-SEM:

- the non-requirement of any distributional assumption on the data.
- PLS-SEM method is suitable for models with many constructs, indicator variables and structural paths.
- PLS-SEM is suitable if a study is concerned with testing a theoretical framework from a prediction perspective and the goal is to identify key constructs.
- Furthermore, as this is an exploratory study to understand the effect of theoretical extensions of established theories, PLS-SEM is an appropriate method and should be used.

3.4.3 Experimental study

An experimental study was done after the completion of Phase Two study, involving a subset of respondents from Phase Two. Out of 500 useable responses, 291 respondents provided their e-mail addresses and mobile numbers, indicating that they are agreeable to participate in experimental research phase. As of 1 July 2019, 151 participants confirmed participation in Phase Three. Reasons given for non-participation include being busy, not interested and, experienced change in circumstance as they have moved overseas to work and no longer earning income in Malaysia. Three participants, however, dropped out in the first week; thus, 148 participants remained after the first week. The 148 participants were selectively assigned into two groups - Treatment Group and Control Group - of equal size (74). Members of each group were selected through matching technique, in descending order of priority based on birth cohort, gender, highest educational level,

employment status, residential area and monthly net income. The reason to have two comparable groups is to ensure that any significant changes in constructs at this experimental phase is due to the intervention and not due to external or demographic factors.

In the experimental phase, information on financial matters was communicated to members of Treatment Group. Members of Control Group was not privy to any of the communication with Treatment Group. The duration of the experimental phase was three months, from 6 July 2019 to 28 September 2019.

In addition to using two samples t-tests and basic moderation analysis, Multi Group Analysis (MGA) was used. Unlike interaction effect in basic moderation which examine the impact of a moderator on one specific model relationship, MGA examines the impact of a moderator on all model relationships that differ significantly between the groups. By testing every structural path for significant differences among path coefficients between groups (Hair Jr et al., 2017), MGA offers a more complete picture of the moderator's influence as the focus shifts from examining its impact on one specific model relationship to examining its impact on all model relationships.

3.5 Population

A population of a study is the entire group relevant for the study. In this study, the population is the Gen Ys in Malaysia. This population is, however, delimited to income-earning Gen Ys in Malaysia. Considering this delimitation, this study defines Generation Y as those born in the years 1980 to 1995. Those born after 1995 are excluded as this group might not have seriously considered the impact of saving as they are most likely still working towards attaining desired level of academic achievement or only (just)

recently started employment. Adults born between the years 1980 and 1995 (those as of 2018 are aged between 23 and 38 years old) are considered homogeneous not only because they are born during a same time period but also could have similarities in values, beliefs and lifestyles. There is no official statistics on the population size of those born between the years 1980 to 1995 and currently earning income. A nearest estimate was obtained from Population Quick Info Statistics Department of Malaysia (<http://pqi.stats.gov.my>, 2019) which stated that the population in Malaysia aged 20 to 39 as of 2018 was 11.8 million.

3.6 Sampling technique

A sample is a subset of a study's population. A sample is required when the study's population is too large, or it is simply not feasible to collect data from every member of the population. According to Hair Jr et al. (2017), a good sample should mirror the population in terms of similarities and differences, so that inferences can be made on the population from the sample.

An appropriate sampling technique, broadly categorised as probability and non-probability sampling techniques, is used to select a sample. Non-probability sampling techniques are useful for large populations (Etikan et al., 2016) when it is not possible to prepare a sampling frame, which is a complete list of all the members in a target population. Probability sampling although perceived to be better in generalising the findings to the population, in many cases this type of sampling is not appropriate nor necessary (Memon et al., 2017). The reasons include firstly, obtaining a complete sampling frame is difficult for human subjects and secondly, when the objective of research is on rigorous theory testing and not generalisation. The second reason is a key

consideration, that the selection of an appropriate sampling method depends on the aim of a study (Memon et al., 2017; Marshall, 1996).

As for this study, the aim is not on sampling generalisation but rather on theory generalisation with the objective to use the IBM, a model which has been studied rather extensively in the field of health sciences, in a different context which is in the field of financial behavior. Furthermore, a complete sampling frame of this study's target population is not available. Both these reasons make it appropriate to use non-probability sampling techniques in this study. This study used purposive sampling, snowball sampling and convenience sampling, all of these are non-probability sampling techniques. Despite this study's intention to target Gen Ys in Malaysia, it was not possible to obtain a fully representative sample which reflects the population sizes of Gen Ys in every State in Malaysia. In the absence of a sampling frame, stratified sampling cannot be done. Hence, the use of non-probability sampling techniques. The sampling techniques used in the three phases of this study are explained in Chapters Four, Five and Six respectively.

3.7 Sample size

For each phase, having a sufficient sample size is vital to obtain valid conclusions from research findings.

3.7.1 Elicitation interviews

Samples for qualitative research tend to be small (Marshall, 1996) and an appropriate sample size is achieved when data saturation is reached (i.e., when no new categories, themes or explanations emerge and when the collection of data does not add any new knowledge) (Mason, 2010). Based on a sample of 54 qualitative papers, it was found that

the most common number of interviews conducted is 11 to 15 interviews (Galvin, 2015). In this study, thirteen participants were interviewed - with data saturation reached.

3.7.2 Survey

On what should be the appropriate sample size or how large a sample should be, a comparison of studies on the topic of saving behavior and studies on the application of TPB or IBM found that sample size ranges from 272 to 1915. Magendans et al. (2017) study which used TPB to investigate financial buffer saving had a sample size of 272. Beville et al. (2014) study which applied both TPB and IBM to study college leisure time physical activity had a sample size of 621. Yong et al. (2018), whose study was based on the TPB to explain the relationship between financial knowledge, attitude, behaviour, and financial literacy, had a sample of 1915 young working adults from the Klang Valley region in Malaysia. A too small and insufficient sample size not only increases the probability of committing a Type 2 error (Kline, 2016) but also may lead to results that highly differ from those of another sample (Hair Jr et al., 2017). On the other hand, too large sample sizes can make any relationship statistically significant even when they are not, this is referred to as Type 1 error. Large samples have produced results that are “highly significant” (e.g., $p < .0001$) but trivial in effect size (Kline, 2016). As such, studying too large samples might not be necessary (Marshall, 1996). The way data is collected is more important than collecting data from as many respondents as possible just to increase sample size (Memon et al., 2020).

For quantitative research, Krejcie and Morgan (1970) published a formula and subsequently presented a table (known as Krejcie Morgan Table, KMT) on determining an appropriate sample size to represent a target population. KMT is well known among behavioural and social science researchers as a method to determine sample size (Memon

et al., 2020). KMT shows that when population increases, the required sample size increases at a diminishing rate. Based on KMT, for a population size of 75,000, the required sample size is 382 and when the population size is 1,000,000, the required sample size is 384. Further, a sample size of 384 is sufficient for populations greater than 1,000,000. Hence, a higher population size does not significantly alter the minimum sample size requirement. Sample size calculators, for example, Raosoft sample size calculator (Appendix A) provides similar value as from Krejcie and Morgan (1970) formula. Memon et al. (2017, 2020) cautioned that the use of formula to calculate sample sizes are inappropriate if there is no sampling frame as a sample must be representative of the population studied. Therefore, if probability sampling is used as sampling technique, KMT can be used. Studies that use non-probability sampling techniques should consider other options, such as power analysis, to determine sample size (Memon et al., 2020).

A rule of thumb in PLS-SEM is that the minimum sample size should be 10 times the maximum number of arrowheads pointing at a latent variable anywhere in the PLS path model (Hair Jr et al., 2017). There is no benchmark on the limit for maximum sample size. Based on this, the minimum sample size is 60 as there are 6 arrows pointing to the latent variable Intention to save regularly. However, doubts have been raised about this rule of thumb as a valid criterion for determining sample size for PLS-SEM. Memon et al. (2020) suggested that for most of the time, a sample between 160 and 300 valid observations is suitable for multivariate statistical analysis techniques such as PLS-SEM.

Power analysis is suggested as another option to determine the minimum required sample size. In doing power analysis, researchers consider the model structure (the part of the model with the largest number of predictors), the anticipated significance level, and

the expected effect sizes. Power ($1 - \beta$ error probability) is the probability of correctly rejecting a false null hypothesis, that is when the alternative hypothesis is true in the population. According to Kline (2016), power = 0.85 could be an adequate minimum but for Hair Jr et al. (2017), a power of 0.8 is adequate and commonly used in social science research. Effect size (f^2) measures the magnitude of the effect an individual independent variable has on a dependent variable. Effect sizes reported in prior studies on similar topics can be used as a benchmark (Memon et al., 2020). Alternatively, a general guideline by Cohen (1988) can be used: that 0.02, 0.15 and 0.35 be interpreted as small, medium, and large effects respectively. Finally, the significance level, α , refers to the probability of rejecting the null hypothesis. $\alpha=0.05$ is generally used.

This research used a programme known as G*Power (which is available at <http://www.gpower.hhu.de/>). Using G*Power 3.1.9.2, a minimum sample size required to achieve an adequate statistical power to explain the relationships in the model can be obtained. The results indicate that a minimum sample size of 98 is required to achieve a power of 80 per cent with a medium effect size (0.15). A screenshot is presented in Figure 3.1. Using a programme, such as G*Power, to determine sample size is just one option. The size of a sample, in addition, should be matched against the target population. The actual sample size for survey should be two or three times this minimum sample size (98). This study's sample size for survey (Phase Two) is 500, which is more than five times the minimum sample size.

The screenshot shows the G*Power 3.1.9.2 interface. The 'Test family' is set to 'F tests' and the 'Statistical test' is 'Linear multiple regression: Fixed model, R² deviation from zero'. The 'Type of power analysis' is 'A priori: Compute required sample size - given α , power, and effect size'. Under 'Input Parameters', 'Determine ==>' is selected, with 'Effect size f²' at 0.15, ' α err prob' at 0.05, 'Power (1- β err prob)' at 0.80, and 'Number of predictors' at 6. Under 'Output Parameters', the values are: 'Noncentrality parameter λ ' (14.7000000), 'Critical F' (2.1999052), 'Numerator df' (6), 'Denominator df' (91), 'Total sample size' (98), and 'Actual power' (0.8035289). A 'Calculate' button is at the bottom right.

| Input Parameters | | Output Parameters | |
|-----------------------------|------|-----------------------------------|------------|
| Determine ==> | | Noncentrality parameter λ | 14.7000000 |
| Effect size f ² | 0.15 | Critical F | 2.1999052 |
| α err prob | 0.05 | Numerator df | 6 |
| Power (1- β err prob) | 0.80 | Denominator df | 91 |
| Number of predictors | 6 | Total sample size | 98 |
| | | Actual power | 0.8035289 |

Figure 3.1: Screen of the software G*Power 3.1.9.2 with the calculation of minimum sample size for basic model

A moderation analysis, to study the moderating effect of financial literacy on the relationship between intention to save and past regular saving behaviour (using cross-sectional data), is also done in Survey phase (Phase Two). For this analysis, calculation of minimum sample size is shown in Figure 3.2.

The screenshot shows the G*Power 3.1.9.2 interface for a moderation analysis. The 'Test family' is 'F tests' and the 'Statistical test' is 'Linear multiple regression: Fixed model, R² deviation from zero'. The 'Type of power analysis' is 'A priori: Compute required sample size - given α , power, and effect size'. Under 'Input Parameters', 'Determine ==>' is selected, with 'Effect size f²' at 0.15, ' α err prob' at 0.05, 'Power (1- β err prob)' at 0.80, and 'Number of predictors' at 3. Under 'Output Parameters', the values are: 'Noncentrality parameter λ ' (11.5500000), 'Critical F' (2.7300187), 'Numerator df' (3), 'Denominator df' (73), 'Total sample size' (77), and 'Actual power' (0.8017655).

| Input Parameters | | Output Parameters | |
|-----------------------------|------|-----------------------------------|------------|
| Determine ==> | | Noncentrality parameter λ | 11.5500000 |
| Effect size f ² | 0.15 | Critical F | 2.7300187 |
| α err prob | 0.05 | Numerator df | 3 |
| Power (1- β err prob) | 0.80 | Denominator df | 73 |
| Number of predictors | 3 | Total sample size | 77 |
| | | Actual power | 0.8017655 |

Figure 3.2: Screen of the software G*Power 3.1.9.2 with the calculation of minimum sample size for model with moderation analysis

For a moderation model, the steps used in basic model remain and the only change is the number of predictors. For a moderation model, the moderator is added as an independent variable, and an interaction term which is Intention to save

regularly*Financial literacy (independent variable*moderator) is specified. Hence, in this study's moderation analysis, the number of predictors is 3: financial literacy, intention to save regularly and the interaction term. Based on Figure 3.2, a sample size of 77 is adequate to do a basic moderation analysis.

3.7.3 Experimental study

The sample for experimental study is a subset of Phase Two survey respondents. As of 1 July 2019, 151 survey respondents confirmed participation in experimental study. Three respondents, however, dropped out in the first week. Out of the remaining 148 respondents, 131 completed the questionnaire at the end of the experimental phase. This comprises of 66 participants from Control Group and 65 participants from Treatment Group. Although there were in total 66 responses received from members of Control Group, two responses were removed. One was removed as the respondent has answered 4 for all statements and the other for answering 3 (neutral) for most of the questions. Out of 65 responses received from participants in Treatment Group, two responses were removed, one for answering 4 for all questions and the other for answering 3 (neutral) for all questions. In the end, data from 64 respondents from Control Group and 63 respondents from Treatment Group was used for analysis.

In this study, Multi Group Analysis (MGA) using bootstrapping was done with 5000 subsamples, 0.1 significance level and one-tailed test. Using GPower3.1.9.2, the minimum sample size required is 62 (Figure 3.3). Hence, the sample sizes of 63 and 64 for each group in this study is adequate.

| | | | |
|--|-----------------------------|---|------------|
| Test family | | Statistical test | |
| F tests | | Linear multiple regression: Fixed model, R ² deviation from zero | |
| Type of power analysis | | | |
| A priori: Compute required sample size – given α , power, and effect size | | | |
| Input Parameters | | Output Parameters | |
| Determine => | Effect size f ² | Noncentrality parameter λ | 12.4000000 |
| | α err prob | Critical F | 1.8841093 |
| | Power (1- β err prob) | Numerator df | 6 |
| | Number of predictors | Denominator df | 55 |
| | | Total sample size | 62 |
| | | Actual power | 0.8055291 |

Figure 3.3: Sample size for MGA

3.8 Study design

This section explains how three research approaches – in the three phases as illustrated in Figure 3.4 – are connected to each other to achieve this study’s research objectives. Phase One is a formative phase to identify and explore the underlying beliefs of Gen Ys on the performance of regular saving. The information gathered at this phase contributes to preparing empirically grounded questionnaire to be administered in Phase Two. Hypotheses are tested in Phase Two. In addition, the model’s predictive power was evaluated. To identify an intervention technique, the effect sizes of the three direct predictors of behaviour in Phase Two were compared – and it was found that Financial Literacy has the smallest effect size. Financial literacy is thus used as an intervention in Phase Three – to assess whether participation in a financial awareness programme significantly affects the path coefficients in the model.

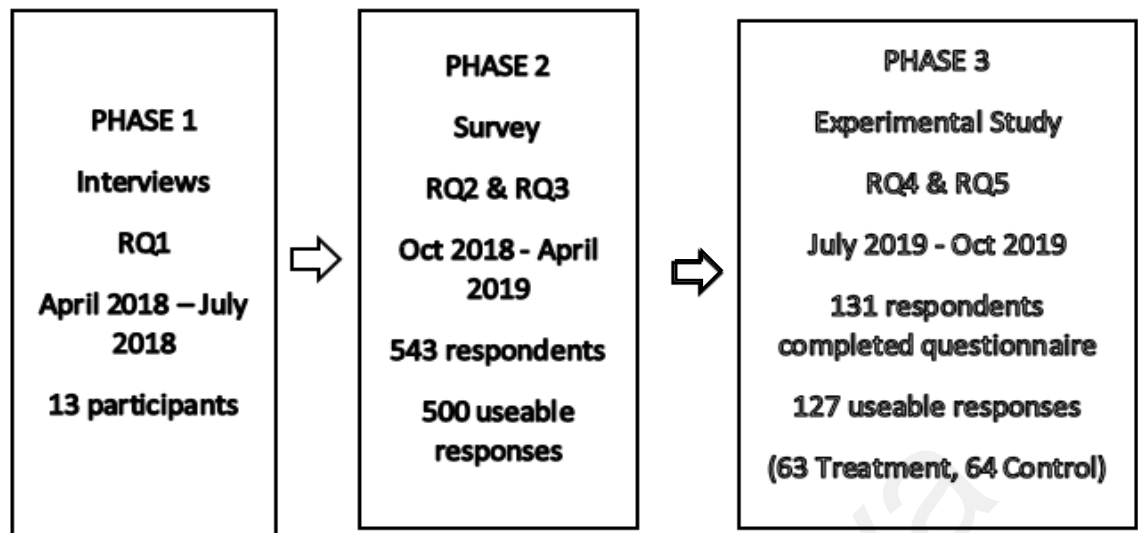


Figure 3.4: Sequential design of this study

3.9 Ethical issues

The study was approved in 2018 by the University Malaya Research Ethics Committee (UM.TNC2/UMREC – 251). An interview protocol is also required by University of Malaya's Ethics Committee when interviews are conducted to gather data.

In the conduct of interviews, written consent was obtained from participants prior to data collection by requiring participants to sign two copies of Consent Form - one for the interviewee and one for the interviewer. The researcher was the only person who conducted all the interviews. Details of the interviews are reported without disclosing the identity of the respondents.

Respondents for survey was obtained through convenience and snowball sampling. Their willingness to submit responses is an indication that their participation in this study was done voluntarily. Identity of survey respondents are generally unknown unless they have indicated willingness to participate in experimental study. In this case, they were required to state their e-mail addresses and mobile numbers. This information was used to contact for confirmation of participation in experimental study.

In experimental phase, communication was done via WhatsApp. Discussions on financial literacy matters were done once a week on Saturdays. Weekly communications are only with members of Treatment Group. There was no communication with members of Control Group during the three months, and the only communication was when they were contacted to complete a follow-up survey. Information on members of Control Group was never communicated to members of Treatment Group, vice-versa.

Members of Treatment Group was given a small token of appreciation for their participation during the three months. Some members, however, declined the token.

3.10 Chapter summary

This research is to investigate whether an Integrated Behavioural Model, with constructs from the TPB and supplemented with financial literacy and time preference, can explain Malaysia's income-earning Gen Ys regular saving behaviour. This chapter discussed the issue of generalisability. As this study is based on a model, the purpose is to test whether the model can explain saving behaviour of Gen Ys in Malaysia. The paradigm appropriate for this study is post positivism. This is because in addition to objectivity, this study assumes that no single theory can explain saving behaviour. In addition, the use of interviews and experimental study is linked to post positivism research paradigm. Data was collected in three phases. The first phase is the elicitation interviews, followed by a survey, and the third an experimental study to study the impact of a financial literacy intervention. The population in this study is delimited to income-earning Gen Ys in Malaysia. As the population's sampling frame is not available, and due to the aim of this study to assess the applicability of a model, non-probability sampling techniques were used to select samples. The sample size for elicitation

interviews is adequate to get information relevant for the subsequent stage. The sample size for survey was determined using G*Power. A subset of respondents from survey phase participated in the next phase, the experimental phase. Ethical issues were addressed. This includes assurance of confidentiality and that participation in each phase of this study was totally voluntary.

Universiti Malaysia

CHAPTER 4: FINDINGS FROM ELICITATION INTERVIEWS (PHASE ONE)

4.1 Introduction

This chapter presents and discusses the findings from the elicitation interviews. This chapter is presented in the following manner. First, it presents this phase's research objective and research questions. As stated earlier, the aim is to identify underlying beliefs relevant to Gen Ys in Malaysia regarding regular saving behaviour. This is followed by details of participants (the interviewees). The findings are categorised into two parts. First, underlying beliefs related to experiential attitude, instrumental attitude, perceived norm, perceived control, and self-efficacy - these are the constructs in the IBM that directly impact intention to save regularly. Second, additional information such as interviewees' perception of Gen Y characteristics, their purpose of saving, and the interviewees' subjective assessment of their financial knowledge. The final section presents a summary of findings.

4.2 Beliefs about behaviour

Based on TPB (Ajzen, 1991), there are three types of beliefs that influence human behaviour. The first is 'behavioural beliefs', which are a person's evaluation of the likely outcomes of a behaviour. The second is 'normative beliefs', referring to opinions of people important to a person (e.g., family, friends) regarding a behaviour. Third is 'control beliefs' about the presence of factors that may facilitate or impede a behaviour. These three categories of beliefs influence a person's attitude toward a behaviour, his/her sense of social pressure to perform it, and whether the person feels he/she has a sufficient level of control over performing the behaviour. These beliefs vary from behaviour to behaviour and, importantly, from population to population (Curtis et al., 2010; Fishbein & Manfredo, 1992). Hence, when TPB and its extension, the Integrated Behavioural Model (IBM) are applied, elicitation interviews are conducted to elicit these.

4.3 Research objective and research questions

In the IBM, attitude (experiential, instrumental), perceived norm (injunctive, descriptive), and personal agency (perceived control, self-efficacy) are all functions of core beliefs formed over time, referred to as underlying beliefs. Hence, the purpose of the interviews is to identify and explore salient underlying beliefs regarding regular saving behaviour. The research question (RQ1) is: What are the underlying beliefs of Gen Y's attitude (experimental, instrumental), perceived norm (injunctive, descriptive), and personal agency (perceived control, self-efficacy) regarding regular saving behaviour?

4.4 Interview questions

As interview questions should be systematically asked to all individuals interviewed (Montaño & Kasprzyk, 2008), an interview protocol, which has pre-formulated questions, is required to ensure consistency among interviews. The questions - adapted from Montaño and Kasprzyk (2008, Table 4.2, p.83) - are presented in Table 4.1.

The underlying beliefs are reflected in the following manner.

- Positive or negative feelings about behaviour are the antecedent of experiential attitude.
- Behavioural beliefs influence instrumental attitude.
- Normative beliefs influence injunctive norm and descriptive norm.
- Control beliefs influence perceived control.
- Individuals' efficacy beliefs influence self-efficacy.

Table 4.1: Interview guide assessing participant's beliefs towards regular saving behaviour

| Beliefs | Questions |
|---|--|
| Positive or negative feelings about behaviour | How do you feel about saving money? How do you feel about saving money regularly? |
| Belief in the positive and negative outcomes of behaviour | How would you describe the act of saving money regularly? |
| Other people's expectations and belief that others are behaving in a similar manner | Who are the people, in your social and personal networks, that expect you to save some money every month? Who would disapprove of you saving money every month? |
| Whether external and environmental factors encourage or impede behaviour | Under what circumstances would you be able to save money regularly? |
| Whether there are internal facilitators or barriers that make the behaviour easy or difficult to perform | If you want to do regular saving, how certain are you that you can? What kind of things would help you overcome any barriers to do regular saving? |

Additional questions were asked on the interviewees' perception of Gen Y, on their purpose of saving, and their subjective assessment of own financial knowledge. Finally, demographic information - name, year of birth, gender, ethnicity, nationality, place of residence and marital status - was recorded.

4.5 Sampling techniques

The participants – Malaysian income-earning Gen Ys born between the years 1980 and 1995 - were selected using purposive and snowball sampling methods. Purposive sampling is a sampling method where participants are selected because they have the criteria needed to provide useful information required in the study. Purposive sampling

could be a suitable sampling technique for interviews where participants need to be knowledgeable in understanding and interpreting their own and other people's behaviour (Marshall, 1996). These participants are then more likely to provide insight and understanding for the researcher. Snowball sampling, on the other hand, is a sampling technique whereby a respondent recommends other suitable respondents for the study was also used. Snowball sampling is said to be applicable for studies on sensitive issues (Biernacki & Waldorf, 1981), where it might be difficult to locate respondents relevant for the study.

A strategy that can be used to select respondents is maximal variation sampling (Creswell & Clark, 2011), in which diverse individuals are chosen as they might have different perspectives on the study. The criteria for maximising differences depend on the study; it could be race, gender, or any number of factors. The criteria used in this study's qualitative phase is to have diversity among the interviewees in terms of gender and marital status (married/unmarried). Details of this stratification is presented in Table 4.2. Participants were categorised into two groups. The first representing the older Gen Ys are those born in the years 1980 to 1987 (six participants). The second representing the younger Gen Ys are those born in the years 1988 to 1995 (seven participants). These thirteen participants comprise of eight females and five males.

Table 4.2: Stratification of interviewees

| Cohort | Male Married | Male Unmarried | Female Married | Female Unmarried |
|------------------|-------------------------|---------------------------|---------------------------|-----------------------------|
| 1980-1987 | 1 | 1 | 4 | 0 |
| 1988-1995 | 0 | 3 | 0 | 4 |
| Total | 1 | 4 | 4 | 4 |

4.6 Data collection

Interviews were conducted from April 2018 till July 2018 involving thirteen participants, comprising of five males and eight females born between the years 1980 to

1994. Face-to-face interviews were conducted around the Klang Valley, in locations selected by the interviewees. Klang Valley includes Kuala Lumpur, and its adjoining cities and towns in the state of Selangor. The semi-structured interviews ranging from 20 to 50 minutes, were conducted in the English Language. Each interview commenced with participants being briefed with a Participant Information Sheet (Appendix B), and then signing two copies of the Consent Form (Appendix C) - one for the interviewee and one for the interviewer. Permission was obtained from all participants to record the interview sessions. Throughout the interviews, participants were provided with opportunities to ask questions. At the end of each interview, participants were given the opportunity to share their views on any matters pertaining to saving behaviour not covered in the interviews. They were then thanked for their time and contribution.

4.7 Participants

Out of thirteen participants, five participants have permanent residences in Kuala Lumpur, five in Petaling Jaya, one in Subang Jaya, and one in Puchong. Only one stays outside the Klang Valley, in Sibu, Sarawak. Further details on the participants are presented in Table 4.3.

Table 4.3: Details of interview participants

| Participant # | Participant Code | Year of birth | Gender | Ethnicity | Age at time of interview | Saved (Y/N) |
|---------------|------------------|---------------|--------|-----------|--------------------------|-------------|
| 1 | P01 | 1980 | Female | Indian | 38 | Y |
| 2 | P02 | 1994 | Male | Chinese | 24 | Y |
| 3 | P03 | 1993 | Female | Chinese | 25 | N |
| 4 | P04 | 1994 | Male | Indian | 24 | Y |
| 5 | P05 | 1986 | Male | Malay | 32 | Y |
| 6 | P06 | 1985 | Female | Chinese | 33 | Y |
| 7 | P07 | 1985 | Female | Malay | 33 | Y |
| 8 | P08 | 1981 | Female | Indian | 37 | Y |
| 9 | P09 | 1994 | Female | Chinese | 24 | Y |
| 10 | P10 | 1989 | Male | Indian | 29 | Y |
| 11 | P11 | 1987 | Male | Indian | 31 | Y |
| 12 | P12 | 1994 | Female | Chinese | 24 | Y |
| 13 | P13 | 1994 | Female | Chinese | 24 | Y |

On their saving ability based on income and expenses for the previous month, ten participants had income more than expenses, two had income less than expenses, and one had income equals to expenses. All participants do not prepare monthly budgets, although they try to ensure that they do not overspend.

Four participants (P01, P04, P11 and P13) actively save - meaning they allocate an amount as savings before paying other expenses - depositing between 7% to 15% of their income every month in a savings account. P13, however, allocates a minimum of RM100 per month. Seven participants do not actively save but leave residual income in savings account. The proportion of their savings, however, is higher than those who actively save; these participants save approximately 33% to 70% of their income every month. One participant (P08) has started saving regularly in a joint savings account with her husband. In addition, she contributes to monthly kootu payments (a monetary scheme for savings and quick cash) as a form of 'disciplined saving' and saved about 30% of her annual bonus in the last two years. P03 has never saved any money, overspends, and procrastinates on saving.

Finally, the participants were asked on the forms in which they have saved money in the preceeding twelve months. For ten participants, the savings were kept in savings account. Four participants saved in the form of life insurance, three participants have fixed deposit accounts and one saved in form of gold. Although most of the participants have EPF contributions, they do not consider this as a form of saving.

4.8 Data analysis

The interviews were transcribed using the recorded conversations. Information from interviews were content analysed on participants' beliefs. Table 4.4 presents beliefs elicited from participants for each IBM construct. There are five major underlying beliefs and feelings:

- (i) Participants' emotional response to the idea of performing regular saving,
- (ii) Their beliefs about outcomes of behavioural performance, whether they believe regular saving behaviour to be advantageous or not advantageous,
- (iii) Social pressure in performing or not performing regular saving,
- (iv) Environmental factors which act as barriers or facilitators impacting regular saving behaviour and,
- (v) Situational factors that act as barriers and facilitators impacting regular saving behaviour.

Table 4.4: Elicited beliefs

| Beliefs | | | Participant # | | | | | | | | | | | | | Sum |
|-----------------------------|-----------------------------------|------------------------------------|---------------|---|---|---|---|---|---|---|---|----|----|----|----|-----|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | |
| Feelings about behaviour | Positive | Happy / great | • | | | | • | • | • | | | | | | | 4 |
| | | Good / satisfying | | | | • | | | | | • | | | • | • | 4 |
| | | Glad | | | | | | | | • | | | | | | 1 |
| | Negative | Stressful / difficult | | | | | | | • | | | | • | | | 2 |
| | | Not very satisfying | | • | | | | | | | | | | | | 1 |
| | | Not happy (initially) | | | | | | | | | | • | | | | 1 |
| | | Not enjoyable (initially) | | | | | | | | | | | • | | | 1 |
| Behavioural beliefs | Important | • | | | • | • | • | | • | | | | • | | 6 | |
| | Vital / necessary / essential | • | | | • | | | | | | • | • | • | • | 6 | |
| | Responsible / rational / wise act | | | | • | | | • | | | | | | | 2 | |
| | Good habit / behaviour | • | | | | | | | • | | | | | | 2 | |
| | Useful / beneficial | | | | | | | | • | | | | | | 1 | |
| Normative beliefs | People who approve | Parent(s) / father-in-law | • | • | | • | • | • | | | | • | • | • | • | 9 |
| | | Spouse / partner | • | | | • | | • | | • | | | • | | | 5 |
| | | Older relatives / older colleagues | • | | • | • | | | | | | | | | • | 4 |
| | | No one | | | | | | | • | | • | | | | | 2 |
| | | Friends | | | • | | | | | | | | | | | 1 |
| | People who disapprove | No one | • | | • | | • | • | • | • | • | • | • | • | • | 11 |
| | | Older brother | | | | • | | | | | | | | | | 1 |
| | Other people who save | Parent(s) / father-in-law | • | • | | • | • | | | | | • | • | • | | 7 |
| | | Spouse / partner | | | | | | • | | • | • | | • | | | 4 |
| | | Older relatives / older colleagues | • | | • | • | | | | | | | | | | 3 |
| | | Friends | | | • | | | | | | | • | | | | 2 |

Table 4.4, continued

| Beliefs | | | Participant # | | | | | | | | | | | | | Sum |
|------------------|-------------------------|--|---------------|---|---|---|---|---|---|---|---|----|----|----|----|-----|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | |
| Control beliefs | Factors that facilitate | Low financial commitments | • | • | | • | • | • | • | | • | • | • | • | • | 11 |
| | | Large enough income | | | | • | | • | | • | | • | | | | 4 |
| | | Uncertain economy and business future | • | | | • | • | | | | | | • | | | 4 |
| | | Marriage | | | | | | • | | | | | • | | | 2 |
| | Factors that impede | Expected / unexpected expenses | | | | | • | | • | • | | • | | | • | 5 |
| | | Easy online buying | | | | | | | | • | | | | | | 1 |
| | | Pay not high enough | | | • | | | | | | | | | | | 1 |
| Efficacy beliefs | Factors that facilitate | Disciplined / control over behaviour | | | | | | • | | | • | • | • | • | • | 6 |
| | | Habit is ingrained | • | | | | | • | | | | | | • | | 3 |
| | | Determination / drive to save | | | | • | | | • | | | | • | | | 3 |
| | | Higher income | • | | | | | | | | | | | | • | 2 |
| | | Saving as a monthly financial commitment | | | | | | | | | | | • | | | 1 |
| | | Commit to a loan or investment | | | • | | | | | | | | | | | 1 |
| | | Job prospect confidence | | | | | | • | | | | | | | | 1 |
| | | Desire to travel | | | • | | | | | | | | | | | 1 |
| | Factors that impede | Take out savings for spending / emergency / travel | | • | | | | | | • | | • | | | • | 4 |
| | | Uncertain income / expenses | | | | • | | | | | | | | | • | 2 |
| | | Lack of determination and drive | | | • | | | | | | | | | | | 1 |
| | | Existence of “safety net” (parents) | | | • | | | | | | | | | | | 1 |
| | | Frustration | | | | • | | | | | | | | | | 1 |
| | | Fear of mortality | | | | • | | | | | | | | | | 1 |

4.9 Findings

Each belief is discussed with supporting quotes from the participants. To ensure confidentiality, their responses are reported without disclosing their identities.

4.9.1 Experiential attitude

4.9.1.1 Positive feelings

Participants' positive feelings towards regular saving behaviour seem to be derived from perceived advantages and benefits of saving regularly. Generally, they feel happy/great/good/satisfied/glad at their saving abilities.

The feeling is like, you know, whenever you have excess money, it will definitely give happiness. (P01)

I feel great, I have managed to save something in the short run. (P08)

The feeling of happiness primarily comes from seeing the quantum saved.

I am happy when I see the balance in my account. When I have more money, I feel very happy. (P01)

After a few months, after you looked at your bank accounts, it is worth it. (P02)

I feel happy when I see the saving getting higher and higher. I feel happy. I have a lot of money in my account. (P06)

It is nice to see that you have accumulated that much of amount in your bank account. In the long-term when you look at your account and see a big figure there. (P10)

Overall, when they see money saved in their bank accounts, they feel happy, as they have security in the form of funds available for emergency.

You obviously need to have some for rainy days. Something will crop up. Not important in the sense that it is not just you save so you can spend on something later and I think I had one or two incidences in this past year where it was like thank God, I had my savings. If not means, and then it has prompted me this is really important, I must have this. (P10)

For P04 who has his own business, the feeling of security when there is adequacy of savings is important. There are nevertheless other reasons for feeling good. The reasons include the ability to save regularly shows discipline and determination as well as creating a sense of achievement and satisfaction of being responsible in addition to creating confidence.

Because a lot of people in my age circle, they don't. So, I feel very good about it.

(P04)

Lastly, being able to accumulate savings provides a higher sense of purchasing power. For P13, however, the feel-good feeling associated with purchasing power comes from having the money for travel purposes.

4.9.1.2 Negative feelings

For participants with low levels of income, they experience negative feelings about saving money regularly. For P02, saving every month is not satisfying as the amount is not large (due to his low income) despite it being 35% of his income. Similarly, P07's low income makes regular saving is stressful as managing with less disposable income becomes a struggle. Some were demotivated when they had to deplete their savings for purposes such as wedding expenses and relocation costs.

Probably you would have saved for a year or two, the entire savings go at one go. It doesn't go bit by bit but at one go. You got to start saving from scratch. That demotivates me a bit. (P11)

For those who were initially unhappy/unsatisfied with saving regularly, the feeling of satisfaction comes gradually. Both P10 and P11 agreed that it was stressful, difficult, and certainly not enjoyable during the first six months of conscious, regular saving but after it became a habit, saving every month became easy. This supports Allom et al. (2018) that people experience ease of performance after habit development.

4.9.2 Instrumental attitude

Overall, participants have positive evaluation about saving money, believing regular saving behaviour to be advantageous. The reasons that contribute to saving regularly include uncertainties, job insecurity, and future medical needs. Saving is therefore viewed as important/vital/necessary/essential, and according to P01, a good habit to cultivate. Saving habits are also viewed as personal, and people need to experience for themselves the importance of saving. P04 strongly feels that saving regularly is a responsible and rational act, while P07 used the term “wise”.

Effort, self-control, and resistance (from spending money saved) are required to accumulate savings (P11). Without savings, feelings of uneasiness set in (P06). For P06 and P10, lessons were learnt from past experiences - LeBaron et al. (2018) termed this “experiential learning” - which include going broke and working to save money for education. Such lessons reinforced the importance of saving and to appreciate the act of saving. However, for P03, saving in the form of putting aside a certain amount of money every month is necessary only when a person has reached a certain phase or attained a

certain amount of income, which she quoted as RM4,000. She considers short-term and long-term investments as forms of saving.

4.9.3 Perceived norm

4.9.3.1 People who expect them to save

When asked whether people in their social and personal networks expect them to save money every month, the general response is that no one expects or pushes them to save. P07 and P09 state that saving is a personal decision for them. P01 suggested that expectations of others might not drive saving, rather habit is required.

The person must have habit. Because, if you don't have the habit somehow or, rather, if you push the people to save, I don't think the people will be able to save.

(P01)

Nevertheless, there are influencers around them, with parents - supporting the finding in Xiao et al. (2011) that parents significantly influence their children's financial behaviours - and parents-in-law (particularly, fathers-in-law) being the main influencers. The general opinion is that the actions of their parents and parents-in-law showed them the value of saving, budgeting, and planning. P04, for instance, grew up seeing his parents prepare budgets at home, but P09 was more influenced by her father's thrifty and careful spending behaviour, which is now reflected in her own saving behaviour. Such influence, even if indirect, supports the findings of Robertson-Rose (2020), LeBaron et al. (2018), and Palaci et al. (2017) that parental economic behaviour acts as a positive model for their children's financial literacy, saving decisions, and money-management skills. P02 cited race as a factor, as Chinese parents in addition to encouraging, force their children to save.

I don't know whether this is stereotyping. I think Chinese parents normally encourage, sometimes force their children to save. They encourage us and tell us stories from their own personal experience on the importance to save. (P02)

Spouses and partners influence the participants' saving behaviour, as do people older than them, specifically colleagues and friends. P01 was influenced by her older colleagues to invest in Fixed Deposit, thus supporting Robertson-Rose (2019) that the encouragement of older work colleagues plays a role in influencing how successfully individuals are prepared for retirement.

Siblings were seldom mentioned as influencers, consistent with the findings of Robertson-Rose (2020). The role of friends also seems limited, with only older or close friends advising the participants to save - not friends around the same age. This finding concurs with Zurina Kamarudin and Jamalludin Helmi Hashim (2018) that peer influence is not significant in affecting saving behaviour. For those influenced by friends, it was the positive and negative experience the friends had, which impacted the participants' saving behaviour. P04, for instance, attributes the regret older friends have for not saving money, as an encouragement for him to save every month. On the other hand, for P10, his motivation is the success of a close friend who saved despite earning what considered as a below average wage in Kuala Lumpur.

4.9.3.2 People who disapprove of them saving

According to participants, no one disapproved of them saving. The only exception is that some told them not to be stingy and to spend more, as they were too young to be so

rigid. However, this does not imply that the people important to them disapprove of them saving.

4.9.3.3 Whether people they know perform regular saving behaviour

The participants seemed unsure whether the people who think they should save are themselves performing the behaviour. However, they believe their biggest influencers - their parents, parents-in-law, spouse, and older relatives/colleagues - save.

They are not sure whether other family members (e.g., their siblings) or friends save. P03 thinks that around 10% to 20% of her friends save. P10 spoke of a friend earning below average wage in Kuala Lumpur who has managed to save a substantial amount. The others, however, were completely unsure of their friends' saving behaviour, simply because the topic is not a topic discussed among friends. They make conclusions based on other factors, such as observing friends spending what they earn (P01). For P13, based on the people around her being surprised and impressed at her ability to save money every month when saving money and paying expenses is difficult for them, suggesting that they do not save. For P02 and P11, saving difficulties are implicitly evident when friends talk about low salaries and income deficiencies. P10 said that his colleagues asking him for money indicates they do not have savings. A substantial number of participants said their primary reason for not discussing saving with friends is because it is a serious, personal, uncomfortable, and sensitive topic. It might also be depressing due to existence of various barriers to saving. Friends and family too do not bring up this topic for discussion. Furthermore, the decision to save is a personal decision; discussing it would breach their friends' personal lives and comfort zones. In addition, discussing about savings can have adverse effect; when others become aware of a person's ability to save, they may resort

to borrowing money from the person. Although they do not talk on how to save nor discuss difficulties in saving money, they talk about income not being enough, and how to generate passive income.

4.9.4 Perceived control

4.9.4.1 Environmental factors that facilitate regular saving behaviour

A common facilitator is low financial commitments primarily limited to car loans, car maintenance, PTPTN (education) loans, food expenses, phone bills, and low-cost transportation (LRT/bus). In addition, many do not pay rent or house loans as they are staying with parents. None of them financially support their parents, although a few of them share household expenses with and provide allowance to their parents. Some female participants said their husbands take care of household expenses; thus, they could spend or save their incomes. For P01, having young children contributed to being able to save. Low financial commitments also allow them to spend money on shopping, meals, and travelling. However, having low (or no) financial commitments does not guarantee the performance of saving. Both P02 and P03 have only PTPTN loans to pay; P02 saves 35% of his income every month, whereas P03 has never saved her money. Upbringing might explain this difference, as P02's parents encouraged him to save, telling stories from their own experiences on the importance of saving money. P03 has yet to discuss the topic of saving with her parents. Another reason for the variation in saving behaviour of P02 and P03 is cost of living. P03 stays in Petaling Jaya, which has a higher cost of living as opposed to the cost of living in P02's place of residence in Sibu, Sarawak.

The ability to save was also made easier by large enough incomes. Some were only able to save regularly after receiving a salary increase. For P03, even though her

commitments are low, she perceived her income to be rather low. When asked at what income level she would be able to start saving money, she said RM4,000 but added that her family and friends think that even RM5,000 would not be enough for her. This shows that, for some, ability to save is not determined by income level. Procrastination problem could make saving difficult, as in the case of P03; thus, supporting the finding of Piotrowska (2019) about the significance of procrastination in delaying decision to save.

The drive to save is higher when faced with an uncertain economic and business future; fear and uncertainty of the future contributed to high liquid savings. For P06 and P11, getting married changed their perspectives on spending versus saving, where they only started to do regular saving after getting married. This study elicited two reasons for this. Firstly, being married gives them purpose in life, for example, saving to purchase a home and planning for their future as a family. This supports the finding of Holzmann et al. (2019) that homeownership could be an instrument to instil saving in the younger generation. Secondly, being broke when married has more serious consequences than being broke when single.

4.9.4.2 Environmental factors that impede regular saving behaviour

A monthly income high enough to meet basic commitments in life is a prerequisite for ability to save. If income and expenses are uncertain, regularly setting aside money can be difficult, and settling bills become the priority, leaving any residuals as savings. Similarly, when there are unexpected or increased expenses due to additional commitments, saving becomes harder. For married participants, the obligation to join their extended families for vacations could be an unexpected expense. Other expenses impeding regular saving include expected expenses for birthdays and Christmas.

The temptation of online deals could impede saving behaviour. Although P08's salary has increased, being able to buy things online provided more exposure to spend money.

You can just order online. Everything. It gives you a situation where there [is] more exposure to spend your money rather than to save your money. (P08)

Thus, the challenge for her is that there is more exposure to spend and less exposure to save. This supports the finding of Rószkiewicz (2014) that a dynamically developing market of goods, services and modern banking systems create pressure to spend.

Some think that they can continue to save, and some want to continue saving but they do not know what the future holds. For P04, it is the uncertain future that tempts him to spend now.

4.9.5 Self-efficacy

4.9.5.1 Situational factors that facilitate regular saving behaviour

Overall, the participants seemed unable to visualise any future challenges that could impact their saving behaviour. They feel that there many uncertainties; even at the present time, anything can happen. Despite what may happen in the future, they want to continue saving regularly, demonstrating their determination to save. Their mindset is that there are no reasons for them not to save. P11 sees regular saving as another monthly financial commitment. He added that to save every month, some changes in behaviour must be made.

All of us want to save, all of us want to have surplus cash in our account every month, but that depends on our behaviour. [S]pend less on unnecessary things. Nowadays. most money [is] being spent on F&B. Instead of fine dining and exotic

place, probably can go for normal places. Better still, if you can cook at home, it will be much better. Making certain changes to your lifestyle [...] can help you to save even more. (P11)

P06 defines herself as a disciplined person and is convinced she would be able to continue to save regularly in the future despite any challenges. There is also a tinge of overconfidence that jobs will always be available for her.

Even if I lose my current job, I can still find a job. (P06)

The degree of certainty in being able to save regularly in the future varies. P12 has been exposed to saving since the age of four, so she said that saving is easy for her, she is *100% certain* that she can do regular saving in the future because it is already a habit. This supports the finding by Brown and Taylor (2016) that having saved as a child has a large positive influence on saving behaviour in adulthood. For P10, having saved before, he is *quite certain* he can do it. Thus, habit is important, consistent with the finding of Loibl et al. (2011). According to P11, the habit should be formed once someone starts working, and becomes aware of his income capacity and monthly expenditure. Even if there are adverse circumstances that might make regular saving difficult, P01 feels that the habit should continue. If savers are unable to reduce commitments, they can be flexible by saving a lower percentage of their income. If commitments were to increase in the future along with their incomes, P01 and P13 believe they should be able to continue to save regularly.

P03 does not see the benefits of saving, she needs to commit to a loan or investment plan to visualise the long-term benefits of saving. In addition, saving without any goals

does not drive her. She needs a goal, such as saving for overseas travel. This supports Gerhard et al. (2018) that having a savings goal could act as a commitment device for those with lower self-control.

4.9.5.2 Situational factors that impede regular saving behaviour

For some participants, self-efficacy might be present, but not self-control. P10 is certain that he can do regular saving as he has already been doing so for two years. However, he is not certain that he can restrain from using the savings for Christmas and birthday celebrations or purchasing something. P08 feels that she can save if the savings account does not have an ATM card, as this encourages withdrawals. P13 feels the same way, she saves in a bank account that has no ATM card nor a debit card.

That's the only way I do my saving. Because without ATM card, without any card, I am not able to take out the money. (P13)

Many participants said their savings are to be used in the event of emergency. Therefore, if financial challenges occurred in the future, savings would be used. For the long-term, passive income or saving investment plans are viewed as more relevant than accumulated savings.

Another factor impeding regular saving behaviour is the desire to travel – both within and outside Malaysia. They believe that the best time to travel is when they are young and unburdened by commitments. They also feel that prices of many things (e.g., properties) are beyond their reach. Hence, the only affordable pleasure is travelling, away from their normal routine in life. Some participants are thus motivated to save for their next travel experience. P13 saves a minimum of RM100 monthly with up to 70% of

amount saved used every six months for travelling. P03 is willing to commit to travel plans even though she has never saved.

For freelancers or the self-employed, the uncertain income coupled with uncertain expenses casts doubt on their ability to save regularly.

If determination to save is a facilitator for regular saving behaviour, lacking the drive to save contributes to procrastination to save. P03, for example, does not have the drive to save since she can depend on her parents for financial support.

Job stress (frustration and pressure) and fear of mortality could also affect future saving behaviour. The fear of mortality gives credence to Heimer et al. (2019) finding that people who are pessimistic about their mortality, saves less.

I might change in 2-3 months' time when I see my job is getting too hectic. I might just decide to change. Why should I save? I do have that kind of thoughts. Why do I have to save? What for? I don't see the reason in it. Can I just spend the money? (P04)

What if I die before 55? My habits [reflect this thought] (P04)

In the event of job stress, P04 needs someone to keep reminding him to save, thus supporting Karlan et al. (2016) on the importance of reminders to save. The presence of an enforcer (e.g., a parent) might ensure that regular saving continues in future.

4.10 Other findings

4.10.1 Do participants consider themselves as Gen Y?

Regarding whether the interviewees consider themselves as Gen Y or Millennial, twelve agreed but one interviewee was unsure. There appears to be confusion on the use of the terms Gen Y and Millennial. Two interviewees think that the terms Gen Y and Millennial should not be used interchangeably, with the term “Millennial” more appropriate for those born in the 1990s.

A wide range of Gen Ys characteristics were obtained. The first, and the most common cited characteristic is being impulsive or impatient, that is act on instinct without thinking decisions through. Other characteristics cited are being rash (do not think of repercussions, utter something without thinking twice, do whatever they desire). A participant (P04) equated being rash with being brave or gutsy. On a positive note, Gen Y is said to be technology savvy and relies on technology for information and knowledge. A full list of characteristics quoted by respondents is presented in Table 4.5.

Table 4.5: Interviewees’ perception of Gen Y characteristics

| Characteristics | Number of interviewees |
|--|-------------------------------|
| Impulsive/impatient | 7 |
| Technology savvy/rely on technology/ shaped a lot by the internet/tend to shop online | 6 |
| Do not think of repercussions/gutsy or brave to take risks/do whatever they want/say something without thinking twice | 4 |
| Spend money on travelling/fun-loving/ live life for the moment | 4 |
| Lucky/fortunate/has better quality of life | 3 |
| Better educated/more aware, more informed | 3 |
| Organised/able to meet deadlines | 2 |
| Self-centred/self-oriented/very reserved | 2 |
| Does not listen to instruction/ not willing to accept criticism | 2 |

4.10.2 Participants' purpose of saving

Generally, the savings are meant for emergency, although they are unable to identify the type of emergencies or what they would do with their savings.

Most of them, with exception of P11 and P12, have not thought of the future beyond five years. P11 seems to quote “fear of future” quite frequently during his interview, most likely caused by expectations (on him) as he has recently got married. P12 thinks of the future till retirement, with Fixed Deposit savings meant for retirement. Those who have not thought of the future beyond five years could be considered as short-term oriented. Being short-term oriented, they spend money meant for emergency for purposes such as travelling. They have plans of buying a car and property within the five years but have not thought of saving for retirement; long-term plans are not made due to uncertainty.

4.10.3 Participants' subjective assessment of their financial knowledge

Interviewees were asked to provide subjective assessments of their own financial knowledge compared to people like them. The options range from very high, quite high/above average, average, quite low/below average, very low or don't know.

Seven of them rated their knowledge as quite high or above average. This suggest that participants are rather confident of their financial knowledge, consistent with findings in several surveys as reported in Lusardi and Mitchell (2014) - that when respondents are required to indicate self-assessed knowledge, they are generally rather confident of their financial knowledge. When probed as to why they categorise their financial knowledge as above average, the reasons given are awareness of different forms of saving money including fixed deposits and unit trusts, awareness about the importance of passive

income, and financial knowledge gained through reading materials on Facebook. There does not seem to be an association between educational level and own assessment of financial knowledge. It appears that self-esteem influences assessment of own financial knowledge consistent with findings by Tang and Baker (2016). P10, who assessed his knowledge on financial matters as average said that although he is more informed, he is not (so) educated on financial matters. Similarly, P12 wants to do investments but she is not sure on the type of investments to do. Participants also do not do research on financial investment options due to absence of motivation to explore and search for information.

4.11 Summary of Phase One findings

Figure 4.1 lists the salient beliefs underlying intention to save regularly, obtained by applying one of the three rules in Ajzen and Fishbein (1980), which calls for the inclusion of beliefs that exceed a particular frequency (e.g., all beliefs mentioned by at least 10 % of the sample). Hence, this study sets the benchmark frequency as 2 (representing 15% of the sample interviewed). The beliefs elicited are listed according to salience and whether the beliefs facilitate or impede performance of regular saving.

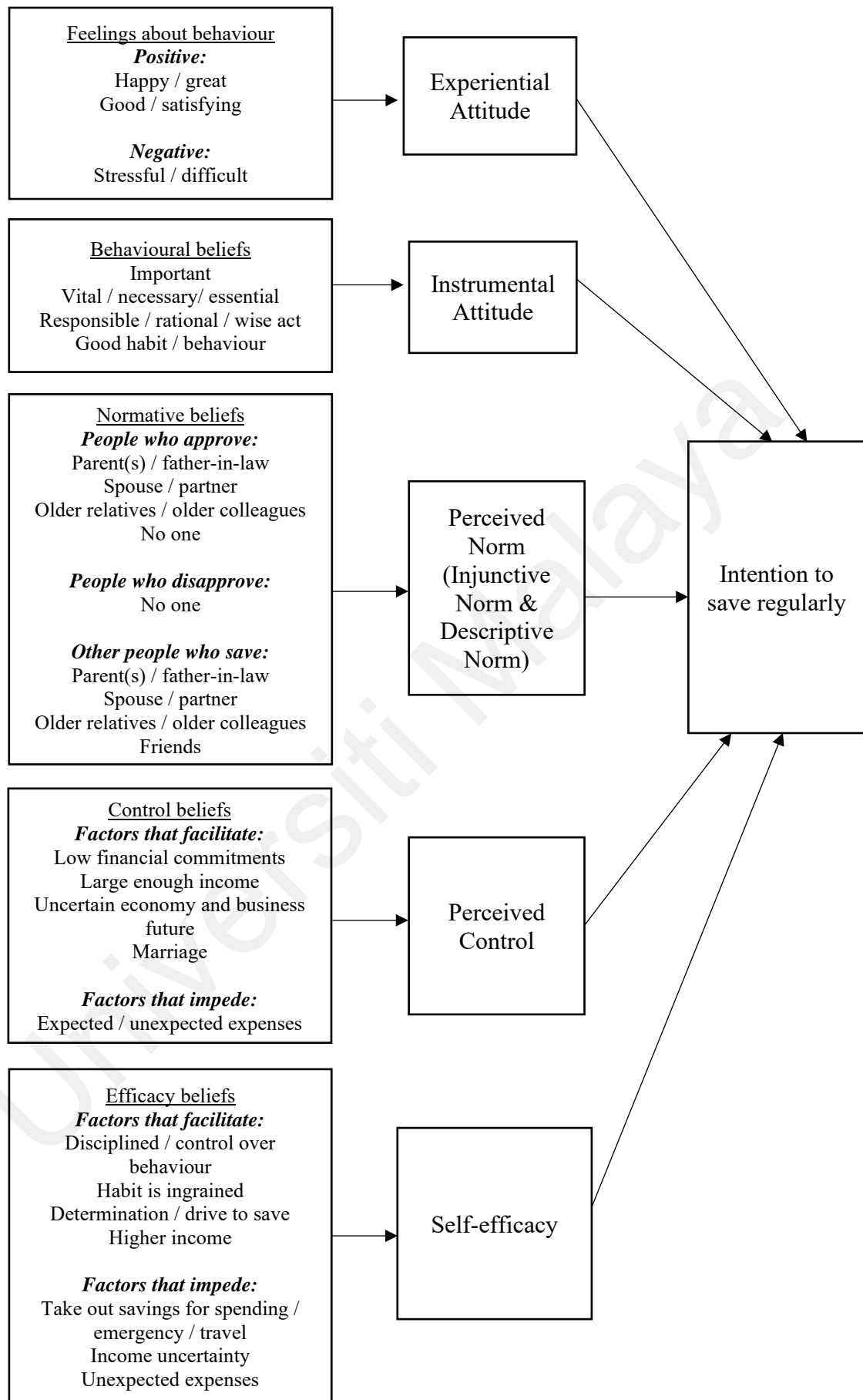


Figure 4.1: Summary of findings

The overall observation is that Gen Ys have positive feelings, which developed over time, about saving money regularly and considers the act of saving money regularly as important. There is also sense of achievement and satisfaction that comes from being able to save money regularly, in addition to showing that they have the discipline, and determination, to do the act of saving money regularly. Successful performance of regular saving also creates confidence. The people who are considered their closest contacts seem to be the people who encouraged them to save. Parents (including parents-in-law), spouse/partner were the main influencers. The participants are unsure whether others around them, such as siblings and friends, save. Low financial commitments and earning large enough income enabled saving to be done, but too low income and high expenses can circumvent the ability to save. The participants could not visualise future events that could make saving behaviour challenging. They feel that in whatever circumstances, there should be drive and determination to save. Similarly, lack of drive contributes to participants' procrastination to save. For some participants, self-efficacy might be present but not self-control. Celebrations such as Christmas, family holidays and buying things online could cause savings to be utilised sooner than intended. In addition, easy access to ATMs encourages withdrawals for spending.

To conclude, the positive feeling of doing regular saving is the effect of being able to perform such a behaviour when many among their peers are unable to do this. The feelings (being happy or great) do not seem to be an antecedent of intention to save regularly. The participants agree that saving regularly is a necessary behaviour and that having the habit of saving regularly matters. Habit formed from young seems to reflect in positive saving behaviour at adulthood. The degree of certainty of being able to sustain this behaviour, despite any future challenges, increases with habit. As was found in many

studies on family financial socialisation, this study too found that parents play an important role in developing good financial behaviour.

Universiti Malaya

CHAPTER 5: FINDINGS FROM SURVEY (PHASE TWO)

5.1 Introduction

This chapter presents the findings from Phase Two survey and answers two research questions. The first research question (RQ2) is what is the relationship between attitude (experimental, instrumental), perceived norm (injunctive, descriptive), personal agency (perceived control, self-efficacy) and intention to save regularly? The second research question (RQ3) is what is the relationship between financial literacy, intention to save regularly, time preference and regular saving behaviour? To answer these questions, the survey responses were analysed using PLS-SEM software.

This chapter has three parts, ending with a summary of the findings. The first part is on questionnaire development. It describes how this study's questionnaire items and scales are derived. The questionnaire originally in the English Language was also translated into the Malay Language. The second part details steps in the preparation of data for analysis. These involve data cleaning, combining data sets, and issue of Common Method Variance (CMV). The third part presents the findings.

5.2 Questionnaire design

The development of questionnaires and its scales is an iterative research process that includes a few carefully planned stages (Hilton, 2017). In this study, the questionnaire content and measures were primarily adapted from other similar studies and guided by methodological considerations in Ajzen (2006). In addition, information gathered through prior Phase One elicitation interviews were used so that the questionnaire content and measures are relevant to the population in this study. The questions are then pretested before further changes are made to the questions particularly in the ways the questions

are phrased. Finally, the questionnaire was pilot tested to select reliable and valid items for use in the final questionnaire.

The theoretical constructs such as attitude, perceived norm and personal agency are latent variables. This means the constructs are not directly observed but are measured through other variables known as indicators. Theoretical constructs need to be rigorously defined (Calder et al., 1981) so that suitable empirical measures can be determined for each construct. In addition, empirical measures for each construct cannot be construed in terms of other constructs and failure to do this will negatively impact construct validity of a study. According to Ajzen (2006), if direct measures are used, five to six items are to be formulated to assess each of the theory's major constructs. Typically, seven-point scales are employed (Ajzen, 2006) but five-point scales can also be used (Pascual-Ezama et al., 2014; Montaña & Kasprzyk, 2008). This study used five-point scales, both for Semantic Differential Scales to measure attitude, and for Likert Scales to measure the remaining constructs. The Likert Scales have completely disagree (1) and completely agree (5) as the end-points.

5.2.1 Attitude (experiential and instrumental)

Attitude refers to feelings (experiential) and evaluation (instrumental) of a behaviour. The measurement items of attitude (experiential and instrumental) were generated based on responses from interviews and adaptation of questions used in Loibl et al. (2011) and, Croy et al. (2010a). Both Loibl et al. (2011) and Croy et al. (2010a) used Semantic Differential Scale, with important – not important, useful – useless, responsible-irresponsible, positive-negative, good-bad, pleasant-unpleasant, beneficial-harmful, worthless-valuable, unenjoyable-enjoyable, and wrong-right, as the bipolar (opposite)

adjectives, to evaluate attitude towards saving. These two studies, however, used TPB where attitude is not differentiated into experiential attitude and instrumental attitude. If attitude is categorised into experiential attitude and instrumental attitude, the bipolar adjectives are as follows.

Table 5.1: Adjectives for Attitude (from prior studies)

| Construct | Adjectives |
|------------------------------|--|
| Experiential attitude | Unpleasant-pleasant Unenjoyable-enjoyable |
| Instrumental attitude | Not important – important Harmful-beneficial Bad-good Irresponsible-responsible Useless-useful Worthless-valuable Wrong-right Negative-positive |

The elicitation interview phase identified additional adjectives to describe experiential attitude and instrumental attitude. These are happy, great, good, satisfying, stressful, difficult (to describe experiential attitude), and vital, necessary, essential, rational, wise (to describe instrumental attitude).

This study considered all three sources - Loibl et al. (2011), Croy et al. (2010a) and elicitation interviews - and came up with the following scales to measure experiential attitude and instrumental attitude.

Table 5.2: Adjectives for Experiential Attitude

| Construct | Adjectives |
|------------------------------|---|
| Experiential attitude | Unpleasant-pleasant Unenjoyable-enjoyable Sad-happy Unsatisfying-satisfying Stressful-stress free |

Table 5.3: Adjectives for Instrumental Attitude

| Construct | Adjectives |
|------------------------------|---------------------------|
| Instrumental attitude | Not important – important |
| | Harmful-beneficial |
| | Bad-good |
| | Irresponsible-responsible |
| | Useless-useful |
| | Worthless-valuable |
| | Wrong-right |
| | Negative-positive |

The adjectives for experiential attitude, pleasant-unpleasant and enjoyable-unenjoyable, were adopted from Loibl et al. (2011) and Croy et al. (2010a). The remaining adjectives happy-sad, satisfying-unsatisfying and stress free-stressful were generated from elicitation interviews. For instrumental attitude, important-not important, responsible-irresponsible, good-bad, and valuable-worthless were adopted from Loibl et al. (2011) and Croy et al. (2010a), but both important and good were also elicited from interviews. The remaining adjectives, necessary-not necessary, rational-irrational, and wise-foolish, were generated from elicitation interviews.

5.2.2 Perceived norm (injunctive and descriptive)

Perceived Norm, which consists of Injunctive Norm and Descriptive Norm, refers to beliefs whether most people important to the respondents approve or disapprove of them saving money every month. Pascual-Ezama et al. (2014) study on investment behaviour in the stock exchange used three items to assess TPB's subjective norm (which is injunctive norm in the IBM). The items asked respondents whether people who are important in their lives *approve*, *expect*, and *think* that they should invest in the stock exchange. These terms were also used in studies by Magendans et al. (2017), Croy et al. (2010a) and Loibl et al. (2011). In Loibl et al. (2011), social norm was measured with

one item only, *Most people who are important to me think that I should save some money every month*, with response scales ranging from 1= strongly disagree to 5= strongly agree. To measure injunctive norm, this study adapts the statements used in Magendans et al. (2017) which asked respondents to indicate the extent to which they believe that most people who are important to them, or whose opinion they value, think that (1) they should perform the target behaviours, (2) would expect them to perform that behaviour, (3) would approve of the behaviour, (4) would perform the behaviour themselves, and (5) intend to perform the behaviour themselves. (1), (2) and (3) reflects Injunctive Norm and (4) and (5) reflects Descriptive Norm. This study adapts (1), (2) and (3) to measure Injunctive Norms (Table 5.4).

Table 5.4: Measurement items for Injunctive Norm (3 items)

Most people who are important to me, or whose opinion I value, think that I should save some money every month.

Most people who are important to me, or whose opinion I value, expect me to save some money every month.

Most people who are important to me, or whose opinion I value, would approve of me saving some money every month.

Descriptive Norm refers to beliefs whether most people in one's social or personal networks perform the behaviour (Montaño & Kasprzyk, 2008), in this study whether most people known to respondents save money. To measure descriptive norm, this study adapts the statements used in Magendans et al. (2017) as the statements reflect whether others relevant to an individual, such as parents and friends, save. Magendans et al. (2017) also had a general question on whether the people whom the respondents consider as important to them or whose opinion they respect, are themselves saving regularly. Based on this study's elicitation interview responses, the people whom the respondents considered important or whose opinion they respect are parents (including parents-in-

law), spouse/partner, older colleagues, and close friends. These people can be categorised as those in the respondents' inner circle (family members), their friends, people like them (other Gen Ys) and the people they know (including colleagues). This categorisation was used to devise questions to measure descriptive norm.

Table 5.5: Measurement items for Descriptive Norm (4 items)

| |
|--|
| Most of my family members save regularly every month. |
| Most of my friends save regularly every month. |
| Most people like me save regularly every month. |
| Most of the people that I know save regularly every month. |

5.2.3 Personal Agency (Perceived Control and Self-efficacy)

Personal agency consists of Perceived Control and Self-efficacy. Perceived Control refers to existence of external facilitators and barriers that impact regular saving behaviour. Self-efficacy, on the other hand, refers to respondent's internal perception of ability to save. Self-efficacy is considered inter-changeable with TPB's Perceived Behavioural Control, and it refers to whether an individual is self-assured or have "self-belief" that a given task can be accomplished (Farrell et al., 2016).

The questions on Perceived Control were adapted from Pascual-Ezama et al. (2014).

Table 5.6: Measurement items for Perceived Control (3 items)

| |
|---|
| If I wanted to, I could start saving regularly on monthly basis within the next three months. |
| It would be very easy for me to start saving regularly on monthly basis within the next three months. |
| My decision to start saving regularly, on monthly basis, within the next three months would be completely under my control. |

The rationale behind the statements to measure Perceived Control is whether the decision to save money regularly is within respondents' control. If there are barriers, the behaviour would become difficult. Vice-versa, if there are no barriers, performing the behaviour becomes easier. Finally, if there are no barriers but the behaviour is not performed, it could be because they chose not to perform the behaviour.

From the elicitation interviews, factors that influence efficacy beliefs include being disciplined, having determination and drive to save, a strongly ingrained habit of saving money, uncertain income / expenses, and ability to practice self-control when faced with temptations to spend. In this study, to measure Self-efficacy, respondents were required to assess their level of certainty that they could carry out the behaviour when faced with three possibilities: unexpected expenses, financial challenge, and temptations to spend.

Table 5.7: Measurement items for Self-efficacy (3 items)

| |
|---|
| Within the next three months, I am certain that I can start and/or continue saving regularly even |
| (1) when unexpected expenses arise |
| (2) if face with a financial challenge |
| (3) if face temptations to spend |

5.2.4 Intention to save regularly

Intention indicates people's willingness to try a behaviour; that is, the level of effort people plan to exert to perform a behaviour (Ajzen & Driver, 1992). Intention is thus the perceived likelihood of performing a behaviour (Montaño & Kasprzyk, 2008) and it can be applied in two ways (Fishbein et al., 1992). First, whether the person either intends or does not intend to perform a given behaviour (a yes/no situation). Secondly, intention can be treated as a continuous variable varying in strength or intensity. According to

Fishbein et al. (1992), in the field of social psychology, the concept of intention is viewed as a continuous variable and words such as *expect*, *want*, *intend*, *try* and *plan* have been used to measure intention (see Magendans et al., 2017; Loibl et al., 2011; Croy et al., 2010a). *Expect to start saving* means having the expectation, which suggest that a respondent thinks that saving should be done. However, the respondent feels that he/she does not have to do saving yet, but when it is time to start saving, the respondent will do it. *Want to* imply having the desire to save and it is similar as *expect to*. *Intend to* mean the respondent has the emotional plans to save but have not made plans to do it yet. *Try to* mean the respondent wants to save and will take actions to help the respondent to start saving. *Plan to* means the respondent has an intention to save, with plans already in place. Although the terms seem to have similar meanings, each term measures a different intensity of the intention to save.

This study uses the approach by Croy et al. (2010a), where intention to conduct saving is measured with the use of these terms; *intend to start saving*, *will try to start saving* and *plan to start saving*. In addition, *expect to start saving* was adapted from Magendans et al. (2017). The statements to measure Intention in this study are therefore as follows.

Table 5.8: Measurement items for Intention to save regularly (4 items)

| |
|---|
| I expect to start saving some money regularly within the next three months. |
| I intend to start saving some money regularly within the next three months. |
| I will try to start saving some money regularly within the next three months. |
| I plan to start saving some money regularly within the next three months. |

5.2.5 Regular Saving Behaviour

This study adapts self-reported saving behaviour statements in Magendans et al. (2017). Table 5.9 presents the adapted survey questions in this study.

Table 5.9: Measurement items for Regular Saving Behaviour (5 items)

| |
|--|
| In the past three months, I have saved money every month. |
| I have saved money regularly for unexpected expenditures. |
| I have saved money regularly even though I do not have a saving goal. |
| Although I have already accumulated sufficient savings through past regular saving, I will still save regularly in the future. |
| I did not save money regularly in the past three months. |

5.2.6 Financial Literacy

Measurement of financial literacy seems to be complex (Potrich et al., 2018). This is because in terms of empirically validated and standard measures of financial literacy, such measures do not seem to exist (Potrich et al., 2018; Allgood & Walstad, 2016; Schmeiser & Selligman, 2013). Many methods have been used, and the bulk of these measures were done using a series of questions covering areas such as knowledge of interest rates, inflation, and risk diversification (see Almenberg & Dreber, 2015; Tang et al., 2015; van Rooij et al., 2012; Lusardi et al., 2010). The series of questions known as objective measures and labelled as “actual” financial literacy (Allgood & Walstad, 2016) was aimed to test people’s ability to perform basic calculations. Such questions test numeracy skills and people’s knowledge about financial products and concepts (Almenberg & Dreber, 2015), and measure cognitive abilities (Kramer, 2016). Measures of objective financial literacy have been criticised, such as, the measures are rather ineffective in capturing the relevant aspects of financial literacy (Kramer, 2016), the suitability of the questions to a wider population (Schmeiser & Selligman, 2013) and

perhaps could be appropriate only to a segment of the population, for example, those of higher economic status. In addition, limiting to objective knowledge might not suffice, as having the required knowledge might not lead to action(s) towards achieving a desired outcome, such as accumulation of emergency savings (Reyers, 2019). Similarly, performing poorly in objective financial knowledge questions does not necessarily translate into lack of confidence in financial knowledge (Allgood & Walstad, 2016; Babiarz & Robb, 2014). In addition, respondents were found to be inconsistent with their answers (Schmeiser & Seligman, 2013). The answers change over time or when the questions were asked in a different context. Finally, some correct answers to literacy questions could be due to guessing correctly (Lusardi & Mitchell, 2014).

An alternative method to assess financial literacy is to use subjective measures, such as, self-assessment of financial literacy which could reveal people's perception of their knowledge on financial matters (Magendans et al., 2017). This can be done by asking respondents to assess their own knowledge of economics (van Rooij et al., 2011), their understanding of financial matters (Bannier & Schwarz, 2018; Bannier & Neubert, 2016; Kramer, 2016), or their overall financial knowledge (Tang & Baker, 2016). TPB-based studies (e.g., Magendans et al., 2017; Croy et al., 2010a) used subjective (or perceived) financial literacy.

Studies have found positive relationship between objective and subjective financial literacy (Kramer, 2016; Tang & Baker, 2016; Babiarz & Robb, 2014; Parker et al., 2012; van Rooij et al., 2011). The strength of the positive correlation differs; van Rooij et al. (2011) and Babiarz and Robb (2014) found *strong* correlation between objective and

subjective literacy, Parker et al. (2012) found *modest* correlation and, Kramer (2016) found *weak* correlation between the two measures of literacy. There are other studies (e.g., Allgood & Walstad, 2016; Lusardi & Mitchell, 2014) which found that subjective (or perceived) financial literacy is not a proxy for objective (or actual) financial literacy, and that a person can have a low actual financial literacy but high perceived financial literacy. Hence, there appears a lack of consensus on the correlation between objective and subjective literacy, and a lack of studies about why there is a mismatch between these two measures of financial literacy (Tang & Baker, 2016).

The two financial literacy measures play distinct roles in financial behaviour; both measures are relevant for financial risk taking (Magendans et al., 2017; Bannier & Neubert, 2016), and influence propensity to hold emergency savings (Babiarz & Robb, 2014). Reyers (2019), however, did not find evidence which suggest a relationship between objectively measured financial knowledge and emergency savings. Further, only perceived financial literacy was found to be significantly related to investment in sophisticated assets (Bannier & Neubert, 2016), and subjective financial knowledge prevents risky credit behaviours more than objective financial knowledge (Xiao et al., 2011). Perceived financial literacy has been used as a measure of confidence (Bannier & Schwarz, 2018), specifically as a measure of financial confidence (Allgood & Walstad, 2016). Confidence is important in predicting real-world behaviour (Parker et al., 2012), even if confidence is a poor proxy for actual knowledge or ability. For instance, on the propensity to seek financial advice, it was found that people with higher confidence in their own financial literacy, particularly among wealthy households, are less likely to seek financial advice (Kramer, 2016). Hence, self-assessed (perceived) financial literacy was

viewed as important as actual financial literacy (Allgood & Walstad, 2016) or as more important than objectively measured financial literacy (Reyers, 2019).

Some studies used both objective and subjective measures of financial literacy (see Bannier & Schwarz, 2018; Allgood & Walstad, 2016; Bannier & Neubert, 2016; Kramer, 2016; Tang & Baker, 2016; van Rooij et al., 2011). Using both measures of financial literacy appear to have more explanatory power in explaining financial behaviours rather than using only objective measure of financial literacy (Allgood & Walstad, 2016), and allows much additional insight to be obtained (Kramer, 2016).

This study adopts the measures of subjective financial knowledge (literacy) in Magendans et al. (2017). The preference for subjective financial literacy measures is also to be consistent with other TPB-based studies (e.g., Xiao et al, 2011). The statements in this study, as presented in Table 5.10, evaluate financial literacy in terms of knowledge, confidence, and money management skills.

Table 5.10: Measurement items for Financial Literacy (15 items)

| |
|---|
| Compared to my friends, I know a lot about financial matters. |
| My general knowledge of money matters is high. |
| I know a lot about the different options for saving money. |
| I know enough about money matters to feel quite confident when making a financial decision. |
| I feel that I am not very aware about money matters. |
| In my circle of friends, I am one of the “expert” when it comes to money matters. |
| Compared to other people I do not know much about money matters. |
| I find managing money matters always complicated. |

I often check what the current saving interest rates are.

I save money with an automatic monthly saving plan.

I have put my savings into a long-term deposit.

I would switch to another bank if I would get a higher saving interest rate.

I am familiar with the deposit insurance system in Malaysia.

I do not know what bank saving really is.

I have already at least once switched banks with my savings.

5.2.7 Time preference (hyperbolic discounting)

Hyperbolic discounting can be measured using a measure of time preferences in Lee and Veld-Merkoulova (2016). The question (in Lee & Veld-Merkoulova, 2016) measured time preference through this statement *I often work on things that will only pay off in a couple of years*, where couple of years could imply short-term. As for this study, a minor amendment was made – where *a couple of years* was changed to *quickly*. In addition, this study incorporated the responses from Phase One interviews. The other statements to measure time preference (hyperbolic discounting) are the following. First, a term that is used by Gen Ys - You Only Live Once or YOLO - to reflect live for today. Second, whether it is satisfying to spend (as opposed to saving). Third, whether they set long-term financial goals. Fourth, their general attitude towards money. The following are the statements to measure time preference (hyperbolic discounting). Three of the statements are attitude statements in the OECD/INFE Toolkit (OECD, 2020) to gauge respondents' attitudes towards money and planning for future. The statements are:

- I tend to live for today and let tomorrow take care of itself
- I find it more satisfying to spend money than to save it for the long-term
- Money is there to be spent

**Table 5.11: Measurement items for Time Preference/Hyperbolic Discounting
(5 items)**

| |
|---|
| I tend to live for today and let tomorrow take care of itself. |
| I find it more satisfying to spend money than to save it for the long term. |
| I set long term financial goals and strive to achieve them. |
| Money is there to be spent. |
| I often work on things that will pay off quickly. |

5.2.8 Demographic variables

Shih and Ke (2014) in their study on financial behaviour found that demographic variables played a segmentation role. As such, in this study, the sample composition should account for individual differences that might influence constructs of this study. Based on prior studies, the individual differences include highest educational level as a proxy for knowledge or experience (Gibson et al., 2012), birth cohort (Atkinson & Messy, 2012), gender (Nurul Shahnaz Mahdzan & Tabiani, 2013; Atkinson & Messy, 2012; Chan et al., 2010), employment status (Atkinson & Messy, 2012) and, income (Nurul Shahnaz Mahdzan & Tabiani, 2013; Atkinson & Messy, 2012). Calder et al. (1981) referred to this form of research setting as encompassing environmental heterogeneity.

Appendix D presents the questionnaire used for pretesting.

5.3 Pretesting of questionnaire

5.3.1 Purpose and method of pretesting

Pretesting is often a misunderstood stage of designing a questionnaire, but it is a vital stage. The purpose of pretesting is to check that questions work as intended and are understood by individuals who are likely to be the target respondents (Hilton, 2017). Pretesting is important to ensure item problems are identified at an early stage; thus, prevent such item problems from being carried forward. Specifically, pretesting was done to provide feedback on ambiguous questions, and identify potential misunderstandings that could be caused by unclear terms and confusing statements (Hilton, 2017; Perneger et al., 2014).

In this study, pretesting was done with two respondents. Both are females, one born in 1980 and the other in 1986. The approach used was cognitive interviewing, which is a combination of think-aloud and probing procedures. Using this approach, the respondents were asked to think out loud (express their thoughts) while completing the questionnaire. This is complemented with probe questions to check that the questions are understood and being interpreted as intended. The respondents' body language was observed when they were answering the questions. General probes such as 'I noticed that you hesitated, tell me, what is the problem with the question', 'do you know the meaning of deposit insurance system' and at the completion 'was it easy or hard to respond to this questionnaire'. Respondents were also asked to comment on the presentation and layout of the questionnaire. The time taken to complete the questionnaire was also recorded. The first respondent took 20 minutes whereas the second respondent took only 15 minutes.

5.3.2 Results of pretesting

Respondent 1 felt that the terms *pleasant* (giving a sense of happy satisfaction or enjoyment), *enjoyable* (giving delight or pleasure), *happy* and *satisfying* (giving fulfilment or pleasure) have similar meanings. Clearly, the terms have almost similar interpretations. Three indicators of experiential attitude - *pleasant-unpleasant*, *enjoyable-unenjoyable*, and *satisfying-unsatisfying* - will be used in the amended version of questionnaire but *sad-happy* is omitted.

A rating of 3 on the five-point scales means *neither agree nor disagree*. The feedback received is to use *neutral* which can be interpreted as uncertain, unsure, do not know or no opinion.

The word *regularly* is removed from statements to measure Descriptive Norm. This is because *save every month* means *save regularly*. The changes to the statements are as follows:

Table 5.12: Revised measurement items for Descriptive Norm (4 items)

Most of my family members save money every month.

Most of my friends save money every month.

Most people like me save money every month.

Most of the people that I know save money every month.

Statements to measure Perceived Control seemed difficult to respond for those who have already been saving. The suggestion was to change *start saving* into *save*. There was also a query on why the question asked for Perceived Control for the next three months. It was suggested that there is no real requirement for a specified time limit. The

word *regularly* is also removed as *on monthly basis* means regularly. The revised statements to measure Perceived Control is presented in Table 5.13.

Table 5.13: Revised measurement items for Perceived Control (3 items)

| |
|--|
| If I want to, I could save money on monthly basis. |
| It would be very easy for me to save money on monthly basis. |
| My decision to save money on monthly basis would be completely under my control. |

However, to measure Self-efficacy, the time-period of three months remains. The reason being self-efficacy represents the respondents' own perception of their ability to save money in the future. It should be easier to predict behaviour in the next three months rather than over a longer, uncertain time-period. As was done for Perceived Control, *start saving* is replaced with *save*. Pretesting indicated that the word *within* in the statements on self-efficacy may prove confusing. It could be interpreted as at least one month during the three months when the actual meaning the statements plan to convey is throughout the three months. To prevent confusion, the word *within* in the statement *within the next three months* is changed to *for the next three months* to imply consistent behaviour throughout the next three months. Again, as was done in statements measuring Perceived Control, *regularly* is replaced with *on monthly basis*. The amended statements are as follows.

Table 5.14: Revised measurement items for Self-efficacy (3 items)

| |
|--|
| For the next three months, I am certain I can save money on monthly basis even if unexpected expenses arise. |
| For the next three months, I am certain I can save money on monthly basis even if I face with a financial challenge. |
| For the next three months, I am certain I can save money on monthly basis even if I face temptations to spend. |

Similar amendments, with regards to *start saving* and *regularly* were made to the sentences to measure *Intention*. Another amendment is to remove *within the next three months*. The revised statements to measure *Intention* are as follows.

Table 5.15: Revised measurement items for Intention to save regularly (4 items)

| |
|--|
| I expect to save some money every month. |
| I intend to save some money every month. |
| I will try to save some money every month. |
| I plan to save some money every month. |

On saving behaviour, the amendment made to the fourth statement is to replace the word *sufficient* with *adequate*. Although these two terms are almost identical, *sufficient* refers to a higher level than *adequate*. *Adequate* describes a condition of something barely meeting the minimum requirement. *Sufficient* means the amount is enough, and it is more than adequate. Having adequate savings means that the amount saved is not abundant and that the amount might not be sufficient (or enough) for the long-term.

5.4 Pilot Testing of Questionnaire

The amended questionnaire is used for pilot testing. As opposed to pretesting, pilot testing is to test a questionnaire using a small sample to assess whether it produces reliable and valid responses. Further amendments are required if there are issues with reliability and validity. According to Ajzen (2006), for the questionnaire to be considered reliable and valid, each set of items designed to directly assess a given construct should have a high degree of internal consistency, and the measures of the different constructs should exhibit discriminant validity which means each construct cannot be construed in terms of

other constructs. To achieve these aims, one or two items may have to be dropped for each construct. Quality of the scales to be used in final questionnaire could be evaluated using confirmatory factor analysis (Ajzen, 2006).

5.4.1 Demographic profile of respondents

A total of 57 responses were received from individuals born in the years 1980 to 1995 but only 53 responses were deemed suitable for analysis. The responses removed were due to two reasons. Firstly, for giving rating 3 (neutral) for all responses, and secondly, for being unemployed and still studying as this study targets income-earners. The demographics of pilot study responses are presented in Table 5.16.

Table 5.16: Demographic profile of pilot study respondents

| | | No of responses (n=53) | Percent (%) |
|----------------------------------|-----------------|-----------------------------------|------------------------|
| Years of birth | 1980-1987 | 23 | 43.4 |
| | 1988-1995 | 30 | 56.6 |
| Gender | Male | 25 | 47.2 |
| | Female | 28 | 52.8 |
| Highest educational level | Diploma | 1 | 1.9 |
| | Bachelor Degree | 27 | 50.9 |
| | Master Degree | 22 | 41.5 |
| | PhD/Doctorate | 3 | 5.7 |
| Type of employment | Salaried | 45 | 84.9 |
| | Self-employed | 4 | 7.5 |
| | Freelancer | 3 | 5.7 |
| | All 3 above | 1 | 1.9 |

Table 5.16, continued

| | | No of responses (n=53) | Percent (%) |
|---------------------------|--|-----------------------------------|------------------------|
| Monthly net income | Less than RM2,500 | 3 | 5.7 |
| | RM2,500 - RM5,000 | 34 | 64.2 |
| | More than RM5,000 | 11 | 20.8 |
| Saving habit | Don't want to disclose | 5 | 9.4 |
| | Don't save - usually spend more than income | 1 | 1.9 |
| | Don't save - usually spend about as much as income | 3 | 5.7 |
| | Save whatever is left over at the end of the month - no regular plan | 7 | 13.2 |
| | Save income of one family member, spend the other | 3 | 5.7 |
| | Spend regular income, save other income | 3 | 5.7 |
| | Save regularly by putting money aside each month | 36 | 67.9 |

Younger Gen Ys make up a slightly higher percentage of respondents (57%) compared to older Gen Ys (43%). Females make up 53% of the respondents. Slightly more than half (51%) has a Bachelor Degree. A large percentage (85%) are salaried employees. Most of them (64%) earns between RM2,500 and RM5,000. Almost 68% of the respondents save regularly by putting money aside each month. Another 13% save whatever is left over at the end of the month but these respondents have no regular plan.

5.4.2 Internal Consistency

As the sample size is only 53, SPSS version 22 was used for analysis. According to Memon et al. (2017), if the sample size is too small, PLS-SEM might not perform effectively. Cronbach's Alpha - a common measure of internal consistency - was used to measure internal consistency of the data, and the results are presented in Table 5.17.

Table 5.17: Cronbach's Alpha for all constructs

| Variables | Cronbach's Alpha (α) |
|------------------------------------|---|
| Experiential attitude | .885 |
| Instrumental attitude | .931 |
| Injunctive norm | .906 |
| Descriptive norm | .752 |
| Perceived control | .815 |
| Self-efficacy | .894 |
| Intention to save regularly | .881 |
| Regular saving behaviour | .884 |
| Financial literacy | .834 |
| Hyperbolic discounting | .565 |

Cronbach's Alpha value of 0.7 is regarded as acceptable at early phase of research. The high values of Cronbach's Alpha, above 0.7, for all variables with the exception for hyperbolic discounting show a high level of internal consistencies in the scale. There is thus a problem for measures of hyperbolic discounting which has not achieved the benchmark of 0.7. Further amendments to the statements to measure hyperbolic discounting are therefore necessary.

5.5 Further amendments to the questionnaire

Four of the statements on Hyperbolic Discounting focuses on preferences for the short-term through 'living for today' and spending money. These kinds of preferences are likely to hinder saving behaviour. After the pilot test results were analysed, it was decided that reverse coded (negatively worded) items needed to be rephrased or removed, and more changes were done to the statements to measure Hyperbolic Discounting. This was necessary as the Cronbach Alpha value for items measuring Hyperbolic Discounting was less than 0.6, which is considered poor. The construct itself was renamed as Time Preference, which refers to tendency to choose a smaller-sooner reward versus a larger-

later reward. Table 5.18 presents the revised measurement items without reverse coded and negatively worded items.

Table 5.18: Revised measurement items

| Construct | Original statement | Revised statement |
|--|---|--|
| Saving Behaviour | I did not save money on monthly basis in the past three months. | Removed |
| Financial Literacy | I feel that I am not very aware about money matters. | I feel that I am very aware about money matters. |
| | Compared to other people, I do not know much about money matters. | If I compare myself to other people, I do know more about money matters. |
| | I find managing money matters always complicated. | I always find managing money matters to be easy. |
| | I do not know what bank saving really is. | I know what bank saving really is. |
| Hyperbolic discounting (changed to Time Preference) | I tend to live for today and let tomorrow take care of itself. | I make future financial plans. |
| | I find it more satisfying to spend money now than to save it for the long term. | I find it more satisfying to save money for the long term than to spend money now. |
| | Money is there to be spent. | Money is to be saved first and spent second. |
| | I often work on things that will pay off quickly. | I save money in saving plans that might only provide returns in the long run. |

Two experts on questionnaire design were also consulted. They have recommended the following. For birth cohort, in addition to having two categories which are those born in the years 1980 to 1987 (the older Gen Ys) and those born in the years 1988 to 1995 (the younger Gen Ys), there should be an open-ended option that is *other*. Although this

study targets those born in the years 1980 to 1995, there could be respondents who erroneously complete this survey. Such respondents need to be identified. Secondly, to reduce the options for highest educational level. As a result, the amended version has only four options for highest educational level: PhD/Doctorate/Master, Bachelor/Professional Degree, Diploma/Certificate and Secondary level/High School. The option *other* is removed as these four options are considered exhaustive. The number of categories for monthly net income is increased with a smaller range for each income category. To measure saving time horizon, a new question is inserted to inquire on the time period most important to respondents when planning their savings.

Further changes include removal of the final statement on financial literacy *I have already at least once switched banks with my savings*, as its relevancy is unclear. In the pilot study, one respondent's response for *type of employment* was *Others: all 3 above*. Hence, in the actual study, respondents will be asked to select the option that *best* describes their type of employment. Another demographic information was added, that is, on the residential area - urban or rural. In addition, on the question about the respondents' saving goals in the past twelve months, *to go for Hajj (pilgrimage)* will be rephrased as *for religious trips / pilgrimages*. Finally, there might be a need for a clearer definition of the term *breadwinner*. The term *breadwinner* (in a household) will be defined as *the person in it who earns the money that the household needs for essential things*. Finally, to have a Malay translation of the questionnaire as there could be a big segment of the population who would prefer to respond in the Malay Language which is Malaysia's national language. If the questionnaire is only administered in the English Language, this restricts respondents to only those fluent in the English Language. If a respondent who is not fluent in the English Language responds to an English Language

questionnaire, the responses might be inaccurate due to inability to correctly understand the questions. The process of translating the English Language questionnaire to the Malay Language is explained in Section 5.6.

The final version of this questionnaire will state that the next phase of study to be an experimental study to explore the effectiveness of a financial literacy intervention. There will also be a mention of a token of appreciation to be given to those who participate in the follow-up phase.

The amended questionnaire (in English Language) is presented in Appendix E.

5.6 English to Malay translation of questionnaire

A preliminary translation from English to Malay was first done by the researcher. According to Del Greco et al. (1987, p.817), “the preliminary translation is best done by someone who is aware of not only the overall objective of the questionnaire but the intent behind each question”. Backtranslation (translation back into the original language) was performed by a translator, whose native language is Malay. The translator, who has not seen the original questionnaire, was asked to translate the questions back into the original language. A comparison was done between the translated text in English and the actual (original) text in English, and deviations were examined and discussed. At the same time, an expert evaluated the translated Malay Language questionnaire and recommended changes to the choice of words and sentence construction. The feedback from both the translator and expert were assessed and suggestions for improvement were implemented. The final version of translated questionnaire is presented in Appendix F.

5.7 Sampling techniques

Survey responses were collected through online and printed questionnaire using both convenience and snowball sampling. Whilst purposive sampling is commonly used in qualitative research, convenience sampling is a similar non-probability sampling method used in quantitative research. Past studies have used convenience sampling when selecting students in a researcher's own institution (Magendans et al., 2017; Shim et al., 2012), from various universities in a State (Amer Azlan Abdul Jamal et al., 2016), at pre-determined survey sites such as college campuses (Shih & Ke, 2014), or via Mall Intercept Survey (Yong et al., 2018). Convenience sampling is used when the target population is assumed to be homogeneous (Etikan et al., 2016). Even when a population is heterogeneous, homogeneous convenience samples can be employed in theory research (Calder et al., 1981). The sample composition is made up of those that meet certain practical criteria such as easy access due to geographical proximity and willingness to participate (Etikan et al., 2016). Apart from the use of convenience sampling, snowball sampling can be used to generate more responses (e.g., see Magendans et al., 2017 study which recruited working individuals through email). This is especially useful in this age of social media where those contacted directly by the researcher can share the link to questionnaire with others qualified for this study via social media.

5.8 Data collection

Data was collected from 14 October 2018 to 10 April 2019. Survey was administered – to Malaysian income-earning Gen Ys born between the years 1980 and 1995 - using concurrent mixed mode survey design, where both online questionnaire and hardcopy questionnaire was distributed at the same period to accommodate respondents with different mode preferences. In addition, there were two versions of the questionnaire: in

English Language and in Malay Language. Respondents were given the option to choose whether to answer in English or in Malay. In total, 543 sets of responses were received, and the bulk of these responses were from the English version of online questionnaire. The disparity in mode preference – 82% for online mode versus 18% for hardcopy mode - was expected as younger respondents have preference for online mode (Taylor & Scott, 2019; Horevoorts et al., 2015). A study by Xiao et al. (2011) also found the majority (85.7%) of the respondents completed online survey, and the remaining 14.3% completed paper version survey. Table 5.19 presents the breakdown of responses received based on mode of data collection and language of questionnaire.

Table 5.19: Details of responses

| Data collection via | Language | Number of responses |
|----------------------------|-----------------|----------------------------|
| Online | English | 405 |
| Online | Malay | 42 |
| Hardcopies | English | 66 |
| Hardcopies | Malay | 30 |
| Total | | 543 |

5.9 Preparation of data for analysis

Data preparation is an important step prior to processing and analysis of data. It involves, among others, cleaning data, combining data sets, and addressing the issue of Common Method Variance.

5.9.1 Data cleaning

The purpose of data cleaning is to remove invalid responses that might lower quality of data to be analysed. Johnson (2005) identified three sources of threats to validity of data collected through surveys. The three sources are firstly, linguistic incompetence, secondly, carelessness and inattentiveness and thirdly, misrepresentation. Linguistic incompetence can cause failure to understand terms which could result in wrong

responses. In addition, some respondents may not be enthusiastic when responding to questionnaires, contributing to careless responding and insufficient effort to properly complete a survey. This is referred to as carelessness and inattentiveness. Maniaci and Rogge (2014) found that inattentive respondents provided data of markedly poorer quality - to obtain improved statistical power in regression results as well as in the effects of experimental manipulations, inattentive respondents need to be screened out. Misrepresentation occurs when a respondent fakes his behaviour to present a favourable set of responses. In this topic of saving behaviour, it might be possible that some respondents faked their responses to portray that they are saving when in truth they are not. All these issues are as important as the existence of missing values in questionnaire responses. Data cleaning to identify responses that could contribute to invalid findings are therefore pertinent and must be rigorously done.

Data was cleaned using multiple methods which were applied sequentially. The first method used is removal of respondents who are not the target respondents of this study. This study targets those born in the years 1980 to 1995 (inclusive of both years). Hence, respondents born prior to 1980 or born after 1995 were removed. The requirement that only those born in the years 1980 to 1995 was stated in the survey introduction section. Hence, failure to read this could be construed as demonstrating carelessness. In addition, respondents who failed to answer certain sections were also removed. Missing out answering some questions was also construed as demonstrating carelessness.

Long patterns of the same response, which Curran (2016, p. 8) described as “some of the worst of the worst responders” were then identified to be removed. The tendency to provide consistent answers across items may also produce common method bias - that is,

the bias in an estimated correlation between two variables (Podsakoff et al., 2003). Additionally, when using a 5-point Likert scale where consistently answering 3 (that is, neutral) would mean that the respondent does not have the knowledge to provide the right answer. Some respondents could choose to answer 4 or 5 for a long string of responses. According to Curran (2016), it can be assumed that when individuals use long patterns of the same response option to every question or choose primarily one option but occasionally vary that response to one choice higher or lower on the scale, they have responded not only carelessly but also with insufficient effort as they have put in little or no effort to change their responses throughout a survey. On the contrary, if respondents have responded carefully and have put in sufficient effort, they could not have used the same response option for long periods of time. In this study, respondents were removed for answering 3, 4 or 5 for all questions or for responding using 3 (neutral) for too many questions.

A respondent who answers a survey carefully is expected to provide “a pattern of responses that is internally consistent” (Curran, 2016, p.9) and therefore reliable. Hence, responses that suggest lack of individual consistency are removed. This was done by comparing responses for Statement SB1 (*In the past three months, I have saved money every month*) and question C8 (*Which of the following statements below comes closest to describing your saving habit?*). There should be positive correlation in the responses of these two items and a huge discrepancy, such as responded 5 (completely agree) for SB1 but responded 1 or 2 (both means they do not save) for C8, suggest that the respondent did not provide consistent set of responses.

By applying multiple methods to remove invalid responses, this approach of eliminating invalid data considers that each method has its pros and cons. A respondent who passed the first hurdle, that is suitability as target respondent and has no missing values, was assessed on the responses provided and if the respondent passed this next hurdle, i.e., no long pattern of same response, the respondent is then assessed in terms of individual consistency of responses. Only responses that passed all three hurdles are analysed. Table 5.20 details the number of responses removed due to missing values, wrong birth cohort, complete or severe lack of variability in responses and lack of individual consistency. The percentage is calculated based on total number of responses received for each mode of data collection. However, as elimination was done sequentially, for subsequent hurdles, the number of responses investigated is smaller than for the previous hurdle.

Table 5.20: Details of responses removed

| Data collection via | Language | Due to wrong birth cohort / missing values | Due to long pattern of same response | Due to lack of individual consistency | Total removed (% out of total responses) |
|----------------------------|-----------------|---|---|--|---|
| Online | English | 8 (2%) | 6 (1.5%) | 8 (2%) | 22 (5%) |
| Online | Malay | 4 (9.5%) | 1 (2.4%) | 2 (4.8%) | 7 (17%) |
| Hardcopies | English | 3 (4.5%) | 2 (3%) | 3 (4.5%) | 8 (12%) |
| Hardcopies | Malay | 3 (10%) | 2 (6.7%) | 1 (3.3%) | 6 (20%) |

All questions tapping the exogenous and endogenous constructs in this study are based on 5-point scales. Hence, there is a floor and a ceiling (1 and 5 respectively) making classification of an outlier unclear. It would seem imprudent to discard responses because the responses are either at the low or high end of a 5-point scale, which itself is a narrow spectrum. In total, approximately 8% (43/543) of total responses received were removed, leaving 500 useable responses. This is consistent with findings in other studies that

around 3% to 12% responders provide invalid data (Maniaci & Rogge, 2014; Meade & Craig, 2012). Table 5.21 details the final count of useable responses both for Phase Two and respondents who agreed to participate in the subsequent Phase Three.

Table 5.21: Details of useable responses

| Data collection via | Language | Phase Two | Phase Three |
|----------------------------|-----------------|------------------|--------------------|
| Online | English | 383 | 233 (61%) |
| Online | Malay | 35 | 21 (60%) |
| Hardcopies | English | 58 | 31 (53%) |
| Hardcopies | Malay | 24 | 6 (25%) |
| Total | | 500 | 291 (58%) |

5.9.2 Combining data sets

As the data was collected using different methods: paper-based and web-based, and using two languages (English and Malay), Independent Samples T-tests were done to ascertain whether there are significant differences in the mean scores. Ideally, there should not be significant differences in the mean scores and if this is proven, the entire dataset can be combined for further analysis.

5.9.2.1 English Language versus Malay Language

It was found that there are no significant differences in the ratings given in the two modes of data collection - English Language and Malay Language - for all responses measured on Semantic or Likert scales with the exception for DN2 (*Most of my friends save money every month*) and FL12 (*I would switch to another bank if I would get a higher saving interest rate*). As there are significant differences in two statements only, the two forms of questionnaires (English and Malay) are combined for the purpose of further analysis.

5.9.2.2 Online-based responses versus hardcopy responses

As for online-based versus hardcopy/paper-based responses, it was also found that there are no significant differences in the ratings given in the two modes of data collection for all responses measured on Semantic or Likert scales with the exception for IN3 (*Most people who are important to me or whose opinion I value would approve of me saving some money every month*) and DN2 (*Most of my friends save money every month*). This suggests that responses obtained online, and responses obtained through hardcopy questionnaires can be combined for analysis. Prior studies (Dodou & de Winter, 2014; Teo, 2013; Smyth et al., 2010) too found results from web surveys to be quite similar to those of mail-only surveys.

To conclude, there were generally no significant differences in the scores/ratings given in English or Malay language questionnaires and via online or paper-based questionnaires. Hence, the entire set of responses were combined for subsequent analysis.

5.9.3 Common Method Variance (CMV)

5.9.3.1 CMV and its sources

Common Method Variance (CMV) is described as a 'systematic variance' shared among variables (Jakobsen & Jensen, 2015). This is the variance attributable to the measurement method (Kock, 2015) leading to measurement errors, and not attributable to the constructs the measures represent. CMV can produce bias in an estimated correlation between two variables; this bias is termed Common Method Bias, CMB (Jakobsen & Jensen, 2015). CMB is thus a potential consequence of CMV.

According to Podsakoff et al. (2003), CMV is a potential problem in behavioural research and has categorised sources of CMV into four sources. The first is the use of the same respondents to obtain information on both dependent and independent variables. The second is the manner items are presented to respondents, for example, whether only positively worded items are used or a mixture of positively and negatively worded items. Thirdly, the context in which items are placed on a questionnaire is not clear, and where such abstractness may be a source of method bias. Finally, the broader research context in which the measures are obtained could also influence the covariation between constructs. The contextual influences include time and location of measurement. If the measures of predictor and criterion variables are taken at the same time at a same place, CMV may exist. Another contextual influence that may be a source of CMV is the medium used to obtain the responses. Face-to-face interviews tend to induce more socially desirable responding than questionnaires.

When self-report questionnaires are used to collect data, where both the dependent and independent variables are perceptual measures derived from the same respondent at the same time, CMV becomes a strongest concern (Podsakoff et al., 2003; Podsakoff & Organ, 1986). CMV is compounded by respondents who have the tendency to provide positive answers (Chang et al., 2010) and evaluate themselves as higher than the actual (Jakobsen & Jensen, 2015) or because of social desirability (Jakobsen & Jensen, 2015; Podsakoff et al., 2003) provided responses that make the respondents look good but not reflecting their true feelings about an issue or topic. In these circumstances, when the same set of survey respondents (common source) are used to measure both the independent and dependent variables at the same time, these potentially lead to positive correlation between the two variables (Jakobsen & Jensen, 2015), producing (common

method) biased research findings. According to Jakobsen and Jensen (2015), the common method can be considered as a third variable that impacts the relationships among variables, leading to spurious correlation and false internal consistency among the variables. According to Kock (2015), even though Confirmatory Factor Analysis (CFA) can assess both convergent and discriminant validity, models that pass criteria for acceptable convergent and discriminant validity can still be contaminated by CMB. If CMB exists, the level of convergent validity of a model could be artificially increased (Kock, 2015). As such, CMV is often a problem for researchers using survey-based data (Chang et al., 2010) and hence, researchers are required to address how their studies countered common method variance.

5.9.3.2 Remedies to counter CMV

According to Podsakoff et al. (2003), researchers are required to control CMV through all possible ways. The 'all possible ways' are the various procedural and statistical remedies that assess and control common method variance. Studies (Tehseen et al., 2017; Podsakoff et al., 2003) have reviewed and evaluated the remedies. Tehseen et al. (2017) strongly recommends that both procedural and statistical remedies be used to test and control the impacts of CMV of a research study.

Procedural remedies, relating to carefully designed procedures of a study, are said to be the best way to reduce common method bias (Jakobsen & Jensen, 2015) and are to be prioritised by researchers (Podsakoff et al., 2003). With procedural remedies done prior to data collection, researchers can minimise, even if not eliminate totally, the potential effects of CMV on their research findings (Podsakoff et al., 2003). Podsakoff et al. (2003) recommended five types of procedural remedies. First, which Chang et al. (2010, p.179)

described as “clearly the best option”, is to use different sources to obtain measures of the independent and dependent variables instead of from the same source. Second, is to have proximal or methodological separation of measurement in addition to temporal and psychological separation of measurement. Temporal separation can be done by creating a time lag between the measurement of the predictor and criterion variables. Proximal or methodological separation can be done by using different response formats (semantic differential, Likert scales, face scales, open-ended questions), media (computer based vs. paper and pencil vs. face-to-face interviews), and/or locations (such as different rooms or sites). Psychological separation could be done by using a cover story to make it appear that the measurements of the criterion and predictor variables are not connected or related. Thirdly, by protecting respondent anonymity and reducing evaluation apprehension. Respondents must be assured that there are no right, or wrong answers and that they should answer questions as honestly as possible. Fourthly, by counterbalancing question order of the measurement of the predictor and criterion variables. Counterbalancing primary disadvantage is that it may disrupt the logical flow of questions which are recommended in the survey research. Finally, by improving scale items through careful construction of the items themselves. However, if researchers could not adopt all procedural remedies or they have difficulty finding a procedural remedy that meets all their needs, statistical remedies which are done after data collection then become essential (Tehseen et al., 2017). According to Podsakoff et al. (2003), using one of the available statistical remedies could be useful as a follow-up to procedural remedies.

5.9.3.3 Procedures to address CMV in this study

This study incorporated some of the procedural remedies recommended by Podsakoff et al. (2003). Firstly, by having a time lag, there was a temporal separation of

measurements of the independent and dependent variables. The dependent variable in this study, regular saving behaviour, taps the respondents' saving behaviour in the previous three months. All the other variables were measured at least six months prior to the measurement of the dependent variable. Methodological separation was done by using two response formats, these are semantic differential scales to evaluate attitude and Likert scales to evaluate other constructs in this study. In addition, data was collected using two channels which are computer based and by completing hardcopy questionnaires. To encourage honesty and minimise any evaluation apprehension when providing responses, respondents were assured that the information they provide is for academic purposes only, that there are no right or wrong answers, and that information provided will be treated with total confidentiality. The items and scales used in this study's questionnaire were derived and improved through various procedures. First, instead of simply adopting items and scales used in other similar TPB-based studies, this study made use of information from elicitation interviews to prepare empirically grounded questionnaire. This was followed by pre-testing and pilot testing of the questionnaire which identified problematic questions and ambiguous terms which were subsequently improved or removed. The only procedural remedy that was not implemented is the touted best option to use different sources to obtain measures of the independent and dependent variables as this was not doable.

One recommended statistical method to test if CMV is of concern in a study is Harman's Single-Factor Test, in which all items (measuring latent variables) are loaded into an exploratory factor analysis to check whether a single factor is accountable for variance in the data or one general factor accounts for majority of the covariance among the measures (Chang et al., 2010; Podsakoff et al., 2003). If the total variance for a single

factor is less than 50%, it suggests that CMV does not affect the data, hence does not affect the results. This test is done using principal component analysis in SPSS. The output generated (see Appendix G) revealed one factor that explains 29.562% of the variance in data. As this percentage is less than 50%, the conclusion is CMV does not affect the data.

Criticisms on Harman's Single-Factor Test include the test is insufficient as a test for common method bias as it only tests for the absence or presence of bias and not to control or correct the common method bias that might be present in a study (Tehseen et al., 2017; Jakobsen & Jensen, 2015; Podsakoff et al., 2003), the test is insensitive and incomplete (Podsakoff et al., 2003), and no useful guideline is available regarding the acceptable percentage of explained variance by a single-factor (Chang et al., 2010). According to Kock (2015), Harman's single-factor test relies on exploratory factor analysis and that many researchers in the past have proposed the use of confirmatory factor analysis as a more desirable alternative to Harman's Single-Factor Test. However, conducting a confirmatory factor analysis was also found to be not an effective way of identifying Common Method Bias as models may pass criteria for acceptable convergent and discriminant validity, but still be contaminated by common method bias (Kock, 2015). As such, according to Kock (2015), an effective alternative for the identification of Common Method Bias is a full collinearity test.

Through a full collinearity test, Variance Inflation Factors (VIFs) are generated for all latent variables in a model. The occurrence of a VIF greater than 3.3 is proposed as an indication that a model may be contaminated by common method bias. Hence, if all VIFs resulting from a full collinearity test at factor level are equal to or lower than 3.3, the

model can be considered free of common method bias (Kock, 2015). If VIF values are larger than 3.3 but lower than 5, there exists minor method bias. If VIF values are larger than 5 but less than 10, moderate method bias exists. VIF values more than 10 indicate that major method bias exists. Again, full collinearity test identifies whether method bias exists but does not mitigate method bias.

The results of a full collinearity test for this study are presented in Table 5.22.

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Table 5.22: Results of full collinearity test

| | DN | EA | FL | IN | IA | INT | PC | RSB | SE | TP |
|---------------------------------------|-----------|-----------|-----------|-----------|-----------|------------|-----------|------------|-----------|-----------|
| Descriptive norm (DN) | | 1.478 | 1.479 | 1.368 | 1.478 | 1.476 | 1.47 | 1.442 | 1.464 | 1.472 |
| Experiential attitude (EA) | 3.009 | | 3.011 | 3.007 | 2.937 | 2.915 | 2.533 | 2.94 | 3.008 | 2.7 |
| Financial literacy (FL) | 2.122 | 2.122 | | 2.118 | 2.067 | 2.115 | 2.11 | 2.117 | 2.118 | 1.452 |
| Injunctive norm (IN) | 1.356 | 1.464 | 1.463 | | 1.374 | 1.418 | 1.462 | 1.464 | 1.458 | 1.466 |
| Instrumental attitude (IA) | 2.037 | 1.988 | 1.985 | 1.911 | | 1.781 | 2.013 | 2.038 | 1.989 | 2.011 |
| Intention (INT) | 2.759 | 2.676 | 2.755 | 2.675 | 2.415 | | 2.481 | 2.644 | 2.718 | 2.607 |
| Perceived control (PC) | 5.266 | 4.456 | 5.266 | 5.283 | 5.232 | 4.755 | | 5.071 | 3.874 | 4.952 |
| Regular Saving Behaviour (RSB) | 3.422 | 3.426 | 3.499 | 3.505 | 3.509 | 3.356 | 3.36 | | 3.328 | 3.458 |
| Self-efficacy (SE) | 3.424 | 3.455 | 3.451 | 3.44 | 3.375 | 3.401 | 2.529 | 3.28 | | 3.367 |
| Time preference (TP) | 3.052 | 2.749 | 2.097 | 3.065 | 3.024 | 2.891 | 2.866 | 3.021 | 2.985 | |

A full collinearity test revealed that there is no Common Method Bias for the constructs except for Perceived Control where there exists minor to moderate Common Method Bias, and for both regular saving behaviour and self-efficacy, there exists minor method bias.

5.10 Main results

5.10.1 Demographic profile of respondents

The profile of respondents is presented in Table 5.23.

Table 5.23: Profile of respondents

| | | No of responses | Percent (%) |
|--|--------------------------------|----------------------------|------------------------|
| Years of birth | 1980-1987 | 195 | 39.0 |
| | 1988-1995 | 305 | 61.0 |
| Gender | Male | 219 | 43.8 |
| | Female | 281 | 56.2 |
| Highest educational level | Secondary level / High School | 11 | 2.2 |
| | Diploma / Certificate | 35 | 7.0 |
| | Bachelor / Professional Degree | 334 | 66.8 |
| | PhD/Doctorate/Master | 120 | 24.0 |
| Employment status | Salaried | 445 | 89.0 |
| | Self-employed / freelancer | 55 | 11.0 |
| Residential area | Urban | 475 | 95.0 |
| | Rural | 25 | 5.0 |

Table 5.23, continued

| | | No of responses | Percent (%) |
|---|--|------------------------|--------------------|
| Monthly net Income* | Less than RM2,000 | 38 | 7.6 |
| | RM2,000 - RM3,999 | 181 | 36.2 |
| | RM4,000 - RM5,999 | 153 | 30.6 |
| | RM6,000 - RM7,999 | 61 | 12.2 |
| | RM8,000 - RM9,999 | 17 | 3.4 |
| | RM10,000 and above | 21 | 4.2 |
| | Don't want to disclose | 29 | 5.8 |
| Relationship to main breadwinner | Main breadwinner | 200 | 40.0 |
| | Partner is the main breadwinner | 91 | 18.2 |
| | Parent(s) is (are) the main breadwinner(s) | 176 | 35.2 |
| | Other: | 33 | 6.6 |

* Note: 1 MYR is equivalent to 0.23 USD (as of 28 April 2022)

The profile of respondents in this Phase One is similar with the profile of respondents in the Pilot Study. Younger Gen Ys (born in the years 1988 to 1995) again make up a higher percentage of respondents (61%) compared to the older Gen Ys (39%). Females again represent a higher percentage, 56.2% of the respondents. Almost two-third (66.8%) of the respondents have a Bachelor or Professional Degree. The second highest type of educational background are those holding postgraduate qualifications (PhD/ Doctorate/ Master), this group represents 24% of the respondents. Almost all respondents (95%) stay at urban areas. Most of the respondents (89%) are salaried employees. Almost two-third of them (66.8%) earns between RM2,000 and RM5,999. A large proportion, 40% of the respondents, are main breadwinners in a household. For another 35.2% of respondents, their parent(s) is (are) the main breadwinner(s).

5.10.2 Saving planning horizon, saving habit, and saving goals

The findings on saving planning horizon, saving habit, and saving goals are presented in Table 5.24, Table 5.25, and Table 5.26.

Table 5.24: Respondents' saving planning horizon

| Time horizon | No of responses | Percent |
|---|------------------------|----------------|
| 1 month or less | 52 | 10.4 |
| More than 1 month but less than 6 months | 107 | 21.4 |
| More than 6 months but less than 1 year | 115 | 23.0 |
| More than 1 year but less than 5 years | 108 | 21.6 |
| More than 5 years | 118 | 23.6 |

There seems to be a rather equal distribution of respondents in their saving time horizon. With time horizon of less than one year generally considered as short-term, it was found that majority of them (54.8%) makes short-term planning when saving money. Planning for up to one year is thus the most important for the respondents.

Table 5.25: Respondents' saving habit

| Saving habit | No of responses | Percent |
|---|------------------------|----------------|
| Don't save - usually spend more than income | 19 | 3.8 |
| Don't save - usually spend about as much as income | 19 | 3.8 |
| Save whatever is left over at the end of the month - no regular plan | 143 | 28.6 |
| Save income of one family member, spend the other | 14 | 2.8 |
| Spend regular income, save other income | 45 | 9.0 |
| Save regularly by putting money aside each month | 260 | 52.0 |

Gen Ys seem to have the habit of saving money regularly with 52% of the respondents putting aside money each month. The second biggest group are those who save whatever that is left at the end of each month (28.6%, 143 respondents). As this group of respondents have no regular saving plan, it is unclear how often they save. Those who do not save only make up 7.6% of the total number of respondents.

Table 5.26: Respondents' saving goals

| Reasons | No of responses | Percent |
|---|------------------------|----------------|
| To go for a holiday | 321 | 64.2 |
| For future medical expenses / future uncertainties | 320 | 64.0 |
| For old age / retirement | 255 | 51.0 |
| For education / school fees | 181 | 36.2 |
| For wedding expenditure | 127 | 25.4 |
| For religious trips / pilgrimages | 106 | 21.2 |
| To buy a car | 98 | 19.6 |

The respondents were asked the reasons for their saving (saving goals) done in the past twelve months. The reasons are listed in Table 5.26 in descending order of priority. As expected, they save for more than one reason. Hence, the total number of responses exceed 500. The top two reasons for saving are to go for a holiday and for future medical expenses or for future uncertainties. More than 50% of the respondents also save for old age and for retirement.

5.10.3 Descriptive statistics of latent variables

Table 5.27 presents the descriptive statistics of latent variables. Based on the criteria in Kline (2016), the acceptable range for skewness is between -3 and +3, and the acceptable range for kurtosis is between -10 and +10. As all the skewness and kurtosis values are within the acceptable range, the shape of the distribution may not be severely non-normal. Among the predictors of intention to save regularly, Instrumental Attitude has the highest mean, but with smallest standard deviation, producing the highest kurtosis. The data for Instrumental Attitude is negatively skewed, as with the skewness of other latent variables but its data is most highly skewed. The lowest mean is for Descriptive Norm. Among the predictors of regular saving behaviour, financial literacy has the lowest mean and the smallest kurtosis.

Table 5.27: Descriptive Statistics

| | Min | Max | Mean | SD | Skewness | Kurtosis |
|------------------------------------|------------|------------|-------------|-----------|-----------------|-----------------|
| Experiential Attitude | 1.00 | 5.00 | 3.8235 | .92855 | -.815 | .483 |
| Instrumental Attitude | 1.00 | 5.00 | 4.6905 | .52831 | -2.386 | 7.677 |
| Injunctive Norm | 1.00 | 5.00 | 4.3734 | .71083 | -1.289 | 2.067 |
| Descriptive Norm | 1.00 | 5.00 | 3.4635 | .75957 | -.095 | .046 |
| Perceived Control | 1.00 | 5.00 | 4.0394 | .88341 | -.988 | .580 |
| Self-efficacy | 1.00 | 5.00 | 3.5786 | 1.02751 | -.478 | -.353 |
| Intention to save regularly | 1.00 | 5.00 | 4.3820 | .72862 | -1.456 | 2.755 |
| Regular saving behaviour | 1.00 | 5.00 | 3.8925 | .97659 | -.906 | .475 |
| Financial Literacy | 1.00 | 5.00 | 3.2352 | .81163 | -.217 | -.039 |
| Time Preference | 1.00 | 5.00 | 3.7488 | .84100 | -.688 | .476 |

5.11 Partial Least Squares Structural Equation Modelling (PLS-SEM)

Analysis was done using SmartPLS v.3.2.9 (Ringle et al., 2015). It begins with an assessment of the reflective measurement model in Section 5.11.1. If the measurement model meets all the required criteria for validity and reliability, the structural model is assessed next. However, if the measurement model does not meet the required criteria for validity and reliability, it makes no sense to assess the structural model. Assessment of both the measurement model and structural model are done using PLS-SEM guidelines. Results reveal that all the benchmarks for validity and reliability were achieved. This is thus followed by an assessment of the structural model in Section 5.11.2, which began with assessment of lateral collinearity issues, followed by assessment of statistical significance and relevance of path coefficients of the model. Nine of this study's hypotheses are assessed. In addition, an assessment is done of the

model's predictive relevance using in-sample predictions and out-of-sample predictions. In-sample predictions were done via assessments of Coefficient of Determination (R^2) and effect size (f^2). Out-of-sample predictions were done via assessments of Q^2 and PLSpredict. Assessments of moderator analysis were also done to test whether financial literacy, gender and birth cohorts acts as moderators. The model of this study was slightly modified in Section 5.11.3. This is to study whether the performance of regular saving influences Experiential Attitude.

5.11.1 Assessment of reflective measurement model

This first stage in evaluating PLS-SEM results requires examining the linkage between indicators and constructs. This assessment was done in four steps. First, the assessment of convergent validity. Second, the assessment of indicator loadings (outer loadings). Third, assessment of internal consistency reliability. Finally, assessment of discriminant validity.

5.11.1.1 Convergent Validity

Convergent validity is the degree to which indicators of a specific construct converges to explain the variance of its items (Hair et al., 2019) in comparison to indicators measuring other constructs. Convergent validity is assessed using Average Variance Extracted (AVE) which is calculated by squaring the loading of each indicator of a construct and then compute the mean value (Hair et al., 2019). AVE is thus the average amount of variance that a construct explains in its indicators relative to the overall variance of its indicators. AVE values of 0.5 or higher are acceptable for convergent validity to be achieved. The interpretation of AVE value of 0.5 is that the construct explains at least 50 per cent of the variance of its items (Hair et al., 2019).

Using full data set, the results (see Appendix H) reveal that except for Financial Literacy which has an AVE of 0.498, the rest of the constructs have AVE values more than 0.5.

Hair Jr et al. (2017) provided some guidelines on whether to delete or retain indicators based on AVE. If AVE is less than 0.5, the outer loadings of the affected construct will be examined. Indicators which have outer loadings less than 0.4 are recommended to be deleted but only after taking into consideration the impact of deleting an indicator on content validity. Since the AVE for Financial Literacy is less than 0.5, its indicators' outer loadings were considered for deletion. The indicators of Financial Literacy have the following outer loadings:

| | |
|-------------|-------|
| FL1 | 0.753 |
| FL2 | 0.795 |
| FL3 | 0.803 |
| FL4 | 0.794 |
| FL5 | 0.726 |
| FL6 | 0.801 |
| FL7 | 0.781 |
| FL8 | 0.688 |
| FL9 | 0.771 |
| FL10 | 0.515 |
| FL11 | 0.576 |
| FL12 | 0.392 |
| FL13 | 0.666 |
| FL14 | 0.681 |

FL12 has the lowest loading and less than 0.4. It is also for FL12 that significant difference in ratings from English Language and Malay Language questionnaires were found. FL12 is thus removed, leaving thirteen indicators for Financial Literacy. Removal of FL12 increased AVE for Financial Literacy to 0.527 which meets the benchmark for AVE.

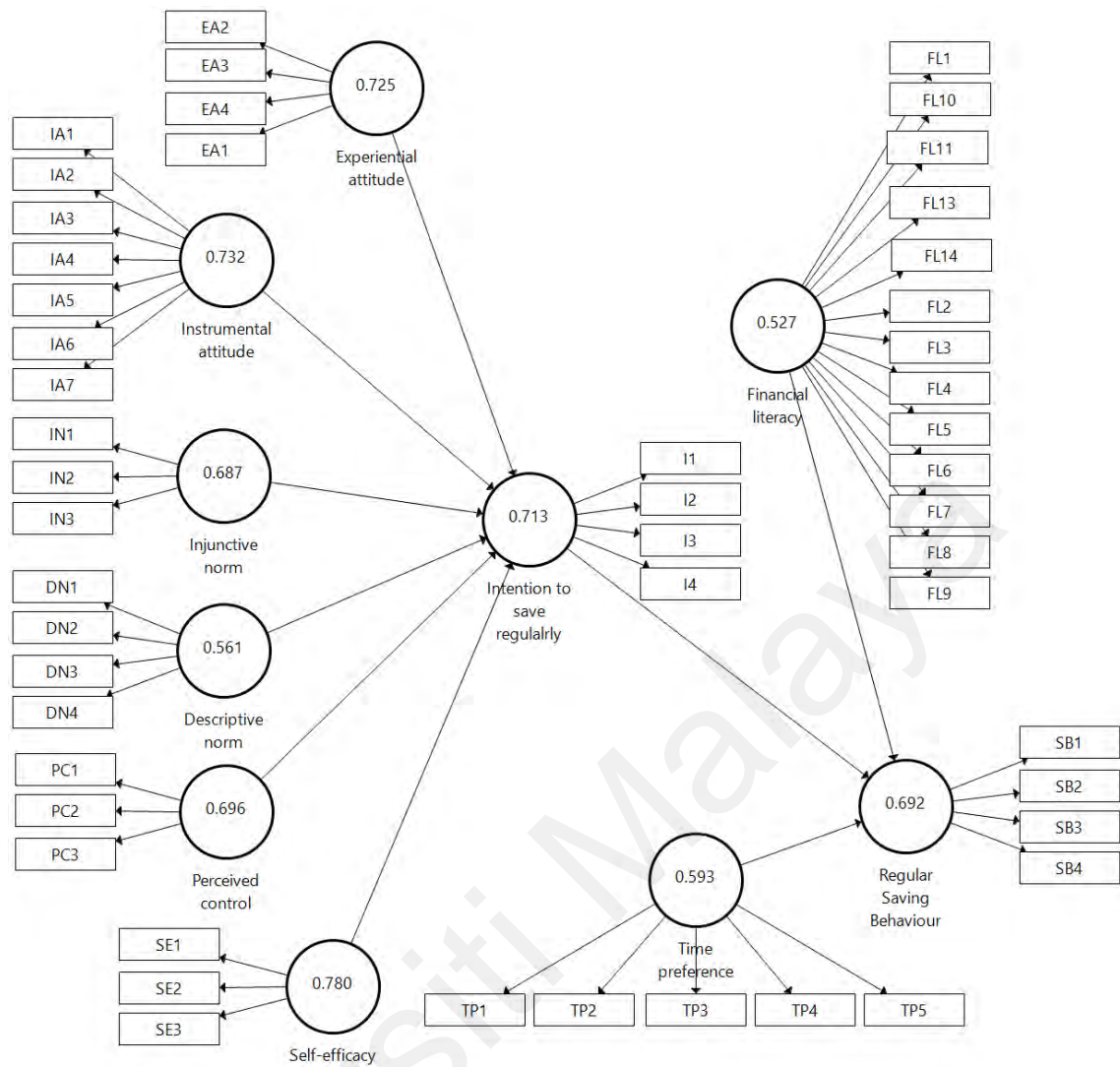


Figure 5.1: AVE after removal of FL12

5.11.1.2 Indicator Loadings (Outer Loadings)

Indicator loadings (outer loadings) shows the relationships between indicators and constructs. The purpose is to evaluate the extent to which indicators of a construct is consistent with what it intends to measure. For each indicator, its indicator loading denotes the proportion of variance explained by the latent variable (Ramayah et al., 2018). Loadings above 0.708 are recommended, this indicates that the construct explains more than 50 per cent of the indicator's variance, and this can be considered as

providing acceptable item reliability (Hair et al., 2019). Figure 5.2 shows the indicator loadings of this study's model. See Appendix I for a tabular presentation of the outer loadings.

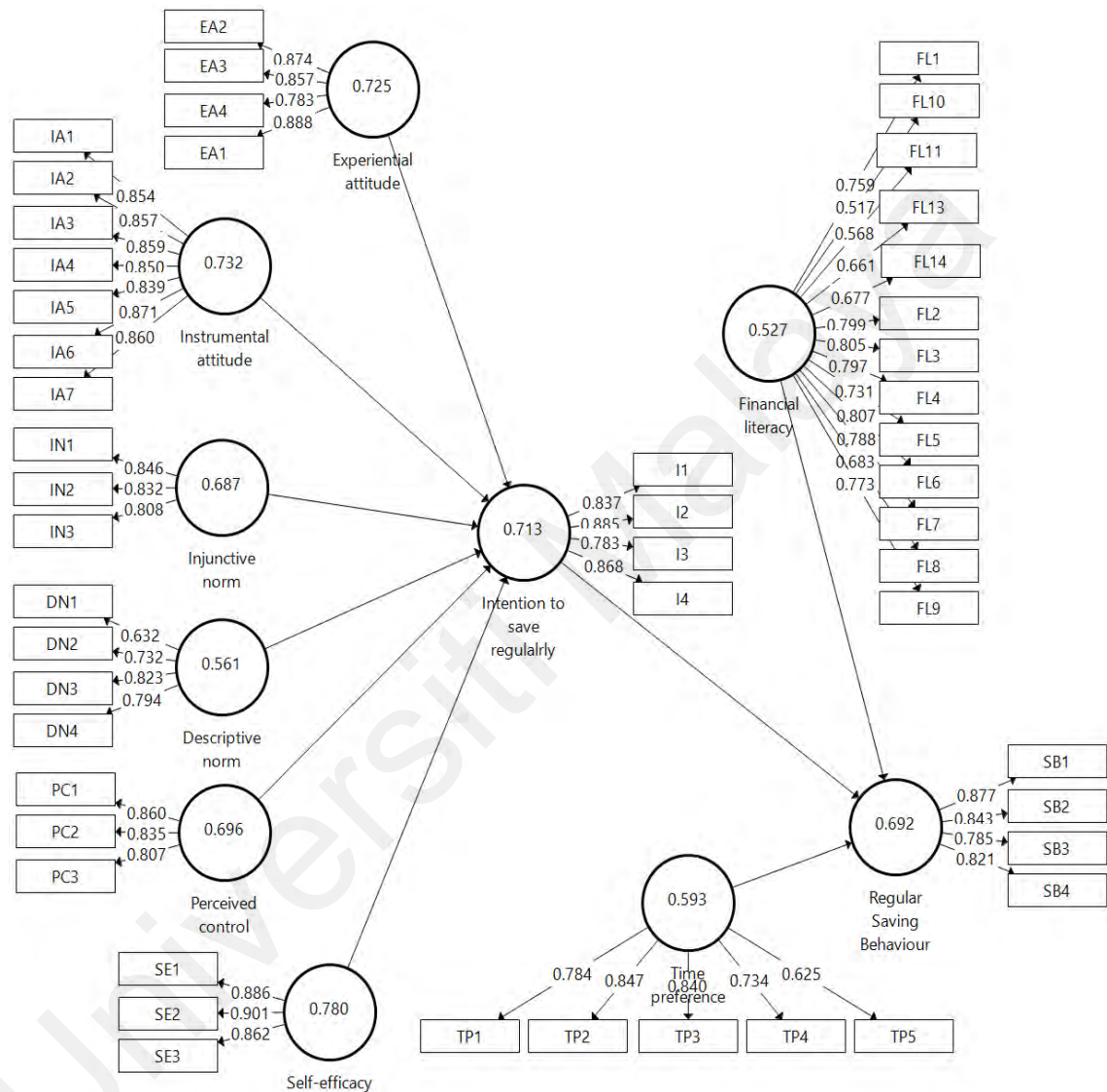


Figure 5.2: Outer Loadings

The figures show that there are indicators that did not achieve the recommended loadings of above 0.708. Nevertheless, according to Hulland (1999), loading values equal to and greater than 0.4 are acceptable if the construct AVE score is greater than

0.5. In this study, all the loading values are greater than 0.5 with AVE scores also greater than 0.5. Hence, no further elimination of indicators is required.

5.11.1.3 Internal Consistency Reliability

Cronbach's alpha (α) and Composite Reliability (CR) have been traditionally used to measure internal consistency of the data. Cronbach's alpha provides an estimate of the reliability based on the intercorrelations of the observed indicator variables (Hair Jr et al., 2017). A construct with high Cronbach's alpha value indicates the items within the construct have similar range and meaning. According to guidelines offered in Nunally (1978), cited in Hulland (1999), Cronbach's alpha value of 0.7 is regarded as a benchmark for 'modest' composite reliability, applicable in early phases of research. At later phases, the benchmark should be higher, for instance 0.8 or 0.9. For this study, the results as presented in Table 5.28 show all Cronbach's alpha values to be greater than 0.7.

The drawback with the values of Cronbach's alpha is that not only it increases with numbers of indicators, but it is also sensitive to the number of indicators and tends to underestimate internal consistency reliability (Hair Jr et al., 2017). It also assumes that all indicators are equally related to the construct concerned which means it assumes that all indicators have equal factor loadings, and this is not in line with SEM. Hence, if data analysis is done using SEM, an alternative reliability measure, called Composite Reliability (CR) is used. CR takes account the loadings of the indicators. Table 5.27 also presents the values of each construct's Composite Reliability.

The values for CR are higher than the values of α for all the constructs, and all the values are higher than 0.8. The benchmark for Composite Reliability is also 0.7, the same as for α . Although higher values generally indicate higher levels of reliability, values between 0.7 to 0.9 is recommended (Hair et al., 2019). According to Hair et al. (2019), the maximum value should be 0.95 and that values above 0.95 indicates that there is indicator redundancy. This means that the indicators are measuring the same phenomenon, thus unlikely to constitute valid reliability assessment of a construct. Reliability values of 0.95 and above also suggest there might exist undesirable response patterns such as straight lining (Hair et al., 2019). Based on these guidelines, CR values should be between 0.7 and 0.95. Looking at results in Table 5.28, all constructs in this study has achieved Composite Reliability benchmark.

According to Sijtsma (2009), Cronbach's alpha typically underestimates the true reliability and according to Hair Jr et al. (2017), Composite Reliability tends to overestimate the internal consistency reliability. Hence, Cronbach's alpha is the lower bound and Composite Reliability is the upper bound for internal consistency reliability, making it reasonable to consider and report both criteria. However, the true reliability of a construct is viewed as within these Cronbach's alpha and Composite Reliability values (Hair et al., 2019). According to Hair et al. (2019), Dijkstra-Henseler's rho (ρ_A) may represent a good compromise of an approximate measure of construct reliability as it usually lies between Cronbach's alpha and the Composite Reliability. The values of ρ_A of this study are also presented in Table 5.28.

Table 5.28: Measures of internal consistency

| | Cronbach's alpha (α) | Composite Reliability (CR) | ρ_A |
|------------------------------------|---|---|----------------------------|
| Experiential attitude | 0.873 | 0.913 | 0.884 |
| Instrumental attitude | 0.939 | 0.950 | 0.941 |
| Injunctive norm | 0.772 | 0.868 | 0.773 |
| Descriptive norm | 0.741 | 0.835 | 0.775 |
| Perceived control | 0.784 | 0.873 | 0.805 |
| Self-efficacy | 0.860 | 0.914 | 0.871 |
| Intention to save regularly | 0.866 | 0.908 | 0.877 |
| Financial literacy | 0.923 | 0.935 | 0.928 |
| Time preference | 0.827 | 0.878 | 0.847 |
| Regular Saving Behaviour | 0.852 | 0.900 | 0.861 |

All the results to assess the measurement model are presented in Table 5.29.

Table 5.29: Measurement model

| Construct | Items | Loadings | AVE | CR |
|------------------------------|--------------|-----------------|------------|-----------|
| Experiential attitude | EA1 | 0.888 | 0.725 | 0.913 |
| | EA2 | 0.874 | | |
| | EA3 | 0.857 | | |
| | EA4 | 0.783 | | |
| Instrumental attitude | IA1 | 0.854 | 0.732 | 0.950 |
| | IA2 | 0.857 | | |
| | IA3 | 0.859 | | |
| | IA4 | 0.850 | | |
| | IA5 | 0.839 | | |
| | IA6 | 0.871 | | |
| | IA7 | 0.860 | | |
| Injunctive norm | IN1 | 0.846 | 0.687 | 0.868 |
| | IN2 | 0.832 | | |
| | IN3 | 0.808 | | |
| Descriptive norm | DN1 | 0.632 | 0.561 | 0.835 |
| | DN2 | 0.732 | | |
| | DN3 | 0.823 | | |
| | DN4 | 0.794 | | |
| Perceived control | PC1 | 0.860 | 0.696 | 0.873 |
| | PC2 | 0.835 | | |
| | PC3 | 0.807 | | |
| Self-efficacy | SE1 | 0.886 | 0.780 | 0.914 |
| | SE2 | 0.901 | | |
| | SE3 | 0.862 | | |

Table 5.29, continued

| Construct | Items | Loadings | AVE | CR |
|------------------------------------|--------------|-----------------|------------|-----------|
| Intention to save regularly | I1 | 0.837 | 0.713 | 0.908 |
| | I2 | 0.885 | | |
| | I3 | 0.783 | | |
| | I4 | 0.868 | | |
| Regular saving behaviour | SB1 | 0.877 | 0.692 | 0.900 |
| | SB2 | 0.843 | | |
| | SB3 | 0.785 | | |
| Financial literacy | FL1 | 0.759 | 0.527 | 0.935 |
| | FL2 | 0.799 | | |
| | FL3 | 0.805 | | |
| | FL4 | 0.797 | | |
| | FL5 | 0.731 | | |
| | FL6 | 0.807 | | |
| | FL7 | 0.788 | | |
| | FL8 | 0.683 | | |
| | FL9 | 0.773 | | |
| | FL10 | 0.517 | | |
| | FL11 | 0.568 | | |
| | FL13 | 0.661 | | |
| | FL14 | 0.677 | | |
| Time preference | TP1 | 0.784 | 0.593 | 0.878 |
| | TP2 | 0.847 | | |
| | TP3 | 0.840 | | |
| | TP4 | 0.734 | | |
| | TP5 | 0.625 | | |

AVE exceeds 0.5 for all the constructs, no items have loadings less than 0.4, and the CR values for all the constructs are greater than 0.7. Thus, the constructs met all reliability and convergent validity requirements.

5.11.1.4 Discriminant Validity

Discriminant validity is the extent to which a construct is empirically distinct from other constructs in a structural model (Hair et al., 2019). In PLS-SEM, three measures of discriminant validity are available; these are Fornell-Larcker criterion, Cross Loadings and Heterotrait-Monotrait Ratio (HTMT).

The basis of Fornell-Larcker criterion is that a latent variable should explain better the variance on its own indicators than the variance of other latent variables (Ramayah et al., 2018). To satisfy that discriminant validity is achieved, each construct's AVE is compared with its squared correlations with other constructs in the model. Table 5.30 presents the Fornell-Larcker criterion results.

Table 5.30: Fornell-Larcker criterion results

| | DN | EA | FL | IN | IA | INT | PC | SB | SE | TP |
|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| DN | 0.749 | | | | | | | | | |
| EA | 0.312 | 0.852 | | | | | | | | |
| FL | 0.175 | 0.427 | 0.726 | | | | | | | |
| IN | 0.304 | 0.211 | 0.071 | 0.829 | | | | | | |
| IA | 0.238 | 0.434 | 0.148 | 0.391 | 0.856 | | | | | |
| INT | 0.283 | 0.459 | 0.291 | 0.365 | 0.588 | 0.844 | | | | |
| PC | 0.369 | 0.610 | 0.358 | 0.270 | 0.447 | 0.563 | 0.834 | | | |
| SB | 0.384 | 0.606 | 0.436 | 0.259 | 0.423 | 0.561 | 0.641 | 0.832 | | |
| SE | 0.372 | 0.559 | 0.427 | 0.234 | 0.300 | 0.44 | 0.651 | 0.636 | 0.883 | |
| TP | 0.206 | 0.547 | 0.625 | 0.175 | 0.355 | 0.458 | 0.413 | 0.521 | 0.471 | 0.770 |

Key: DN: Descriptive Norm, EA: Experiential Attitude, FL: Financial Literacy, IN: Injunctive Norm, IA: Instrumental Attitude, INT: Intention to save regularly, PC: Perceived control; SB: Regular saving behaviour, SE: Self-efficacy, TP: Time preference

The figures highlighted in bold for each construct is the square root of its AVE. Based on Fornell-Larcker criterion, square root of AVE at the diagonal must be greater than the correlation of the construct with all other constructs in the structural model to conclude that there is discriminant validity. The results in Table 5.30 shows discriminant validity is achieved for all constructs.

An assessment of cross-loadings is also called “item-level discriminant validity” (Henseler et al., 2015). Based on cross loadings, each indicator should load highest on

the construct it is associated with. This ensures that an indicator belongs to the construct it intends to measure and not to another construct. Cross loading results of all indicators are presented in Appendix J. The cross-loading results also indicate that there is discriminant validity between all the constructs where all indicators are highly loaded on their respective constructs. This also implies that indicators of different constructs are not inter-changeable.

Fornell-Larcker criterion and cross loadings are found to be the measures predominantly relied on by researchers to assess discriminant validity (Henseler et al., 2015). However, Henseler et al. (2015), through a simulation study, found that both Fornell-Larcker criterion and cross loadings are not sufficiently sensitive to detect discriminant validity problems. They recommended an alternative criterion called Heterotrait-monotrait ratio (HTMT) of correlations. HTMT refers to the ratio of correlations within the constructs to correlations between the constructs. HTMT can be used as a criterion which is compared to a threshold or as a statistical test. The HTMT criterion for this study is presented in Table 5.31.

Table 5.31: Heterotrait-monotrait ratio (HTMT) criterion

| | DN | EA | FL | IN | IA | INT | PC | SB | SE | TP |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| DN | | | | | | | | | | |
| EA | 0.364 | | | | | | | | | |
| FL | 0.207 | 0.467 | | | | | | | | |
| IN | 0.412 | 0.258 | 0.1 | | | | | | | |
| IA | 0.282 | 0.474 | 0.152 | 0.458 | | | | | | |
| INT | 0.337 | 0.517 | 0.31 | 0.451 | 0.645 | | | | | |
| PC | 0.465 | 0.749 | 0.417 | 0.335 | 0.508 | 0.662 | | | | |
| SB | 0.467 | 0.699 | 0.479 | 0.319 | 0.463 | 0.633 | 0.779 | | | |
| SE | 0.44 | 0.647 | 0.467 | 0.282 | 0.327 | 0.493 | 0.801 | 0.731 | | |
| TP | 0.235 | 0.621 | 0.716 | 0.212 | 0.385 | 0.52 | 0.504 | 0.602 | 0.538 | |

Key: DN: Descriptive Norm, EA: Experiential Attitude, FL: Financial Literacy, IN: Injunctive Norm, IA: Instrumental Attitude, INT: Intention to save regularly, PC: Perceived control; SB: Regular saving behaviour, SE: Self-efficacy, TP: Time preference

HTMT values close to one indicate a lack of discriminant validity. There are different recommendations as to what correlation value can be considered as close to one so that if HTMT value is higher than this threshold, a conclusion that discriminant validity is lacking can be made. A conservative threshold value is 0.85 (Kline, 2011) while a more liberal threshold value is 0.90 (Gold et al., 2001). The notations HTMT_{.85} and HTMT_{.90} are used to distinguish between the two thresholds for HTMT. The conservative HTMT_{.85} is more likely to indicate a lack of discriminant validity. The values in Table 5.30 are lower than the required threshold value of the conservative HTMT_{.85}, indicating that discriminant validity is established for the constructs of this study. To further assess discriminant validity, HTMT inference using bootstrapping technique can be performed. The results of HTMT inference are presented in Table 5.32.

Table 5.32: Heterotrait-monotrait ratio (HTMT) inference using bootstrapping technique

| | 5% | 95% |
|--|-------|-------|
| Experiential attitude -> Descriptive norm | 0.275 | 0.446 |
| Financial literacy -> Descriptive norm | 0.140 | 0.263 |
| Financial literacy -> Experiential attitude | 0.401 | 0.544 |
| Injunctive norm -> Descriptive norm | 0.318 | 0.492 |
| Injunctive norm -> Experiential attitude | 0.156 | 0.372 |
| Injunctive norm -> Financial literacy | 0.053 | 0.115 |
| Instrumental attitude -> Descriptive norm | 0.192 | 0.378 |
| Instrumental attitude -> Experiential attitude | 0.391 | 0.545 |
| Instrumental attitude -> Financial literacy | 0.106 | 0.203 |
| Instrumental attitude -> Injunctive norm | 0.344 | 0.580 |
| Intention to save regularly -> Descriptive norm | 0.248 | 0.433 |
| Intention to save regularly -> Experiential attitude | 0.421 | 0.591 |
| Intention to save regularly -> Financial literacy | 0.236 | 0.388 |
| Intention to save regularly -> Injunctive norm | 0.338 | 0.557 |
| Intention to save regularly -> Instrumental attitude | 0.572 | 0.728 |
| Perceived control -> Descriptive norm | 0.378 | 0.551 |
| Perceived control -> Experiential attitude | 0.691 | 0.814 |
| Perceived control -> Financial literacy | 0.332 | 0.486 |

Table 5.32, continued

| | 5% | 95% |
|---|-----------|------------|
| Perceived control -> Injunctive norm | 0.226 | 0.441 |
| Perceived control -> Instrumental attitude | 0.412 | 0.594 |
| Perceived control -> Intention to save regularly | 0.575 | 0.736 |
| Regular Saving Behaviour -> Descriptive norm | 0.383 | 0.552 |
| Regular Saving Behaviour -> Experiential attitude | 0.626 | 0.764 |
| Regular Saving Behaviour -> Injunctive norm | 0.225 | 0.420 |
| Regular Saving Behaviour -> Instrumental attitude | 0.358 | 0.536 |
| Regular Saving Behaviour -> Intention to save regularly | 0.549 | 0.700 |
| Regular Saving Behaviour -> Perceived control | 0.714 | 0.835 |
| Self-efficacy -> Descriptive norm | 0.346 | 0.530 |
| Self-efficacy -> Experiential attitude | 0.580 | 0.714 |
| Self-efficacy -> Financial literacy | 0.405 | 0.539 |
| Self-efficacy -> Injunctive norm | 0.193 | 0.366 |
| Self-efficacy -> Instrumental attitude | 0.242 | 0.407 |
| Self-efficacy -> Intention to save regularly | 0.400 | 0.566 |
| Self-efficacy -> Perceived control | 0.744 | 0.859 |
| Self-efficacy -> Regular Saving Behaviour | 0.667 | 0.785 |
| Time preference -> Descriptive norm | 0.148 | 0.316 |
| Time preference -> Experiential attitude | 0.556 | 0.692 |
| Time preference -> Financial literacy | 0.665 | 0.765 |
| Time preference -> Injunctive norm | 0.129 | 0.300 |
| Time preference -> Instrumental attitude | 0.296 | 0.471 |
| Time preference -> Intention to save regularly | 0.439 | 0.592 |
| Time preference -> Perceived control | 0.408 | 0.588 |
| Time preference -> Regular Saving Behaviour | 0.515 | 0.676 |
| Time preference -> Self-efficacy | 0.467 | 0.606 |

If any of the confidence interval contains the value of 1, it indicates a lack of discriminant validity. Conversely, if the value of one is outside the confidence interval, this indicates that the two constructs are empirically distinct. The results in Table 5.32 show neither lower nor upper confidence interval includes a value of 1. All the upper bound of the 95 per cent confidence interval of HTMT is lower than one. Thus, discriminant validity is achieved based on HTMT inference.

Henseler et al. (2015) study found that all three HTMT approaches ($HTMT_{.85}$, $HTMT_{.90}$ and $HTMT_{inference}$) detect discriminant validity issues reliably as opposed to

Fornell-Larcker and cross-loadings. However, $HTMT_{.85}$ is the most conservative criterion while $HTMT_{inference}$ is the most liberal of the three HTMT approaches.

Both the results for cross loadings and Fornell-Larcker criterion suggest that discriminant validity is achieved for all constructs. An alternative criterion called Heterotrait-monotrait ratio (HTMT) of correlations produced results where all values are lower than the required threshold value of the conservative $HTMT_{.85}$, indicating that discriminant validity is established for the constructs of this study. To conclude, the measurement models have met all the required criteria for validity and reliability.

5.11.2 Assessment of structural model

Assessment of the structural model was done using standard assessment criteria which includes coefficient of determination (R^2), blindfolding-based cross-validated redundancy measure (Q^2), statistical significance and relevance of path coefficients, and assessment of this study's model's out-of-sample predictive power using PLSpredict procedure. However, before assessing the structural relationships, collinearity must be examined as collinearity issues can bias regression results.

5.11.2.1 Assessment of structural model for lateral collinearity issues

Unlike the full collinearity test done shown in Table 5.22 where Variance Inflation Factors (VIFs) are generated for all latent variables in the model, here VIF values are calculated using latent variable scores of predictor constructs. As such, lateral collinearity refers to predictor-criterion collinearity. The benchmarks applied in Table 5.22 are again applied to assess this collinearity issue. VIF values above 5 are indicative of probable collinearity issues among predictor constructs (Hair et al, 2011). If a more

stringent criteria by Diamantopoulos and Siguaw (2006) is used, VIF values should be 3.3 or lower to be confident that collinearity is not an issue.

To assess lateral collinearity (predictor-criterion collinearity) issues, each set of predictor constructs needs to be assessed separately for each subset of the structural model. In this analysis, firstly, the first set of predictor constructs (Experiential Attitude, Instrumental Attitude, Descriptive Norm, Injunctive Norm, Perceived Control and Self-efficacy) are assessed using Intention to save regularly as the criterion variable. Secondly, Intention to save regularly, Financial Literacy and Time Preference are the second set of predictor constructs for the criterion variable, Regular Saving Behaviour. Table 5.33 shows the Inner VIF values for all the predictor constructs.

Table 5.33: Lateral Collinearity Assessment using Inner VIF values

| | Intention to save regularly | Regular Saving Behaviour |
|------------------------------------|--|-------------------------------------|
| Experiential attitude | 1.823 | |
| Instrumental attitude | 1.464 | |
| Descriptive norm | 1.265 | |
| Injunctive norm | 1.258 | |
| Perceived control | 2.216 | |
| Self-efficacy | 1.936 | |
| Intention to save regularly | | 1.265 |
| Financial literacy | | 1.641 |
| Time preference | | 1.900 |

As all the Inner VIF values are less than 3.3, collinearity is not an issue.

5.11.2.2 Assess the significance and relevance of the structural model relationships

The conceptual framework for Phase Two Survey is depicted in Figure 5.3.

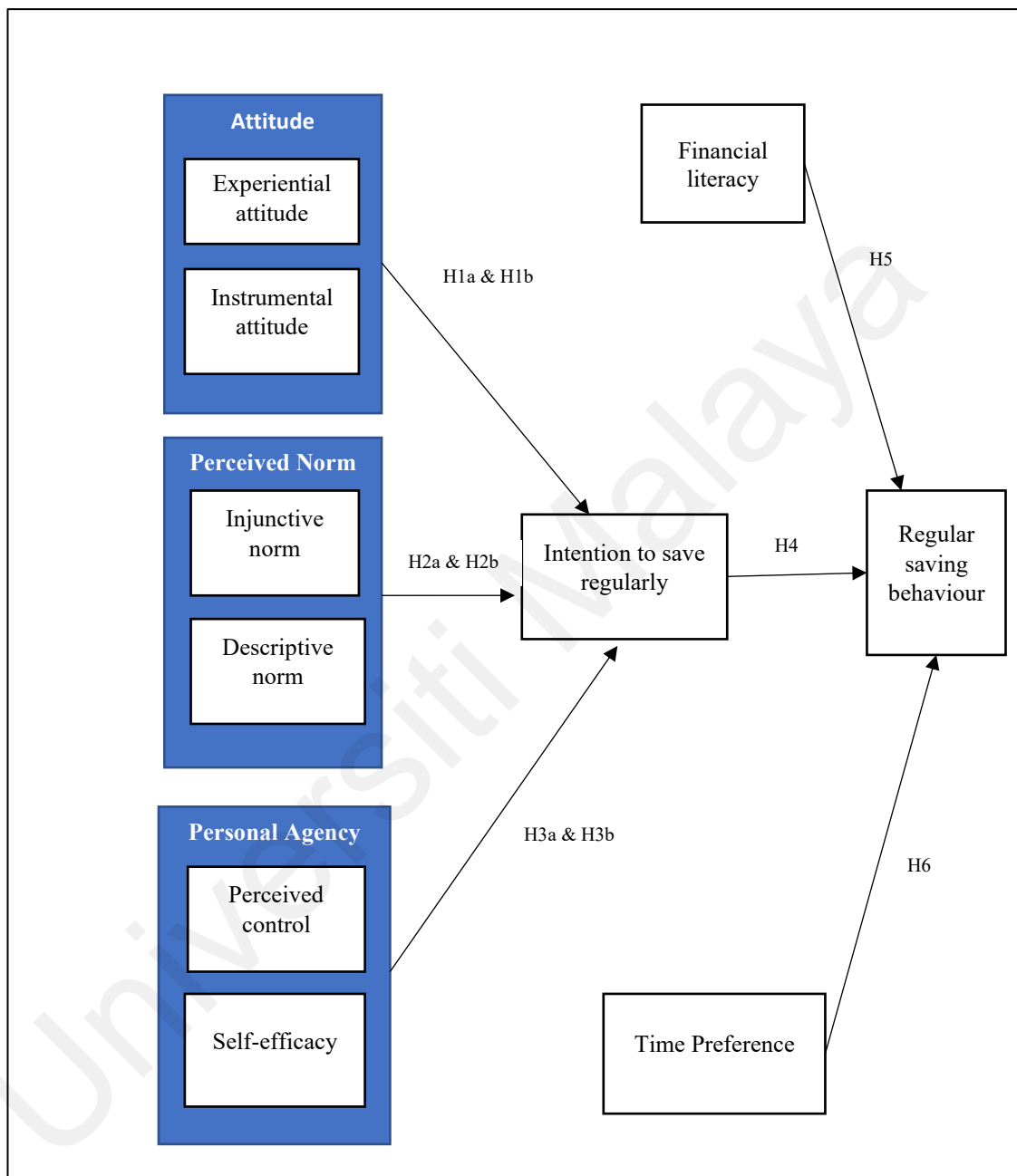


Figure 5.3: Conceptual framework for Phase Two study

The hypotheses to be tested are as follows:

H1a & H1b: Gen Y's (a) experiential attitude, and (b) instrumental attitude is positively related to intention to save regularly.

H2a & H2b: Gen Y's (a) injunctive norm, and (b) descriptive norm, is positively related to intention to save regularly.

H3a & H3b: Gen Y's (a) perceived control, and (b) self-efficacy, is positively related to intention to save regularly.

H4: Gen Y's intention to save regularly is positively related to regular saving behaviour.

H5: There is a positive relationship between financial literacy and regular saving behaviour.

H6: Individuals with low (high) time preference are more (less) likely to have regular saving behaviour.

Bootstrapping procedure, through which large number of subsamples are taken from the original sample with replacement, is used. Using 5000 subsamples, basic bootstrapping and one-tailed test type, the following results were generated.

Table 5.34: Hypothesis Testing

| | | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (O/STDEV) | P Values |
|------------|---|------------------------------------|--------------------------------|---|-------------------------------------|---------------------|
| H1a | Experiential attitude -> Intention to save regularly | 0.055 | 0.057 | 0.057 | 0.967 | 0.167 |
| H1b | Instrumental attitude -> Intention to save regularly | 0.370 | 0.369 | 0.048 | 7.758 | 0.000 |
| H2a | Injunctive norm - > Intention to save regularly | 0.111 | 0.112 | 0.042 | 2.670 | 0.004 |

Table 5.34, continued

| | | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (O/STDEV) | P Values |
|------------|--|------------------------------------|--------------------------------|---|-------------------------------------|---------------------|
| H2b | Descriptive norm -> Intention to save regularly | 0.010 | 0.013 | 0.043 | 0.224 | 0.412 |
| H3a | Perceived control -> Intention to save regularly | 0.270 | 0.27 | 0.058 | 4.678 | 0.000 |
| H3b | Self-efficacy -> Intention to save regularly | 0.093 | 0.091 | 0.050 | 1.835 | 0.033 |
| H4 | Intention to save regularly -> Regular Saving Behaviour | 0.407 | 0.407 | 0.048 | 8.475 | 0.000 |
| H5 | Financial literacy -> Regular Saving Behaviour | 0.178 | 0.181 | 0.050 | 3.555 | 0.000 |
| H6 | Time preference - > Regular Saving Behaviour | 0.223 | 0.224 | 0.058 | 3.833 | 0.000 |

Using $\alpha = 0.05$, a p-value less than 0.05 indicate that there is significant evidence to reject the null hypothesis. Instrumental Attitude, Injunctive Norm, Perceived Control, and Self-efficacy have significant positive relationships with intention to save regularly. However, there is insignificant evidence of a relationship between Experiential Attitude and Descriptive Norm with intention to save regularly. With Regular Saving Behaviour as the endogenous variable, Financial Literacy, Time Preference, and Intention to Save Regularly have significant positive relationships with performance of regular saving.

The Original Sample (O) values in Table 5.31 are the path coefficients. Path coefficient values range from +1 to -1. Coefficients closer to +1 indicates strong positive relationship, and coefficients closer to -1 indicates strong negative relationship between the exogenous and endogenous variables (Ramayah et al., 2018). The path coefficient values can be interpreted the same way as the standardised beta coefficients in an Ordinary Least Squares (OLS) regression; the path coefficients represent the estimated change in the endogenous construct for a unit change in a predictor construct. Significant structural model path coefficients can be interpreted relative to one another. If one path coefficient is larger than another, this means the effect of the first path coefficient on the endogenous latent variable is greater than the other. Based on the above path coefficient values of the six predictors for intention to save regularly, Instrumental Attitude is the most important predictor, followed by Perceived Control, Injunctive Norm, Self-efficacy, Experiential Attitude and finally, Descriptive Norm. When Regular Saving Behaviour is examined as an endogenous construct, Intention to save regularly is the most important predictor construct, followed by Time Preference and then Financial Literacy.

Reporting the significance and relevance of a structural model relationship using t-values and p-values is insufficient (Ramayah et al., 2018). Another result from bootstrapping, the Confidence Interval Bias Corrected is required. The lower and upper bound of Confidence Interval Bias Corrected is presented in Table 5.35. If 0 is not located within a confidence interval, it means that there is a significant result. Based on this, all results are significant except for the relationship between experiential attitude and intention to save regularly and, descriptive norm and intention to save regularly.

Table 5.35: Confidence Interval Bias Corrected

| | Confidence Interval Bias Corrected | |
|---|---|---------------|
| | 5.00% | 95.00% |
| Experiential attitude -> Intention to save regularly | -0.039 | 0.147 |
| Instrumental attitude -> Intention to save regularly | 0.293 | 0.449 |
| Injunctive norm -> Intention to save regularly | 0.046 | 0.181 |
| Descriptive norm -> Intention to save regularly | -0.067 | 0.075 |
| Perceived control -> Intention to save regularly | 0.171 | 0.362 |
| Self-efficacy -> Intention to save regularly | 0.011 | 0.178 |
| Financial literacy -> Regular Saving Behaviour | 0.095 | 0.26 |
| Intention to save regularly -> Regular Saving Behaviour | 0.324 | 0.483 |
| Time preference -> Regular Saving Behaviour | 0.126 | 0.318 |

5.11.2.3 Assess the model's predictive relevance

Assessing the model's predictive relevance requires analysing in-sample prediction and out-of-sample prediction. In-sample prediction, using Coefficient of Determination (R^2) and Effect size (f^2), is done using the entire dataset to predict the model's explanatory power. Out-of-sample prediction, on the other hand, is done using the path model estimates to predict new observations. This (out-of-sample prediction) provides the model's predictive power and is done using Stone and Geisser's Blindfolding-based Q^2 , and PLSpredict (Shmueli et al., 2016).

i. Assessment of the level of R^2 (Coefficient of Determination)

R^2 value of the endogenous construct(s) are examined. Researchers have viewed R^2 value as the combined effect of exogenous variables on endogenous variable(s) (Ramayah et al. 2018), a measure of the model's explanatory power (Shmueli & Koppius, 2011) where it represents the amount of variance in the endogenous construct explained by all the exogenous constructs linked to it, and a measure of in-sample predictive power (Rigdon, 2012). R^2 ranges from 0 to 1, with higher values indicating a greater explanatory power. Acceptable R^2 values are based on the context but a general rule of thumb by Hair Jr et al. (2017) is to consider R^2 values of 0.75, 0.50 and 0.25 as having substantial, moderate, and weak explanatory power. On the other hand, Falk and Miller (1992), cited in Ramayah et al. (2018, p.145) recommend a minimum R^2 value of 0.1 as sufficient in order that the variance explained of an endogenous construct be deemed adequate.

In this study, there are two endogenous constructs; intention to save regularly and regular saving behaviour. The R Square Adjusted for intention to save regularly is 0.473 and for regular saving behaviour is 0.418. Hence, based on Hair Jr et al. (2017), the explanatory power of all the exogeneous constructs on the endogenous constructs can be deemed moderate. A comparison of R^2 obtained in other studies (Aza Azlina Md Kassim et al., 2020; Zurina Kamarudin & Jamalludin Helmi Hashim, 2018) shows that the R^2 for saving behaviour in this study is higher compared to other studies on saving behaviour).

R^2 value has its limitations. The main limitation is that R^2 increases when there are more exogenous constructs linked to an endogenous construct (Ramayah, et al., 2018).

Another limitation is that when predicting new (out-of-sample) observations, R^2 value cannot be used (Shmueli et al, 2016).

ii. Assessment of the level of Effect Size (f^2)

A common practice is to use p-value as a default decision rule. However, p-values are influenced by sample size. When sample size is large, p-values are reduced which makes the probability of getting statistically significant results more likely. Effect size, on the other hand, indicates substantive significance, that is, whether the variable is important and its impact to R^2 when the variable is removed. The difference in R^2 values with the predictor construct and without the predictor construct is known as the effect size. The formula to calculate effect size is:

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

The effect size of each exogenous construct is shown in Table 5.36.

Table 5.36: Effect Size (f^2)

| | Intention to save regularly | Regular Saving Behaviour |
|------------------------------------|--|-------------------------------------|
| Experiential attitude | 0.003 | |
| Instrumental attitude | 0.180 | |
| Injunctive norm | 0.019 | |
| Descriptive norm | 0.000 | |
| Perceived control | 0.063 | |
| Self-efficacy | 0.009 | |
| Intention to save regularly | | 0.226 |
| Financial literacy | | 0.033 |
| Time preference | | 0.045 |

Effect size of the predictor constructs can be evaluated using Cohen's f^2 (Cohen, 1988). According to Cohen (1988), f^2 values of 0.36, 0.15 and 0.02 are considered large, medium, and small, effect size respectively. From the table above, intention to save

regularly has the greatest effect size on regular saving behaviour, followed by time preference and financial literacy. Removal of the construct, intention to save regularly, will have the greatest effect on R^2 for Regular Saving Behaviour. Of the six constructs hypothesised to influence intention to save regularly, instrumental attitude has the greatest effect. The effect size for Descriptive norm is 0, which means removal of this construct will not impact R^2 for Intention to save regularly.

iii. Assessment of Q^2

As all the endogenous constructs in this study's model were measured reflectively, a procedure called blindfolding is used to compute Q^2 value. Blindfolding procedure is a resampling technique that systematically deletes and predicts every data point of the indicators of an endogenous construct. Single points in a data matrix are removed, replaced with the mean, and model parameters are predicted (Rigdon, 2014; Sarstedt et al., 2014a). Predicted values are then compared with original values. If the predicted values are close to original values, this implies that prediction error is small, and the path model has high predictive accuracy. The blindfolding procedure will remove data from the data set based on a pre-determined distance value called D. According to Chin (2010), the D value from 5 to 10 is feasible. If D=5, this means every fifth data point is removed and replaced with the mean value. Q^2 value can be calculated using Cross-Validated Redundancy (CVR) and Cross-Validated Communalities (CVC) approaches but CVR is recommended. To conclude that the exogenous constructs have predictive relevance for the endogenous construct, the Q^2 value must be larger than 0. The higher a Q^2 value, the higher the predictive accuracy. Specifically, Q^2 value higher than 0, 0.25 and 0.50 depict small, medium, and large predictive accuracy of the PLS path model (Hair et al., 2019). The results of this study show that Q^2 of Intention to save regularly

is 0.326 and Q^2 of Regular Saving Behaviour is 0.284. The model thus has medium predictive accuracy based on benchmark in Hair et al. (2019).

Shmueli et al. (2016) criticised the use of Q^2 to examine predictive accuracy in PLS models and put forth PLSpredict as an alternative approach. One criticism of Q^2 is that it is not truly a measure of out-of-sample prediction as blindfolding omit only data points and not entire observations. As the sample structure remains largely intact and predictions are made based on the remaining items, internal consistency is used to conclude on predictive accuracy.

iv. Assessment of PLSpredict

The procedure for PLSpredict involves two types of data. The first is termed Training data, which is the actual sample data that will be used to estimate parameters such as path coefficients, loadings, and in-sample R^2 . The second is Testing data or Holdout data, this data is a portion taken randomly from the actual data and it has actual outcomes. However, only data assigned as Training data will be used to provide model estimators. Using the model estimators, predictions will be made for the Holdout data, and a comparison will be made between the predicted outcomes and actual outcomes of the Holdout data to conclude how good the prediction is.

PLSpredict is based on the principle of k-fold cross-validation, where the data set is split into k equal parts or k number of folds. A fold is a subgroup taken from the sample and k is the number of subgroups. The rule of thumb is to use k=10 folds which is said to be common in many predictive studies (Shmueli et al., 2016). PLSpredict combines k-1 subsets into a single analysis sample. From this sample, estimated model parameters

will be used to predict the observations and to calculate the prediction statistics in the remaining data set. This (remaining) data subset is the holdout sample, and each subset will be used once as the holdout sample. The model is estimated k times on $k-1$ data sets. More predictions will produce more stable estimates. Shmueli et al. (2019) recommend $k=10$ and that researchers run PLSpredict ten times ($r=10$) as this is found to be a good trade-off between accuracy and running time. Prediction statistics such as MAE and RMSE that quantify the amount of prediction error can then be referred to. MAE (Mean Absolute Error), for instance, measures the average absolute deviations between the predictions and actual observations. Root Mean Squared Error (RMSE), on the other hand, measures the square root of the average squared deviations between the predictions and actual observations. By squaring the errors, this statistic assigns a greater weight to larger errors and makes this statistic useful when large errors are undesirable.

When interpreting PLSpredict results, the focus is on the model's key endogenous construct. The training estimates from PLS-SEM is used to predict the test sample. There are two benchmarks to assess the predictive power of the PLS path model estimations. Firstly, the Q^2 predict statistic should be evaluated whether it is larger than 0. This verifies that the predictions outperform a most naive benchmark, which is the indicator means from the analysis sample. This is followed by examination of prediction statistics, with RMSE more likely to be used. MAE is the more appropriate distribution statistic if the prediction error distribution is highly non-symmetric. The second naive benchmark is through Linear Regression Model (LM). A Linear Regression Model is a fake model produced by the PLSpredict method that uses a multiple regression of the endogenous constructs' indicators on the indicators of the exogenous constructs as

benchmark. The key difference between blindfolding and PLSpredict is that blindfolding assumes a model to be good whereas PLSpredict compares a model with a fake model before concluding whether the actual model is good. The differences between RMSE (or MAE) of this LM model are compared with PLS-SEM results. Lower values of PLS-SEM results indicate higher predictive power than a simple linear model (Shmueli et al., 2019).

After running PLSpredict, the results in Table 5.37 were obtained.

Table 5.37: PLSpredict results

| | PLS | | | LM | | | PLS-LM | | |
|------------|-------|-------|-------------------------|-------|-------|-------------------------|--------|--------|-------------------------|
| | RMSE | MAE | Q ² _predict | RMSE | MAE | Q ² _predict | RMSE | MAE | Q ² _predict |
| I1 | 0.714 | 0.526 | 0.368 | 0.748 | 0.54 | 0.305 | -0.034 | -0.014 | 0.063 |
| I2 | 0.623 | 0.451 | 0.371 | 0.629 | 0.468 | 0.359 | -0.006 | -0.017 | 0.012 |
| I3 | 0.81 | 0.559 | 0.228 | 0.832 | 0.584 | 0.185 | -0.022 | -0.025 | 0.043 |
| I4 | 0.701 | 0.472 | 0.33 | 0.721 | 0.52 | 0.291 | -0.02 | -0.048 | 0.039 |
| SB1 | 0.958 | 0.746 | 0.356 | 0.868 | 0.63 | 0.471 | 0.09 | 0.116 | -0.115 |
| SB2 | 0.998 | 0.789 | 0.304 | 0.996 | 0.762 | 0.308 | 0.002 | 0.027 | -0.004 |
| SB3 | 1.136 | 0.906 | 0.228 | 1.133 | 0.862 | 0.232 | 0.003 | 0.044 | -0.004 |
| SB4 | 0.826 | 0.634 | 0.326 | 0.836 | 0.591 | 0.31 | -0.01 | 0.043 | 0.016 |

To interpret these results, first, assess whether the PLS-SEM Q^2 predict value of all indicators of a measurement model is more than 0. Based on the shaded column above, this requirement is met. Next, examine the prediction statistics using RMSE or MAE. RMSE is typically used as default and RMSE values of PLS-SEM are compared with RMSE values for LM. Lower RMSE values for PLS-SEM indicate that PLS-SEM model has higher predictive power, and therefore by modelling the relationship between the indicators and outcome variable as a Linear Regression Model increases prediction errors. There are two endogenous variables in this study. First is intention to save regularly, where the RMSE in the PLS-SEM analysis when compared to the LM benchmark shows lower prediction errors for all indicators. This indicates that the model has high predictive power in predicting intention to save regularly. However, for performance of regular saving as an endogenous variable, the majority of the exogenous construct indicators in the PLS-SEM analysis produce higher prediction errors compared to the LM benchmark. This indicates that the model has low predictive power in predicting performance of regular saving.

5.11.3 Further analysis: assessment of Moderator Analysis

In the assessment of R^2 , the R Square Adjusted for intention to save regularly is 0.473 and for regular saving behaviour is 0.418, which suggest that the explanatory power of all the exogeneous constructs on the endogenous constructs is moderate. Specifically, when examining Regular Saving Behaviour as the endogenous construct, intention to save regularly was found to be the most important predictor construct, followed by time preference, and the least important predictor construct was financial literacy. However, based on PLSpredict, this study's model was found to have low predictive power in predicting performance of regular saving. These findings suggest that some

modifications could be tested on the predictors and its relationship with Regular Saving Behaviour. As the relationship between the predictor variable (financial literacy) and the criterion variable (regular saving behaviour) is unexpectedly weak, based on Baron and Kenny (1986), moderator variables are typically introduced.

5.11.3.1 Financial literacy as moderator

A moderator variable influences the magnitude and/or direction of the effect of an antecedent on an outcome (Aguinis et al., 2017). The effect of the influence of the moderator variable on one specific relationship is known as the interaction effect. Categorical variables (such as gender) are normally used as moderator variables. However, continuous variables measured using interval scales can also be used (Memon et al., 2019; MacKinnon, 2011). In this moderation analysis, an assessment is done whether financial literacy (high level and low level of financial literacy) moderates the relationship between intention to save regularly and regular saving behaviour.

Past studies found that financial literacy can positively impact financial behaviour and financial outcomes (Bolognesi et al., 2020; Razen et al., 2020; Allgood & Walstad, 2016; Nurul Shahnaz Mahdzan & Tabiani, 2013). Other studies (Palaci et al., 2017; Grohmann, et al., 2015) have looked at whether financial literacy has a mediating effect. As to the moderating effect of financial literacy, there does not seem to be any prior studies that examined this in the context of the relationship between intention and eventual performance of saving behaviour. Hence, the hypothesis to be tested is, the positive relationship between intention to save regularly and regular saving behaviour will be stronger when financial literacy is high.

There are three major approaches of moderation analysis: these are two-stage approach, orthogonalizing approach and product indicator approach. The choice of approach depends on the aim of the analysis. As the objective of this analysis is to determine whether the positioning of financial literacy as a moderator increases the predictive power of this study's model in predicting performance of regular saving, the orthogonalizing approach is selected. According to Memon et al. (2019), this approach eliminates the issue of collinearity that exists in both the product-indicator and two-stage approaches through residual centering, in addition to being superior in terms of parameter and prediction accuracy and, interpretation of the moderating effect's strength. To perform moderation analysis, the previous measurement model (without the moderator) is now referred to as the main effect model. In particular, the R^2 adjusted of 0.418 for regular saving behaviour is noted before introduction of the interaction term. Figure 5.4 presents the results after the introduction of an interaction term.

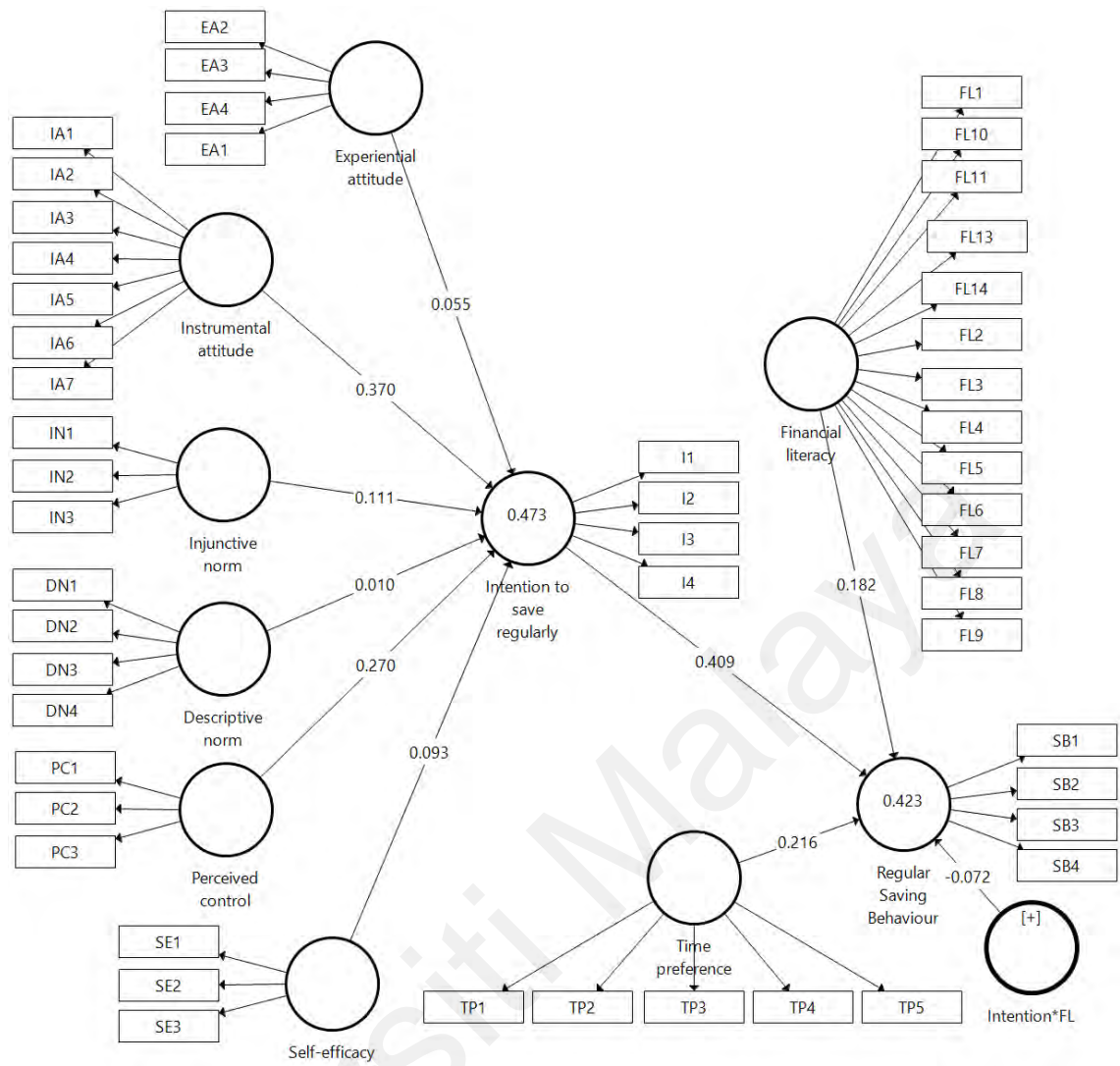


Figure 5.4: Interaction effect (Intention*FL) model

The R^2 in this interaction effect model (0.423) is compared with the R^2 for the main effect model (0.418). The R^2 change of 0.005 indicates that with the addition of one interaction term, there is an additional variance of 0.5%. Next, the effect size (f^2) is calculated using the formula below:

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

$$f^2 = \frac{0.423 - 0.418}{1 - 0.423} = 0.009$$

SmartPLS (v.3.3.2) provides the f^2 value, which is 0.010. Using the guidelines given in Cohen (1988), effect size of less than 0.02 is considered small. Hence, the value of

0.010 represents small effect size but this small effect size does not necessarily imply that the moderator effect is unsubstantial. The resulting beta is -0.072, and to confirm whether this result is significant, a bootstrapping procedure using 1000 subsamples was done where t-value was obtained. Results are presented in Table 5.37. Using $\alpha = 0.05$ and one-tailed test, the cut off value for this test is 1.645. In this analysis, the t-value is less than 1.645 (Table 5.38) and therefore the interaction term of Intention*FL is insignificant.

Table 5.38: Results of moderation analysis (Financial literacy as moderator)

| Relationship | Std. Beta | Std. Error | t-value |
|--|-----------|------------|---------|
| Intention*FL -> Regular Saving Behaviour | -0.072 | -0.068 | 0.665 |

5.11.3.2 Gender as moderator

Findings from studies on financial literacy seem to suggest that financial literacy is a male-dominated field (Razen et al., 2020; Tang et al., 2015; Atkinson & Messy, 2012). In this next moderation analysis, an assessment is done whether gender (male and female) moderates the relationship between financial literacy and regular saving behaviour. The hypothesis to be tested is, the positive relationship between financial literacy and regular saving behaviour would be stronger for males compared to females. As the moderator is a categorical variable but predictor variables are continuous variables, Product Indicator Approach can be used (Ramayah et al., 2018). As presented in Figure 5.5, the R^2 adjusted for the endogenous variable (regular saving behaviour) of this main effect model is 0.419.

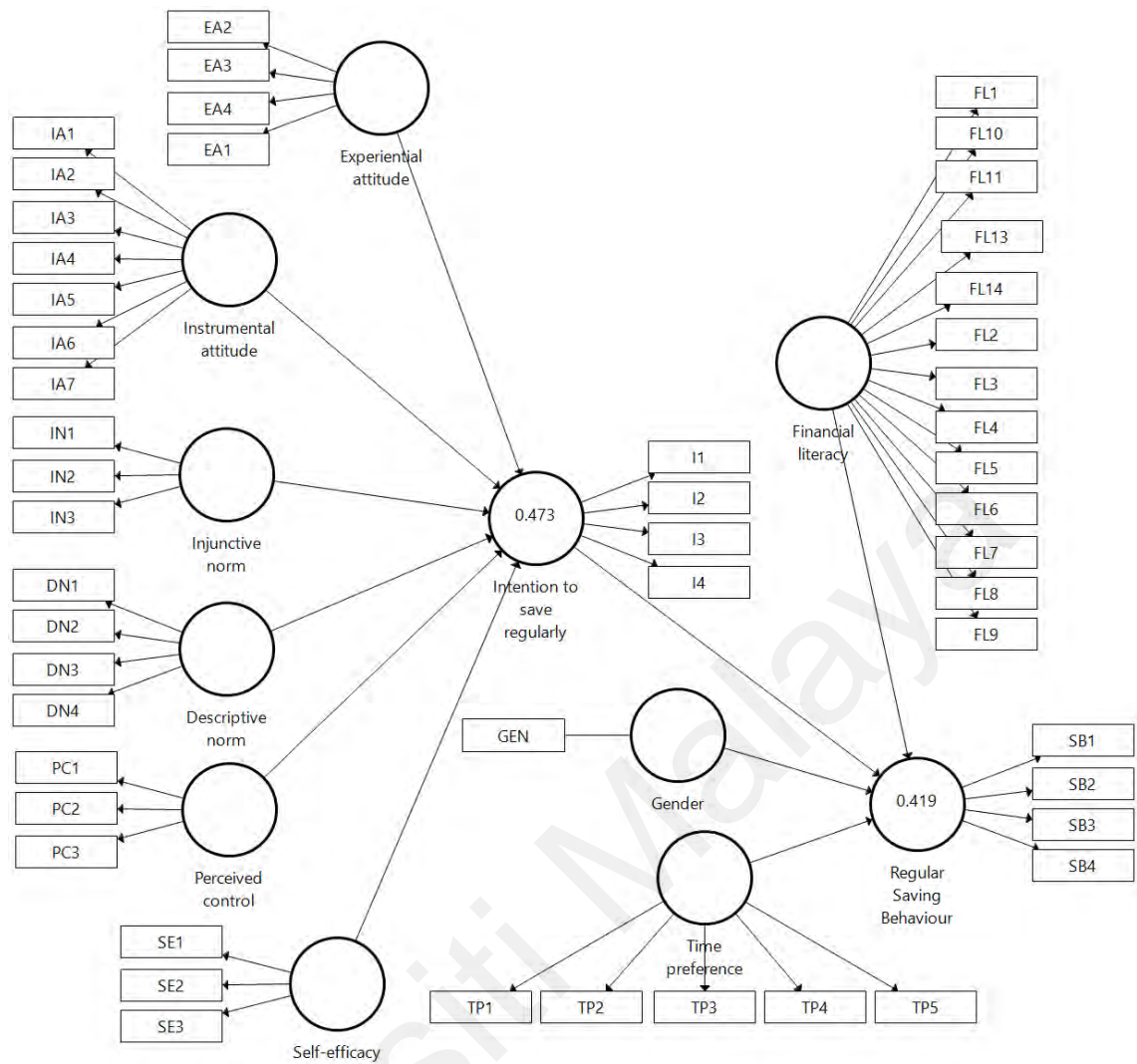


Figure 5.5: Main effect model with Gender as a moderator

After the interaction term FL*Gender added, the new R^2 adjusted is 0.421 and f^2 is 0.006. This indicate that with the addition of the interaction term, R^2 has changed by 0.6%. Using Cohen (1988) guideline, effect size of less than 0.02 is considered small. Hence, the effect size of this interaction effect is small. The beta of the interaction between FL*Gender is positive (0.116) but it is not entirely clear how it differs in terms of the groups (Male vs Female). In other words, the size and precise nature of this effect is not easy to define from examination of the coefficients alone. To confirm whether this relationship is significant or not, a bootstrapping procedure using 1000 subsamples was done. Table 5.39 presents the results. Using $\alpha = 0.05$ and one-tailed test, the cut off

value for this test is 1.645. Table 5.39 shows that the t-value is less than 1.645 and therefore the interaction term of FL*Gender is insignificant.

Table 5.39: Results of moderation analysis (Gender as moderator)

| Relationship | Std. Beta | Std. Error | t-value |
|---------------------------------------|-----------|------------|---------|
| FL*Gender -> Regular saving behaviour | 0.116 | 0.071 | 1.625 |

5.11.3.3 Birth cohort as moderator

Although age was found not statistically significant to responsible financial behaviour (Tang et al., 2015), elicitation interviews conducted in the previous phase found that younger Gen Ys are more interested in spending whereas older Gen Ys are more interested in saving for their future and the future of their families. Hence, in this next moderation analysis, an assessment is done on whether birth cohort (older Gen Ys and younger Gen Ys) moderates the relationship between time preference and regular saving behaviour. The hypothesis to be tested is, the positive relationship between time preference and regular saving behaviour would be stronger for older Gen Ys (those born 1980 to 1987) compared to younger Gen Ys (those born 1988 to 1995).

As this moderator is also a categorical variable, Product Indicator Approach is again used. The R^2 adjusted for the endogenous variable (regular saving behaviour) based on its main effect model is again 0.419 (Figure 5.6).

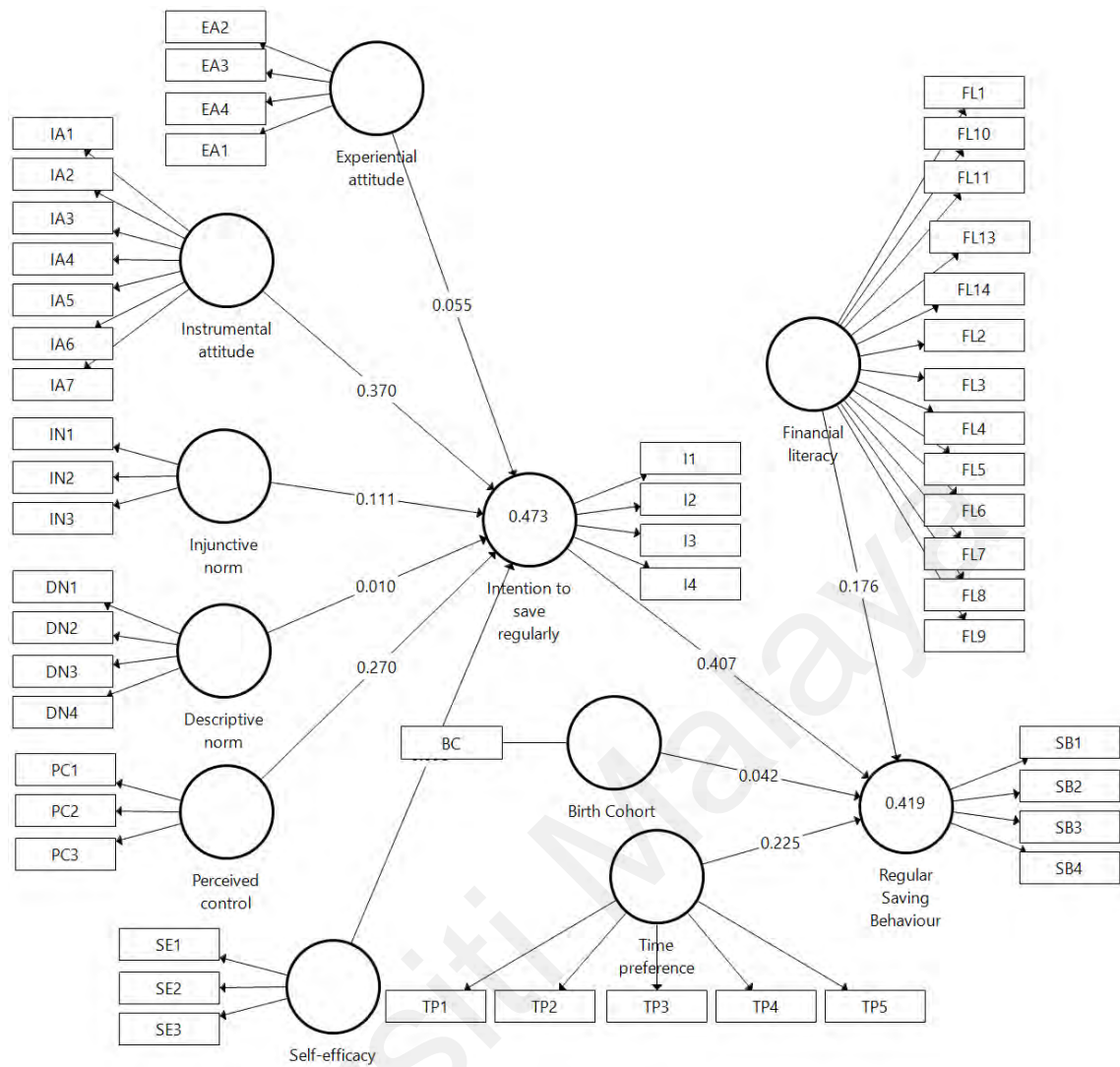


Figure 5.6: Main effect model with Birth Cohort as a moderator

After the interaction term $\text{TimePre} \times \text{BC}$ added, the new R^2 adjusted is 0.428 and f^2 is 0.017. This indicate that the addition of the interaction term has changed R^2 by 1.7%. Using Cohen (1988) guideline where effect size of less than 0.02 is considered small, the effect of this interaction term is small.

The beta of the interaction term $\text{TimePre} \times \text{BC}$ is negative (-0.211) shown in Table 5.39, but it is not entirely clear how it differs in terms of the groups (Older Gen Ys vs Younger Gen Ys). To confirm whether this relationship is significant or not, a bootstrapping procedure using 1000 subsamples was done. The following results in Table 5.40 were obtained. Using $\alpha = 0.05$ and one-tailed test, the cut off value for this

test is 1.645. Table 5.40 shows that the t-value is more than 1.645 and therefore the interaction term of TimePre*BC is significant.

Table 5.40: Results of moderation analysis (Birth Cohort as moderator)

| Relationship | Std. Beta | Std. Error | t-value |
|--|-----------|------------|---------|
| TimePre*BC -> Regular Saving Behaviour | -0.211 | 0.079 | 2.669 |

To analyse the size and precise nature of this effect, an interaction plot is drawn.

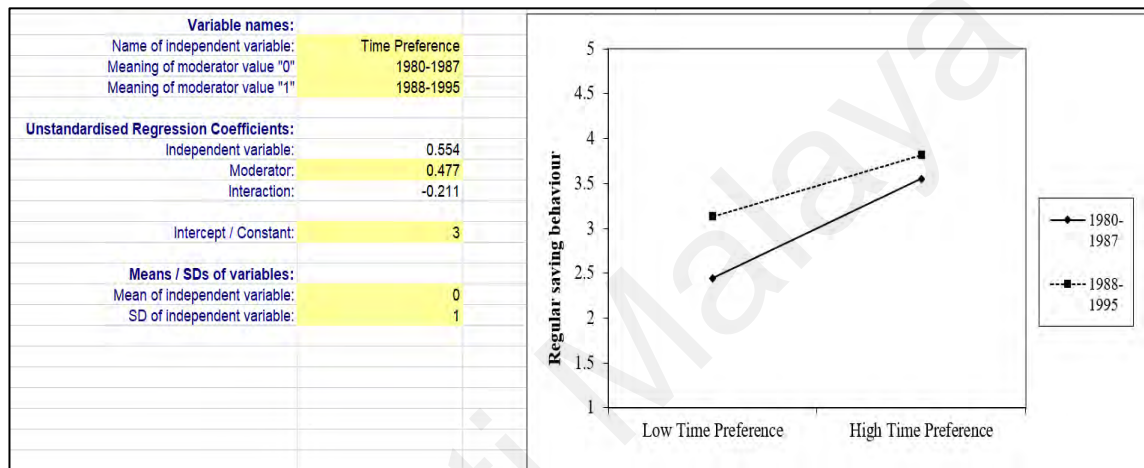


Figure 5.7: Interaction plots to analyse interaction effect of Birth Cohort

The hypothesis tested here is the positive relationship between time preference and regular saving behaviour would be stronger for older Gen Ys (those born 1980 to 1987). The decision is made after interpreting the interaction plots, done by looking at the gradient of the slopes and the direction. As can be seen in Figure 5.7, the line for Older Gen Ys (1980-1987) has a steeper and positive gradient when compared to the line for Younger Gen Ys (1988-1995), indicating that the positive relationship between time preference and regular saving behaviour is indeed stronger for those born 1980-1987 (Older Gen Ys).

5.11.4 Further analysis: modification of the model

This study's elicitation interviews found that initially respondents were not happy with the act of saving money regularly. However, after a few months and after seeing the amount that they have managed to save, they became happy and glad, with their ability to save regularly. Hence, it is deduced that Experiential Attitude do not influence intention to save regularly and regular saving behaviour. Rather, it is the successful performance of saving money regularly that leads to positive feelings on the act. To investigate whether this deduction is true, the model of this study was slightly modified (Figure 5.8) to reflect that regular saving behaviour influence experiential attitude.

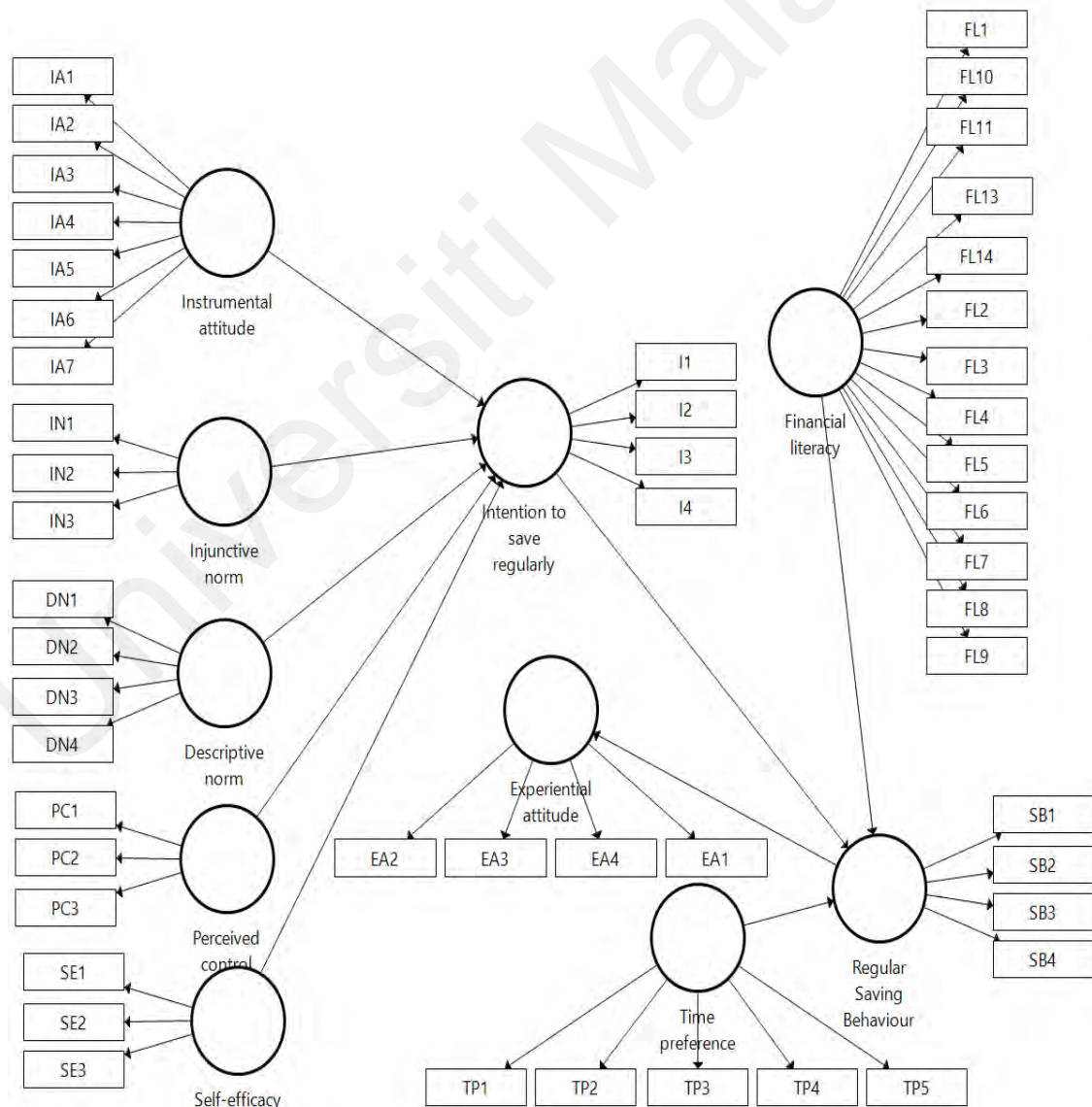


Figure 5.8: Modified model

Bootstrapping procedure, using 1000 subsamples, basic bootstrapping and one-tailed test type generated the following results on the path coefficient between Regular Saving Behaviour and Experiential Attitude.

Table 5.41: Hypothesis Testing (Modified model)

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (O/STDEV) | P Values |
|---|------------------------------------|--------------------------------|---|-------------------------------------|-----------------|
| Regular Saving Behaviour -> Experiential Attitude | 0.610 | 0.614 | 0.035 | 17.585 | 0.000 |

Results in this table reveal that regular saving behaviour significantly influences experiential attitude.

5.12 Summary of findings

Table 5.42 summarises the main findings of Phase Two study.

Table 5.42: Findings of Phase Two study

| RO | Hypothesis | Statement | Findings |
|--|-------------------|---|---|
| RO2: To examine the relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly. | H1a | Gen Y's experiential attitude is positively related to intention to save regularly. | Not supported |
| | H1b | Gen Y's instrumental attitude is positively related to intention to save regularly. | Supported |
| | H2a | Gen Y's injunctive norm is positively related to intention to save regularly. | Supported. This is consistent with Shim et al. (2012) and Croy et al. (2010a) |
| | H2b | Gen Y's descriptive norm is positively related to intention to save regularly. | Not supported |
| | H3a | Gen Y's perceived control is positively related to intention to save regularly. | Supported |

Table 5.42, continued

| RO | Hypothesis | Statement | Findings |
|--|------------|--|--|
| RO3: To examine the relationship between Intention to Save Regularly, Financial Literacy, Time Preference and regular saving behaviour. | H3b | Gen Y's self-efficacy is positively related to intention to save regularly. | Supported. This is consistent with Magendans et al. (2017) and Shim et al. (2012) |
| | H4 | Gen Y's intention to save regularly is positively related to regular saving behaviour. | Supported. This is consistent with Allom et al. (2018), Magendans et al. (2017) and Shim et al. (2012) |
| | H5 | There is a positive relationship between Gen Ys financial literacy and their regular saving behaviour. | Supported. This is consistent with Baidoo et al. (2018), Murendo & Mutsonziwa (2017), Batty et al. (2015) and Nurul Shahnaz Mahdzan & Tabiani (2013) |
| | H6 | Gen Ys with low (high) time preference are more (less) likely to have regular saving behaviour. | Supported. This is consistent with Rolison et al (2017), Duckworth & Weir (2016), Dupas & Robinson (2013) and Gathergood (2012) |

As this study's model, based on PLSpredict, was found to have low predictive power in predicting performance of regular saving, this study further investigated whether financial literacy - high level and low level of financial literacy - moderates the relationship between intention to save regularly and *past* regular saving behaviour. The basic moderation analysis indicates that there is insufficient evidence to conclude that the strength of relationship between intention to save regularly and regular saving behaviour is greater when financial literacy is higher. Further moderation analyses were done to assess the following. First, whether Gender moderates the relationship between financial literacy and regular saving behaviour. Second, whether Birth Cohort moderates the relationship between time preference and regular saving behaviour. Only for the second, a significant relationship was found with older Gen Ys demonstrating stronger positive relationship between time preference and regular saving behaviour.

CHAPTER 6: FINDINGS FROM EXPERIMENTAL STUDY (PHASE THREE)

6.1 Introduction

The purpose of this experimental phase is to explore the influence of a financial awareness programme on the IBM path coefficients. To be specific, whether there exist significant differences attributable to the intervention in group-specific parameter estimates. A financial awareness programme was conducted for three months, and at the end of the period, the questionnaire which was administered in Phase Two was e-mailed to all Phase Three participants. All the path coefficients are then assessed on whether there are any path coefficients which are significantly influenced by participation in a financial awareness programme. Two research questions are addressed in this chapter. The first (RQ4) is, does participation in a financial awareness programme influence the relationships between attitude (experimental, instrumental), perceived norm (injunctive, descriptive), personal agency (perceived control, self-efficacy), and intention to save regularly? The second (RQ5) is, does participation in a financial awareness programme influence the relationships between intention to save regularly, financial literacy, time preference, and regular saving behaviour?

This chapter begins with details on segregation of participants into a Treatment Group and a Control Group. It then provides a weekly account of the topics for financial awareness and the summaries of discussion, followed by the hypotheses of this phase of study. Two types of analyses were conducted. First, a basic moderation analysis to test whether financial literacy moderates the relationship between intention to save regularly and eventual performance of regular saving. Second, a Multi Group Analysis (MGA) to test whether there are significant differences in path coefficients of both the groups after one group was administered an intervention. A summary of key findings is presented at the end of this chapter.

6.2 Research objective

This experimental study - done after the completion of Phase Two study - has the objective to assess the effectiveness of a three-month financial awareness programme on the determinants of regular saving behaviour amongst Gen Ys.

6.3 Participants

A subset of respondents from Phase Two voluntarily gave their consent to participate in Phase Three. Out of 500 useable responses in Phase Two, 291 respondents provided their e-mail addresses and mobile numbers, indicating that they are agreeable to participate in experimental research phase. From 25 May 2019 till 1 July 2019, all 291 respondents were contacted to confirm their participation in Phase Three. E-mails were sent three times (to those who only gave their e-mail addresses) and WhatsApp messages sent twice in addition to an e-mail (to those who provided both e-mail addresses and phone numbers). Some participants were also contacted directly via phone calls. As of 1 July 2019, 151 participants confirmed participation in Phase Three. Reasons given for non-participation include being busy, not interested and, experienced change in circumstance as they have moved overseas to work and no longer earning income in Malaysia. Three participants, however, dropped out in the first week; thus, 148 participants remained after the first week.

6.4 Segregation of participants

The 148 participants were selectively assigned into two groups - Treatment Group and Control Group – with 74 members in each group. A detailed description on the composition of each group is presented in Table 6.1.

Table 6.1: Composition of Groups

| | | Number in Treatment Group (n=74) | Number in Control Group (n=74) |
|--|--------------------------------|---|---|
| Birth Cohort | 1980-1987 | 22 | 22 |
| | 1988-1995 | 52 | 52 |
| Gender | Male | 37 | 35 |
| | Female | 37 | 39 |
| Highest educational level | Secondary level / High School | 1 | 2 |
| | Diploma / Certificate | 4 | 4 |
| | Bachelor / Professional Degree | 52 | 50 |
| | PhD/Doctorate/Master | 17 | 18 |
| Employment status | Salaried | 65 | 65 |
| | Self-employed / freelancer | 9 | 9 |
| Residential area | Urban | 71 | 70 |
| | Rural | 3 | 4 |
| Monthly net Income* | Less than RM2,000 | 5 | 6 |
| | RM2,000 - RM3,999 | 27 | 27 |
| | RM4,000 - RM5,999 | 24 | 27 |
| | RM6,000 - RM7,999 | 9 | 8 |
| | RM8,000 - RM9,999 | 3 | 1 |
| | RM10,000 and above | 3 | 2 |
| | Don't want to disclose | 3 | 3 |

Table 6.1, continued

| | | Number in Treatment Group (n=74) | Number in Control Group (n=74) |
|-----------------------|------------------------|---|---|
| Race | Malay | 27 | 26 |
| | Chinese | 29 | 36 |
| | Indian | 13 | 11 |
| | Others | 5 | 1 |
| Religion | Islam | 30 | 26 |
| | Buddhist | 15 | 29 |
| | Hindu | 6 | 6 |
| | Christian | 19 | 9 |
| | Sikh | 1 | 1 |
| | None | 3 | 3 |
| State residing | Selangor/ Kuala Lumpur | 65 | 57 |
| | Others | 9 | 17 |

*Note: 1 MYR is equivalent to 0.23 USD (as of 28 April 2022)

The composition of members in both groups are as follows. Majority were born between 1988-1995, has a Bachelor/Professional Degree, are salaried employees and earn between RM2,000 and RM5,999. There were equal number of males and females in Treatment Group but slightly higher number of females in Control Group. Almost all members stay in an urban area. In terms of race composition, Chinese is the majority, followed by Malay, but there is almost an equal number of Chinese and Malays in Treatment Group. In terms of religion, the three largest groups are Muslims, Buddhist, and Christians. Muslims form the majority in the Treatment Group while there were slightly higher number of Buddhists in the Control Group. There are participants from almost every State in Malaysia. However, most of the participants are from Selangor and Kuala Lumpur.

6.5 The experiment

Information on financial matters was communicated to members of Treatment Group. Members of Control Group did not receive any of the information given to Treatment Group. The duration of the experimental phase was three months, from 6 July 2019 to 28 September 2019. A WhatsApp group was formed to communicate with Treatment Group members. Members of this group were provided, via this WhatsApp group, relevant and necessary information on personal financial matters. The topics covered were on Gen Y financial behaviour, saving, barriers to regular saving, talking to other people about personal finance, consulting financial advisors, types of savings, delayed gratification, financial independence, financial literacy, money issues for young couple about to tie the knot, and financial consideration when buying car, property and travelling. The information was conveyed primarily in the form of newspaper articles and website links. The information was kept simple, and members were required to read the information given to them. The members were encouraged to comment on the information provided, and post questions to the researcher. However, members were advised to limit comments only on matters relevant to this research, which is on saving behaviour. The information-sharing sessions were held on Saturdays for thirteen weeks. There was no contact with Control Group members during this period.

6.6 Financial awareness topics

The programme commenced in the first week with an overall description of Gen Y financial behaviour. Articles were shared with the Treatment Group participants, and they were encouraged to share their views. In subsequent weeks, the topics progressed to specific topics on saving, barriers to regular saving, talking to other people about personal finance, consulting financial advisors, types of savings, delayed gratification, financial independence, financial literacy, money issues for young people about to tie

the knot, and financial considerations when buying a car, a property and travelling. The topic descriptions and summaries of discussion on weekly basis are as follows:

Table 6.2: Summary of weekly financial awareness programme

| Week | Topic | Topic description | Summary of discussion |
|------|---------------------------|---|---|
| 1 | Gen Y financial behaviour | An article by the Asian Institute of Finance based on a survey of more than 1,000 young professionals aged between 20 and 33, revealed a picture of a generation that is on the road to financial stress with many of them living beyond their means, are trapped on emotional spending and are on the edge of a financial cliff. | <p>Lots of temptations to spend but limited incentive to save.</p> <p>There is less pressure to save when there is family to depend on.</p> <p>Need to be diligent, disciplined and determined. Need to learn to save as much money as possible and reinvest into higher return assets to counter inflation.</p> <p>There is gap between salary level and the current housing price. When servicing housing loan, saving becomes difficult.</p> <p>Lots of information and assistance available on making financial decisions. The question is whether people want to utilise it or not.</p> <p>Financial literacy should start at home (parents' influence). And after that, it depends on oneself, the environment one is in, friends and colleagues.</p> |
| 2 | Saving | <p>Focused on the following rules:</p> <p>Pay yourself first.</p> <p>Learn how to invest.</p> <p>Don't be a hater of it.</p> <p>Give every dollar a job.</p> <p>Have a plan and set goals</p> <p>It's not what you make it's what you keep.</p> | <p>The problem with "pay yourself first" is that expenses can increase.</p> <p>Saving residuals at the end of the month seen less stressful.</p> |

Table 6.2, continued

| Week | Topic | Topic description | Summary of discussion |
|------|---|--|--|
| 3 | Barriers to regular saving: high cost of living | <ol style="list-style-type: none"> 1. Living cost is high. Learn to budget. 2. YOLO concept can be damaging 3. Peer factor. Ex: pressure to buy property. 4. Owning the first car. 5. Need to get financial information from reliable sources. 6. Not wrong to have good life but need to work for it. 7. Settle your debts to make savings meaningful. Start from those with high interest. 8. Allocate 10% or 20% of income for emergency funds. 9. Get medical insurance | Financial commitments / loans / debts are main barriers to regular saving behaviour. |
| 4 | Barriers to regular saving: insufficient income | Addressed the issue of insufficient income hindering regular saving. | <p>In addition to increasing income, Gen Ys also need to consider wealth creation and retention.</p> <p>If income is insufficient, must find other avenues to generate income.</p> |
| 5 | Talking to other people about personal finance | Shared a link that provides a list of Malaysia's top personal finance websites. | <p>Speak about financial matters only to parents. Personal finance matters are deeply personal and sharing views on financial matters with other people can be very uncomfortable.</p> <p>Do not bring up the topic as others may be judgemental and talking about financial issues could lead to confrontations. They could also themselves lack proper financial knowledge.</p> <p>To find and get someone who truly cares to speak about financial matters is extremely difficult nowadays as most people have ulterior motives.</p> <p>Rely more on searching and reading about financial matters on the internet.</p> |

Table 6.2, continued

| Week | Topic | Topic description | Summary of discussion |
|------|-------------------------------|---|---|
| 6 | Consulting financial advisors | <p>Myths about the profession. The industry itself has created some confusion with the use of various terms - financial advisor / wealth planner / personal financial consultant / financial planner / independent financial advisor.</p> <p>The Asian Institute of Finance study published in 2015 revealed that only about 37% of Gen Ys sought professional advice on financial matters.</p> | It is important for Gen Ys to seek the help of a qualified professional to ensure that the advice is sound and tailored to individual needs and circumstances. |
| 7 | Types of savings | <p>Covered three types of savings:</p> <ol style="list-style-type: none"> 1. Emergency Savings 2. Retirement Savings 3. Personal Savings <p>About Private Retirement Scheme in Malaysia.</p> | All three types of savings are very important and should be done simultaneously. |
| 8 | Delayed gratification | <p>On the benefits of delaying gratification.</p> <p>Also, on the 5 steps to improve finances through delayed gratification.</p> <ol style="list-style-type: none"> 1. Identify your values. 2. Set clearly defined goals. 3. Create a plan. 4. Prioritise spending. 5. Reward yourself. | Short-term thinking is on the rise mainly due to Instagram lifestyle. People travel to certain places to upload pictures on Instagram. |
| 9 | Financial independence | A thread on this topic on Lowyat.net forum. There was a lengthy discussion about the feasibility of FIRE approach in Malaysia. From the comments, some support and some do not. | Those who support the FIRE (Financial Independence Retire Early) movement lead very frugal life in their 20s and 30s. They aim to retire when they are in their 40s so that they could do other meaningful things in their lives. They do not accumulate debt. They save, they invest, they reject consumerism, and they have ways to get passive income. |

Table 6.2, continued

| Week | Topic | Topic description | Summary of discussion |
|------|---|---|---|
| 10 | Financial literacy (Part 1) | <p>Shared a video where people were questioned on their knowledge of common personal finance questions. The video highlights a worrying state of financial awareness among Malaysians.</p> <p>An introduction on PIDM.</p> <p>Information on savings accounts in Malaysia.</p> <p>Provides suggestion on various investment alternatives.</p> | <p>Some savings accounts give high interest rate but there are conditions to be met.</p> <p>A few members showed their awareness of Deposit Insurance System.</p> |
| 11 | Financial literacy (Part 2) | <p>Explained why keeping money in savings account is not the best decision if wish to build wealth.</p> <p>Fixed deposits in Malaysia.</p> <p>Reasons why gold protects savings.</p> <p>Benefits of credit card.</p> | <p>Many keep their money in saving accounts until they know what to do with the money.</p> <p>Fixed deposits too do not provide high rates of return.</p> <p>Gold is considered a safe option because it has a good track record overall. Popular as a long-term investment.</p> <p>Credit cards are useful but need awareness on how to responsibly make full use of credit cards.</p> |
| 12 | <p>1. Money issues for young couples about to tie the knot</p> <p>2. Financial considerations when buying a car</p> | <p>Money matters for the millennial couple.</p> <p>Top financial considerations when buying a car.</p> | <p>A few important things to know before getting married:</p> <ol style="list-style-type: none"> 1. How much would be the cost of the wedding? 2. Be honest about how much you earn. 3. Find out also about each partner's debt. <p>When buying a car, it is not just the monthly loan to consider but also the running costs of the car. The main financial consideration when buying a car is affordability.</p> |

Table 6.2, continued

| Week | Topic | Topic description | Summary of discussion |
|------|----------------------|--|--|
| 13 | 1. Buying a property | A checklist to determine financial readiness to buy a house in Malaysia. | Buying a house/property is a more significant expense than buying a car. |
| | | Affordable housing schemes in Malaysia. | Should look for a property that is affordable. |
| | | Key areas of risks before investing in the property sector. | Most financial experts recommend that the monthly amount for the repayment of home loan is no more than one-third of monthly income. |
| | 2. Travelling | 2018 Travel Trends survey found more millennials are saving to live their desired lifestyle. Millennials' travel obsession. | Millennials tend to save money for the purpose of going for travels or to go for holidays. 1. It is about experience. The current fad is perpetuated by social media. 2. Prefer cheaper holiday destinations in favour of saving and investing. 3. Travelling to recharge from work, especially when living in an urban area. |

Details on the topics covered each week, the articles and links shared, main issues, summary of discussion, and reflection are presented in Appendix K.

6.7 Data collection

At the end of the final session on 28 September 2019, the same questionnaire which was administered in Phase Two was e-mailed to all members of Treatment and Control Groups. Over the course of the three months, three members of the Treatment Group dropped off from the study. In the end, questionnaires were e-mailed to 71 members of Treatment Group and to 74 members of Control Group. Data collection ended on 18 October 2019. Out of 71 members in the Treatment Group, 65 members responded. As to the responses received from members of Control Group, out of 74 members, 66 members responded. In total, responses were obtained from 131 participants. The response rate was thus 92% for Treatment Group and 89% for Control Group. However, after data cleaning, two responses from each group were removed due to straight-lining

method of responding. Hence, 127 sets of responses were analysed – 63 from Treatment Group and 64 from Control Group.

6.8 Research hypotheses

Based on Figure 6.1, it is hypothesised that participation in a financial awareness programme could lead to differences in all the path coefficients between the two Groups.

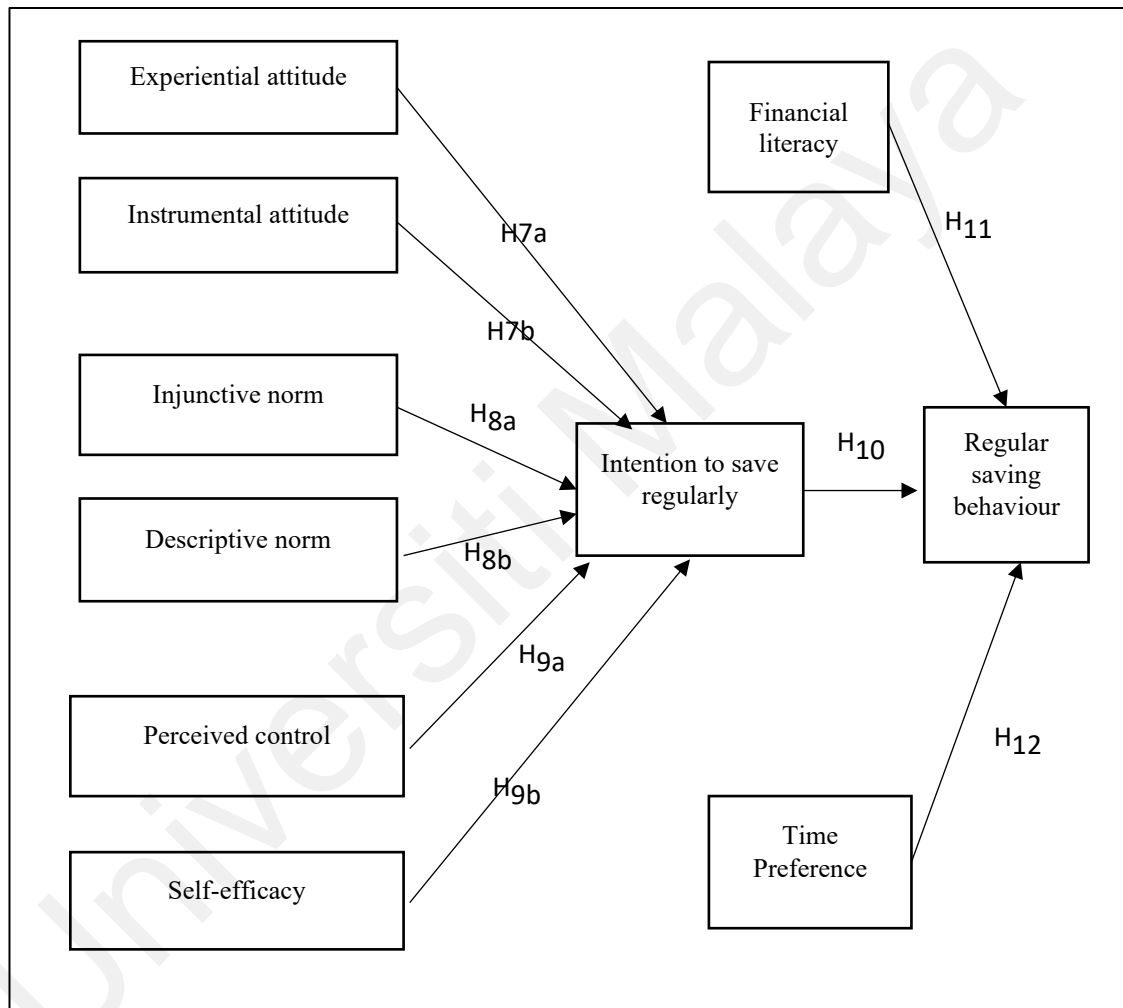


Figure 6.1: Conceptual Framework

The hypotheses are:

H7a & H7b: The path coefficient of (a) experiential attitude, and (b) instrumental attitude, and intention to save regularly is different between the two Groups.

H8a & H8b: The path coefficient of (a) injunctive norm, and (b) descriptive norm, and intention to save regularly is different between the two Groups.

H9a & H9b: The path coefficient of (a) perceived control, and (b) self-efficacy, and intention to save regularly is different between the two Groups.

H10: The path coefficient of intention to save regularly and regular saving behaviour is different between the two Groups.

H11: The path coefficient of financial literacy and regular saving behaviour is different between the two Groups.

H12: The path coefficient of time preference and regular saving behaviour is different between the two Groups.

6.9 Data analysis

Four methods were employed in data analysis.

6.9.1 Descriptive statistics of latent variables

Tables 6.3 and 6.4 presents the descriptive statistics of latent variables.

Table 6.3: Descriptive Statistics of Latent Variables (Treatment Group)

| | Minimum | Maximum | Mean | Std. Deviation | Skewness | Kurtosis |
|------------------------------------|---------|---------|--------|----------------|----------|----------|
| Experiential Attitude | 2.00 | 5.00 | 4.0754 | .87832 | -1.041 | .436 |
| Instrumental Attitude | 3.86 | 5.00 | 4.8006 | .33789 | -1.552 | 1.039 |
| Injunctive Norm | 3.00 | 5.00 | 4.5657 | .52103 | -1.021 | .337 |
| Descriptive Norm | 2.00 | 5.00 | 3.6389 | .84335 | -.151 | -.735 |
| Perceived Control | 2.00 | 5.00 | 4.2752 | .74505 | -.852 | .193 |
| Self-efficacy | 1.00 | 5.00 | 3.6929 | 1.04451 | -.732 | -.024 |
| Intention to save regularly | 3.00 | 5.00 | 4.6032 | .48906 | -1.060 | .399 |
| Regular saving behaviour | 1.00 | 5.00 | 4.1151 | .93199 | -1.309 | 1.636 |
| Financial literacy | 1.07 | 5.00 | 3.4776 | .90343 | -.507 | .079 |
| Time preference | 1.80 | 5.00 | 3.9460 | .80659 | -.848 | .176 |

Table 6.4: Descriptive Statistics of Latent Variables (Control Group)

| | Minimum | Maximum | Mean | Std. Deviation | Skewness | Kurtosis |
|------------------------------------|---------|---------|--------|----------------|----------|----------|
| Experiential Attitude | 2.00 | 5.00 | 3.9297 | .78233 | -.359 | -.700 |
| Instrumental Attitude | 3.00 | 5.00 | 4.6895 | .50903 | -1.963 | 3.088 |
| Injunctive Norm | 2.00 | 5.00 | 4.4063 | .73126 | -1.621 | 2.769 |
| Descriptive Norm | 1.50 | 5.00 | 3.5430 | .70508 | .012 | .433 |
| Perceived Control | 1.67 | 5.00 | 4.2138 | .77052 | -.824 | .344 |
| Self-efficacy | 1.00 | 5.00 | 3.6405 | 1.09548 | -.565 | -.609 |
| Intention to save regularly | 2.50 | 5.00 | 4.4375 | .71130 | -1.190 | .571 |
| Regular saving behaviour | 1.25 | 5.00 | 4.0625 | .90414 | -1.067 | .863 |
| Financial literacy | 2.14 | 5.00 | 3.5364 | .69717 | -.008 | -.668 |
| Time preference | 2.40 | 5.00 | 4.0656 | .67524 | -.474 | -.371 |

There is a smaller range of responses for Instrumental Attitude, Injunctive Norm, Descriptive Norm, Perceived Control, and Intention to save regularly for Treatment Group. The Latent Variable mean, however, is larger for Treatment Group for all variables except for Financial Literacy and Time Preference. Based on Kline (2016), since the values for skewness and kurtosis are within -3 and +3, and -10 and +10 respectively, the shapes of both the distributions may not be severely non-normal.

6.9.2. Two samples t-test using SPSS

The sets of data for regular saving behaviour of Control Group members in Phase Two and Phase Three, Financial Literacy scores of Control Group members in Phase Two and Phase Three, and Financial Literacy scores of Control Group and Treatment Group in Phase Three were analysed. For the first two, paired samples t-test were used and for the third, Independent samples t-test.

6.9.2.1 Reliability of Phase Two and Phase Three reported saving behaviour

According to Ajzen (1991), the correlation between past and later behaviour is an indication of the behaviour's stability or reliability. Using the data for regular saving behaviour in Phase Two and the subsequent regular saving behaviour data collected in Phase Three from participants of the Control group, an analysis using paired samples t-test was conducted. Although there were in total 66 responses received from members of Control Group, two responses were removed. One was removed as the respondent has answered 4 for all statements and the other for answering 3 (neutral) for most of the questions. In the end, data from 64 respondents were used for analysis. The analysis found – with benchmark 0.3 - that there are no significant differences in the responses for the statements on regular saving behaviour except for SB2 (I have saved money every month for unexpected expenditures). Tables 6.5 shows the correlations between the Phase Two and Phase Three responses for regular saving behaviour.

Table 6.5: Paired samples correlations

| Phase One & Phase Two | Sample size (n) | Correlations |
|-----------------------|-----------------|--------------|
| SB1 & SB1N | 64 | 0.549 |
| SB2 & SB2N | 64 | 0.168 |
| SB3 & SB3N | 64 | 0.383 |
| SB4 & SB4N | 64 | 0.411 |

Table 6.6 presents the paired samples test results to confirm that only for SB2 there were significant differences in the two sets of data collected.

Table 6.6: Paired samples test results

| Phase One - Phase Two | Mean | Standard Deviation | t | Sig (2 tailed, $\alpha=0.05$) |
|-----------------------|--------|--------------------|----------|--------------------------------|
| SB1 - SB1N | -0.016 | 1.105 | -0.113 | 0.910 |
| SB2 - SB2N | -0.344 | 1.359 | -2.023 | 0.047 |
| SB3 - SB3N | -0.203 | 1.335 | -1.217 | 0.228 |
| SB4 - SB4N | -0.141 | 1.021 | -1.10164 | 0.275 |

When the average score for Regular Saving Behaviour in Phase Two and Phase Three was compared, it was found that whilst the mean score in Phase Three is higher (4.0625 versus 3.8867), this difference is not significant at $\alpha=0.05$. Results of the paired sample t-test is presented in Table 6.7.

Table 6.7: Paired samples test results for average score for Regular Saving Behaviour

| | Mean | Correlation | t | Sig (2 tailed, $\alpha=0.05$) |
|---------------------|---------|-------------|--------|--------------------------------|
| SB_AveP2 | 3.8867 | | | |
| SB_AveP3 | 4.0625 | | | |
| SB_AveP2 – SB_AveP3 | -0.1758 | 0.526 | -1.665 | 0.101 |

6.9.2.2 Reliability of Phase One and Phase Two assessments of financial literacy

Control Group members are not subject to any financial awareness intervention during experimental phase. Nevertheless, a paired comparison was done to assess whether there exist significant differences in scores for financial literacy for Control Group members. The average score for financial literacy of Control Group members in Phase Two was compared with the respondent's average score for Financial Literacy in Phase Three. There were initially 64 sets of responses. However, one response was removed as the respondent had answered 5 for all the fourteen statements on financial literacy, giving this respondent a perfect score of 5 as the average. This is highly unlikely, and this score was considered an outlier. The remaining 63 sets of average scores were then analysed using paired samples t-test. Results are presented in Table 6.8.

Table 6.8: Paired samples test results for average score for Financial Literacy

| | Mean | Correlation | t | Sig (2 tailed, $\alpha=0.05$) |
|---------------------|---------|-------------|--------|--------------------------------|
| Ave_FLP2 | 3.2778 | | | |
| Ave_FLP3 | 3.5125 | | | |
| Ave_FLP2 – Ave_FLP3 | -0.2347 | 0.634 | -3.270 | 0.002 |

The interpretation is on average, members of Control Group reported a higher level of financial literacy in Phase Three (3.5125 in Phase Three as opposed to 3.2778 in Phase Two). The difference (-0.2347) was significant with $t(62) = -3.270$ and $p=0.002$.

6.9.2.3 Group comparison of Phase Three assessment of financial literacy

The result in the previous section shows that despite not participating in any financial awareness intervention, Control Group members recorded on average a higher level of financial literacy in Phase Three. A further comparison was then done on the scores for financial literacy of both groups at Phase Three. Results are presented in Table 6.9. There were 63 sets of responses in each group.

Table 6.9: Independent samples test results for average score for Financial Literacy

| | n | Mean | Std. Dev. | t | Sig (2 tailed, $\alpha=0.05$) |
|-----------------------------------|----|--------|-----------|--------|--------------------------------|
| Ave_FL_Control | 63 | 3.5125 | 0.6771 | | |
| Ave_FL_Treatment | 63 | 3.4773 | 0.9034 | | |
| Ave_FL_Control – Ave_FL_Treatment | | 0.0352 | | -0.248 | 0.805 |

Results revealed that the Control Group members recorded a higher score for financial literacy (3.5125 for Control Group, 3.4773 for Treatment Group). However, the standard deviation was higher in the scores given by Treatment Group members (0.9034 for Treatment Group, 0.6771 for Control Group). It is concluded that this mean difference is not significant with $t(124) = 0.248$ and $p=0.805$.

6.9.3. Basic moderation analysis

The purpose of this is to analyse whether financial literacy acts as a moderator in the relationship between intention to save regularly and regular saving behaviour.

In Phase Two, a basic moderation analysis was done, using the 500 responses, and no significant moderating relationship was found. The moderation analysis is repeated in Phase Three, with analysis done for both Groups. For Treatment Group that participated in a three-month financial awareness programme, the data for intention to save regularly, regular saving behaviour and financial literacy were collected in Phase Three. The purpose is the same as in Phase Two, it is a cross-sectional analysis to test whether financial literacy moderates the relationship between intention to save regularly and regular saving behaviour. For Control Group where there was no such intervention, a longitudinal assessment was done using data for Phase Two (financial literacy and intention to save regularly) and data for Phase Three (regular saving behaviour). This is consistent with studies that measured intention-behaviour gap by collecting data on behaviour at follow-up after two, three months and four months (see Amireault et al., 2008; Sniehotta et al., 2005). Furthermore, the nature of the relationship between intention and behaviour is complex, with longitudinal studies needed to assess the complex nature (Hassan et al., 2016). Thus, the purpose of using both Phase Two and Phase Three data is to test whether financial literacy (Phase Two) moderates the relationship between intention to save regularly (Phase Two) and *eventual* performance of regular saving (Phase Three).

6.9.3.1 Control Group

The first step here is to report the loadings, Average Variance Extracted (AVE), Composite Reliability (CR) and the value of R^2 before introducing the interaction term. Using full dataset, the AVE for Descriptive Norm, Financial Literacy and Injunctive Norm did not reach the benchmark of 0.5. Hence, the lowest indicators for these three constructs were deleted one by one starting with the indicator with the lowest loading. The process of deletion continued until the benchmark of 0.5 was achieved. In the end,

eight indicators were removed in this order, DN4, DN3, F13, DN2, FL12, FL10, IN1 and F11, to achieve a benchmark AVE of 0.5. This represents 16% of the total number of indicators. Removal of DN2, DN3 and DN4 leaves only one indicator, DN1, to measure Descriptive Norm. However, this is allowable in PLS-SEM as the measurement model not only handles constructs measured with multi-item measures but also construct with single measure (Hair Jr et al., 2014, p.16). Figure 6.2 presents the AVEs and outer loadings for Control Group.

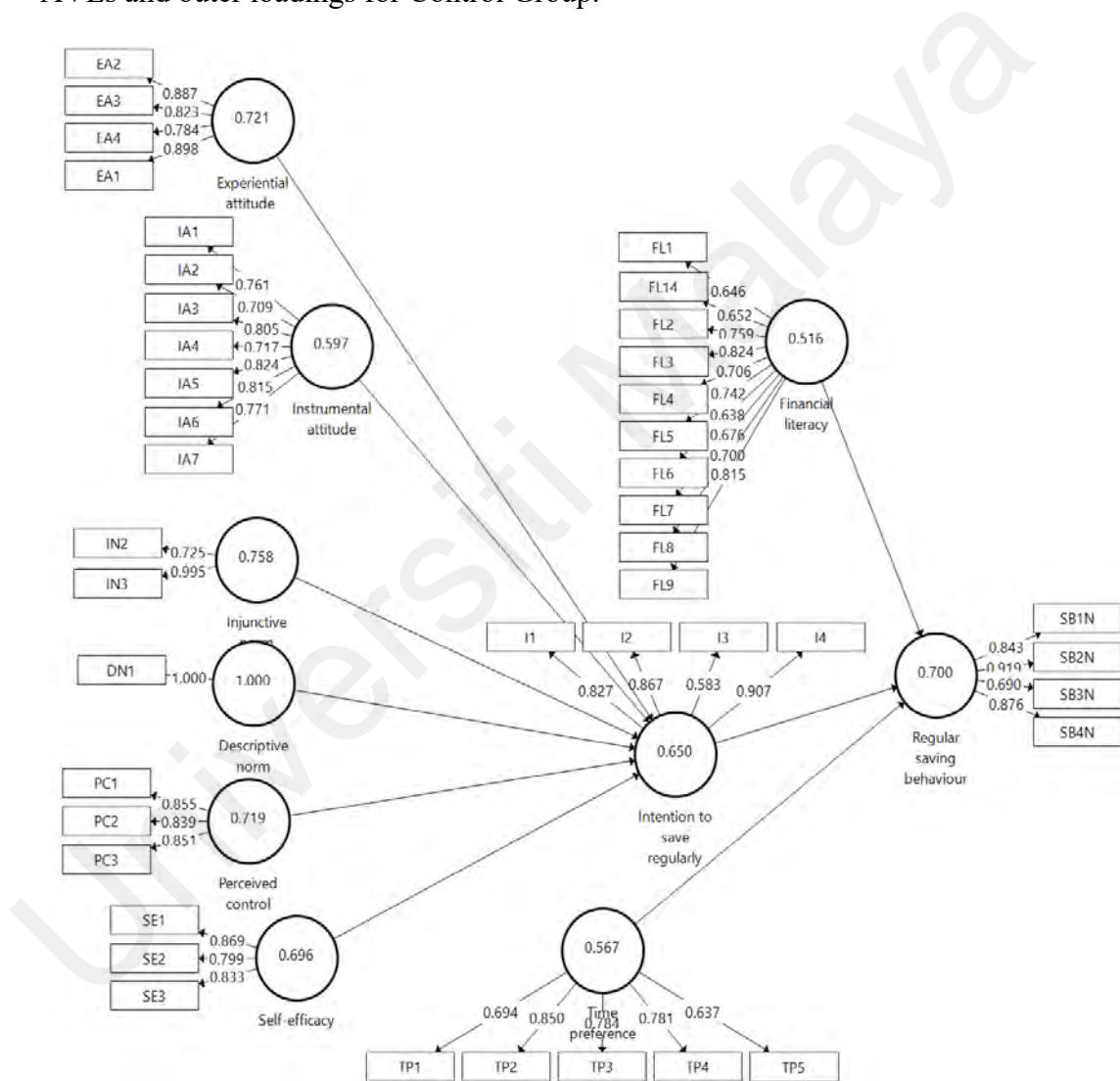


Figure. 6.2: Average Variance Extracted (AVE) and Outer Loadings (Control Group)

Reliability assessment measures confirmed that a benchmark of 0.7 was achieved for Cronbach's Alpha and Composite Reliability as shown in Table 6.10. Reporting

reliability is particularly important because if reliability is low, moderating effect is likely to be underestimated or might be undetected (Aguinis et al., 2017).

Table 6.10: Reliability assessment measures of the main effect model: control group

| | Cronbach's Alpha | Composite Reliability |
|------------------------------------|-------------------------|------------------------------|
| Descriptive norm | 1.000 | 1.000 |
| Experiential attitude | 0.871 | 0.912 |
| Financial literacy | 0.905 | 0.914 |
| Injunctive norm | 0.789 | 0.859 |
| Instrumental attitude | 0.892 | 0.912 |
| Intention to save regularly | 0.813 | 0.879 |
| Perceived control | 0.806 | 0.885 |
| Regular saving behaviour | 0.856 | 0.902 |
| Self-efficacy | 0.792 | 0.873 |
| Time preference | 0.812 | 0.866 |

Discriminant validity too was achieved after assessed using Fornell-Larcker criterion, cross-loadings and HTMT ratio.

After confirming that the measurement model is satisfactory, the next step is to get the R^2 result of this model. The R^2 adjusted of the main effect model is found to be 0.365, meaning that intention to save regularly, financial literacy and time preference explain 36.5% of the variance in regular saving behaviour. In the interaction effect model, the R^2 is higher at 0.461. The R^2 change of 0.096 indicates that with the addition of one interaction term, there is an additional variance of 9.6%. Next, the effect size (f^2) is calculated using the formula below:

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

$$f^2 = \frac{0.461 - 0.365}{1 - 0.461} = 0.178$$

Using the guidelines given in Cohen (1988), the value of 0.178 represents large effect size. To confirm whether this result is significant, a bootstrapping procedure using 500 subsamples is done where t-value, results presented in Table 6.6, is obtained. Using $\alpha=0.05$, one-tailed test, the cut off value for this test is 1.645. Since the t-value is less than 1.645 (Table 6.11), the interaction term of Intention*FL is insignificant.

Table 6.11: Extract of Bootstrapping Result: treatment group

| Relationship | Std. Beta | Std. Error | t-value |
|--|------------------|-------------------|----------------|
| Intention*FL -> Regular Saving Behaviour | -0.493 | 0.663 | 0.743 |

6.9.3.2 Treatment Group

The above procedure was repeated for Treatment Group. Using full dataset, the AVE for Descriptive Norm did not reach the benchmark of 0.5. Hence, two lowest indicators for this construct, DN4 and DN2, were deleted one by one starting with DN4, the indicator with the lowest loading. This process of deletion caused the benchmark AVE of 0.5 to be achieved. Removal of DN2 and DN4 left two indicators, DN1 and DN3, to measure Descriptive Norm. Figure 6.3 presents the AVEs and outer loadings for Treatment Group.

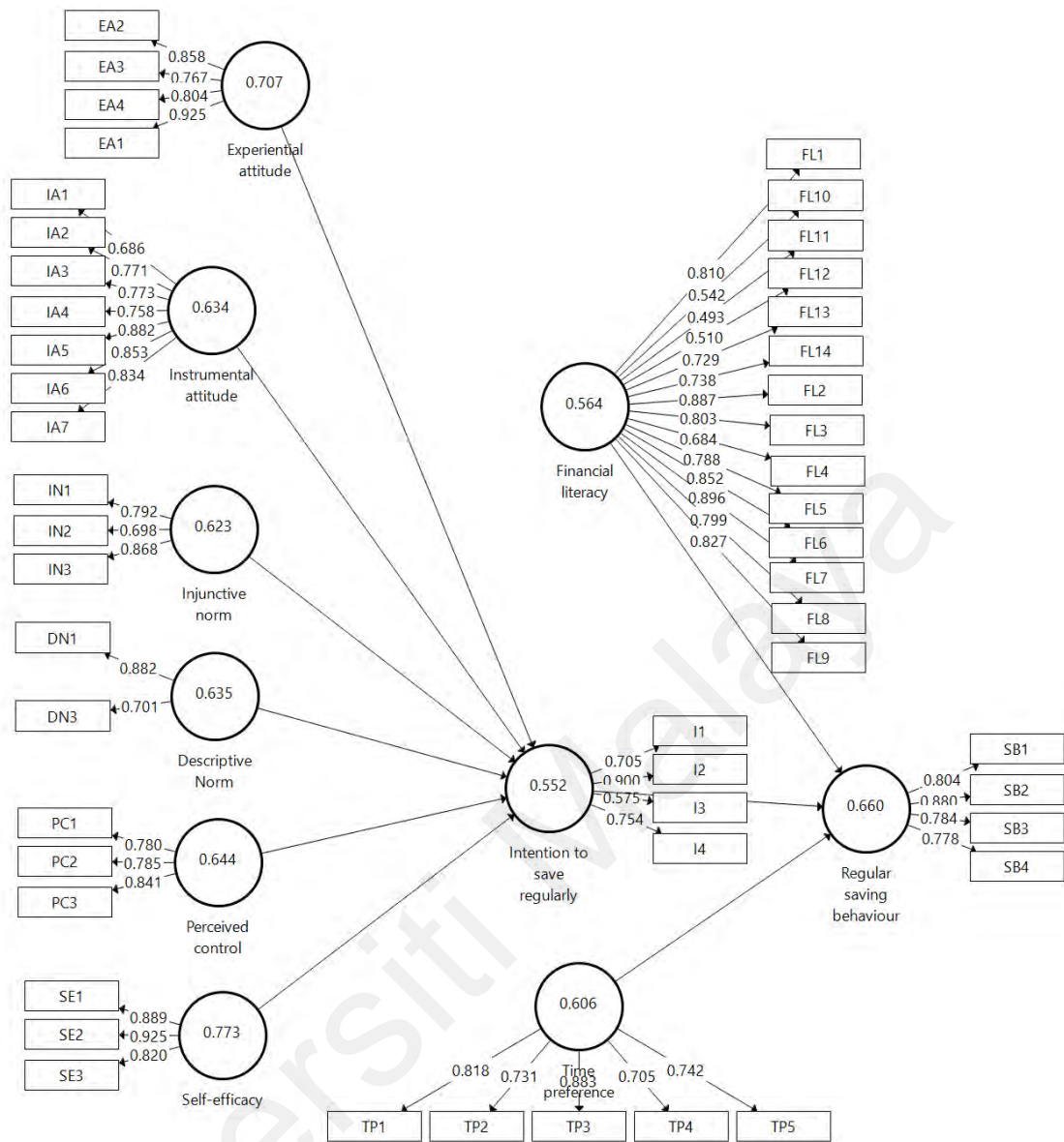


Figure. 6.3: Average Variance Extracted (AVE) and Outer Loadings (Treatment Group)

Reliability assessment measures confirmed that a benchmark of 0.7 was achieved for Composite Reliability (CR) for all constructs but based on Cronbach's Alpha (CA), this was not achieved for Descriptive Norm as shown in Table 6.12. However, CR is the more suitable indicator to measure reliability as CA assumes that all indicators have equal loadings which is inappropriate in SEM.

Table 6.12: Reliability assessment measures of the main effect model: treatment group

| | Cronbach's Alpha | Composite Reliability |
|------------------------------------|-------------------------|------------------------------|
| Descriptive Norm | 0.440 | 0.774 |
| Experiential attitude | 0.860 | 0.906 |
| Financial literacy | 0.937 | 0.946 |
| Injunctive norm | 0.708 | 0.831 |
| Instrumental attitude | 0.903 | 0.923 |
| Intention to save regularly | 0.725 | 0.828 |
| Perceived control | 0.728 | 0.844 |
| Regular saving behaviour | 0.829 | 0.886 |
| Self-efficacy | 0.853 | 0.911 |
| Time preference | 0.836 | 0.884 |

Discriminant validity too was achieved after assessed using Fornell-Larcker Criterion, Cross-loadings and HTMT Ratio.

After confirming that the measurement model is satisfactory, the next step is to get the R^2 result of this model. The R^2 adjusted of the main effect model is 0.383, meaning that intention to save regularly, financial literacy and time preference explain 38.3% of the variance in regular saving behaviour. In the interaction effect model, the R^2 is higher at 0.460. The R^2 change of 0.077 indicates that with the addition of one interaction term, there is an additional variance of 7.7%. Next, the effect size (f^2) is calculated using the formula below:

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

$$f^2 = \frac{0.460 - 0.383}{1 - 0.460} = 0.143$$

Using the guidelines given in Cohen (1988), the value of 0.143 represents medium effect size. To confirm whether this result is significant, a bootstrapping procedure using 500 subsamples is done where t-value - results presented in Table 6.13 – is obtained. Using $\alpha = 0.05$, one-tailed test, the cut off value for this test is 1.645. Table

6.8 shows that the t-value is less than 1.645 and therefore the interaction term of Intention*FL is insignificant.

Table 6.13: Extract of Bootstrapping Result: treatment group

| Relationship | Std. Beta | Std. Error | t-value |
|--|------------------|-------------------|----------------|
| Intention*FL -> Regular Saving Behaviour | -0.552 | 0.455 | 1.212 |

The conclusion from both these basic moderation analyses is that there is insufficient evidence that the positive relationship between intention to save regularly and performance of regular saving behaviour is stronger when financial literacy is high, irrespective of participation in a financial awareness programme. Although the sample size here is only 64 and 63 for Control Group and Treatment Group respectively, the conclusion is the same as was obtained in Phase Two, using cross-sectional data and where the sample size is much larger at 500.

The next step now becomes pertinent. Further to assessing whether financial literacy has a moderating effect on the relationship between intention to save and regular saving behaviour, an evaluation is done on whether Treatment Group members who participated in a financial awareness programme over a three-month period have significant differences in the means compared to Control Group members who did not participate in the programme. This is done using Multi Group Analysis (MGA). The moderator variable is participation in a financial awareness programme which is a dummy variable. The categories are Yes (for members of Treatment Group) or No (for members of Control Group).

6.9.4. Multi Group Analysis (MGA)

Multi Group Analysis (MGA) or between-group analysis is the preferred analytical technique to evaluate moderation effect across multiple relationships (Matthews, 2017)

in a research model. MGA is used to test for the existence of significant differences across group-specific parameters, such as outer loadings and path coefficients, of two or more groups of respondents with identical models (Hair Jr et al., 2017). The presence or absence of differences between groups is based on either a bootstrapping or permutation result of every group (Matthews, 2017). In this study, using a categorical moderator - participation in a financial awareness programme, with responses being Yes (participated in an intervention programme) and No (did not participate in an intervention programme) - path coefficients where significant differences in the two groups are identified.

Prior to conducting MGA, the following must be done. First, the measurement model of the two groups needs to be evaluated. Second, to conduct a measurement invariance test. Third, to perform structural model assessment of both groups.

6.9.4.1 Measurement model evaluation

According to Henseler et al. (2016), measurement invariance test (results presented in 6.7.2) is a necessary but not sufficient requirement for multigroup SEM analyses. Validity of latent variables remains a requirement for all group-specific model estimations. Following the approach done in Schlägel and Sarstedt (2016), an initial assessment of measurement model is done on each group focusing on internal consistency reliability, convergent validity, and discriminant validity.

To achieve the satisfactory requirements for the measurement model, two items were required to be deleted from Treatment Group but from Control Group, five items needed to be deleted. To have configural invariance (Step 1 in measurement invariance test), among others, there must be identical indicators for all measurement models. Hence,

for both Groups, the same five indicators were deleted. These are DN4 (Most of the people that I know save money every month), DN2 (Most of my friends save money every month), DN1 (Most of my family members save money every month), FL11 (I have put my savings into a long-term deposit) and FL10 (I save money with an automatic monthly saving plan). This leaves only one item, DN3 (Most people like me save money every month), to measure Descriptive Norm. This is allowable in PLS-SEM as the measurement model not only handles constructs measured with multi-item measures but also construct with single measure (Hair Jr et al., 2014, p.16). The reduced models demonstrate that internal consistency values are all above 0.7 and the AVE values above 0.5 indicate sufficient convergent validity (Table 6.14).

Table 6.14: AVE and composite reliability values (reduced model)

| Construct | AVE | | Composite reliability | |
|------------------------------------|----------------|------------------|------------------------------|------------------|
| | Control | Treatment | Control | Treatment |
| Descriptive norm | 1.000 | 1.000 | 1.000 | 1.000 |
| Experiential attitude | 0.656 | 0.707 | 0.882 | 0.906 |
| Financial literacy | 0.503 | 0.634 | 0.920 | 0.953 |
| Injunctive norm | 0.705 | 0.623 | 0.875 | 0.831 |
| Instrumental attitude | 0.699 | 0.634 | 0.942 | 0.923 |
| Intention to save regularly | 0.710 | 0.551 | 0.907 | 0.827 |
| Perceived control | 0.666 | 0.644 | 0.857 | 0.844 |
| Regular saving behaviour | 0.701 | 0.660 | 0.903 | 0.886 |
| Self-efficacy | 0.820 | 0.773 | 0.932 | 0.911 |
| Time preference | 0.519 | 0.606 | 0.839 | 0.884 |

In addition, both measurement models exhibit discriminant validity with HTMT values below 0.9. Results are presented in Table 6.15 and Table 6.16.

Table 6.15: Discriminant validity assessment results (reduced model): Control Group

| Construct | DN | EA | FL | IN | IA | Int | PC | RSB | SE |
|-----------------------------------|------|------|------|------|------|------|------|------|------|
| Experiential attitude (EA) | 0.09 | | | | | | | | |
| Financial literacy (FL) | 0.19 | 0.46 | | | | | | | |
| Injunctive norm (IN) | 0.30 | 0.08 | 0.23 | | | | | | |
| Instrumental attitude (IA) | 0.10 | 0.62 | 0.19 | 0.23 | | | | | |
| Intention to save regularly (Int) | 0.11 | 0.55 | 0.25 | 0.23 | 0.47 | | | | |
| Perceived control (PC) | 0.22 | 0.53 | 0.34 | 0.20 | 0.45 | 0.70 | | | |
| Regular saving behaviour (RSB) | 0.28 | 0.61 | 0.35 | 0.18 | 0.29 | 0.71 | 0.87 | | |
| Self-efficacy (SE) | 0.31 | 0.37 | 0.42 | 0.10 | 0.20 | 0.40 | 0.76 | 0.79 | |
| Time preference (TP) | 0.16 | 0.68 | 0.76 | 0.25 | 0.33 | 0.52 | 0.70 | 0.78 | 0.73 |

Table 6.16: Discriminant validity assessment results (reduced model): Treatment Group

| Construct | DN | EA | FL | IN | IA | Int | PC | RSB | SE |
|-----------------------------------|------|------|------|------|------|------|------|------|------|
| Experiential attitude (EA) | 0.26 | | | | | | | | |
| Financial literacy (FL) | 0.46 | 0.60 | | | | | | | |
| Injunctive norm (IN) | 0.23 | 0.24 | 0.14 | | | | | | |
| Instrumental attitude (IA) | 0.09 | 0.18 | 0.14 | 0.69 | | | | | |
| Intention to save regularly (INT) | 0.15 | 0.60 | 0.38 | 0.50 | 0.56 | | | | |
| Perceived control (PC) | 0.31 | 0.64 | 0.39 | 0.49 | 0.56 | 0.62 | | | |
| Regular saving behaviour (RSB) | 0.40 | 0.59 | 0.50 | 0.27 | 0.21 | 0.61 | 0.40 | | |
| Self-efficacy (SE) | 0.48 | 0.69 | 0.52 | 0.45 | 0.21 | 0.62 | 0.67 | 0.83 | |
| Time preference (TP) | 0.47 | 0.67 | 0.88 | 0.16 | 0.13 | 0.42 | 0.42 | 0.62 | 0.55 |

6.9.4.2 Measurement invariance test

Measurement invariance, also referred to as measurement equivalence, needs to be established so that there is confidence that any differences in the groups is due to true differences in the structural relationships, and not because of distinctive content and meanings of latent variables across groups (Hair Jr et al., 2017). In this experimental study, the two groups were exposed to different conditions. One group (Treatment Group) was exposed to a financial awareness intervention programme, and the other (Control Group) did not receive such an intervention. There might then be a possibility that members of Treatment Group could have developed a different interpretation of the content and meanings of latent variables as opposed to members of the Control Group. By establishing measurement invariance, researchers can be confident that group differences in model estimates are the true differences in the structural relationships, thus ensuring the validity of outcomes and conclusions (Hair Jr et al., 2017). Without establishing measurement invariance, any conclusions about model relationships are questionable (Hair Jr et al., 2017), and group comparisons can be misleading (Henseler et al., 2016). Further, if the moderator effect is on all the structural paths of the model rather than a specific path, measurement invariance test is mandatory (Memon et al., 2019).

Henseler et al. (2016) developed a three-step procedure, known as the MICOM procedure, to analyse the measurement invariance of composite models. This procedure builds on non-parametric tests and can be used for PLS path modelling. The procedure contrasts group-specific measurement model estimates with those obtained from a model estimation using pooled data. The MICOM procedure appropriately identifies no, partial, and full measurement invariance. The three-step procedure consists of the following elements: configural invariance, compositional invariance, and the equality

of composite mean values and variances. The three steps are hierarchically interrelated, with a subsequent step done only if the previous step's analysis support measurement invariance. The MICOM procedure is presented in Appendix L. If configural and compositional invariance are established, there will be partial measurement invariance. Otherwise, no measurement invariance is established. If partial measurement invariance is established, this then allows comparisons of path coefficient estimates across the groups (Schlängel & Sarstedt, 2016). However, if further analysis reveal that the composites have equal mean values and variances (Step 3 of the MICOM procedure) across the groups, it can be concluded that there is full measurement invariance, and the data of different groups can be pooled, rendering MGA unnecessary.

This study undertook assessment of measurement invariance using the three-step MICOM procedure (configural invariance, compositional invariance, equality of composite mean values and variances) prior to conducting Multi Group Analysis.

1. Configural invariance

To have configural invariance, there must be identical indicators, identical data treatment, and identical algorithm settings or optimisation criteria for all measurement models. Configural invariance assessment, among others, requires an inspection of the model set-up and the selected settings that do not involve a statistical test. Hence, running MICOM in SmartPLS usually automatically establishes configural invariance. In this study, for both groups, they were required to complete an identical online questionnaire administered in the English Language. Data of the indicators was also treated in an identical manner across both groups. For instance, in data cleaning, for both groups, long patterns of the same response were identified and removed. For final analysis, the number of responses from Treatment Group is 63 and from Control Group,

64. More importantly, owing to model adjustments done in the previous step (6.7.1), the PLS path model setups are the same for the two Groups, which is a necessary requirement to establish configural invariance in Step One of the MICOM procedure. Configural invariance is therefore established.

2 Compositional invariance

Compositional invariance is achieved when composite scores are the same across the groups, that is, a composite is formed equally across groups. A permutation procedure with 5000 permutations (the minimum permutation runs recommended in Henseler et al., 2016) with a 5% significance level was done. Compositional invariance is assessed by comparing Original Correlation with 5% quantile. To establish compositional invariance, original composite score correlations (c) are compared with the empirical distribution of the composite score correlations resulting from the permutation procedure (c_u). If c exceeds the 5% quantile of c_u , compositional invariance is achieved. Results in Table 6.17 show that the 5% quantile of c_u is smaller than (or equal to) correlation c for all the constructs. The conclusion is there is compositional invariance, and partial measurement invariance is thus established.

Table 6.17: Compositional invariance assessment

| Construct | Original Correlation (c) | 5% quantile of c_u |
|------------------------------------|--|--|
| Descriptive norm | 1.000 | 1.000 |
| Experiential attitude | 0.990 | 0.978 |
| Financial literacy | 0.980 | 0.971 |
| Injunctive norm | 0.967 | 0.841 |
| Instrumental attitude | 1.000 | 0.979 |
| Intention to save regularly | 0.998 | 0.985 |
| Perceived control | 0.999 | 0.953 |
| Regular saving behaviour | 0.998 | 0.993 |
| Self-efficacy | 0.996 | 0.988 |
| Time preference | 0.998 | 0.976 |

3 Equality of mean values and variances

Step 3 requires establishing the equality of composite's mean values and variances across groups. Using PLS, permutation-based confidence intervals for the mean values and the variances were obtained using pooled data. The mean and variances between in construct scores of the two groups are assessed on whether a composite's mean value and its variance differs across groups. These results, as presented in Table 6.18, can reveal if partial or full measurement invariance has been established.

Table 6.18: Assessing equal mean values and variances

| Construct | Mean - Original Difference (Control - Experimental) | 2.50% | 97.50% | Variance - Original Difference (Control - Experimental) | 2.50% | 97.50% |
|------------------------------------|---|--------|--------|---|--------|--------|
| Descriptive norm | -0.17 | -0.345 | 0.355 | -0.287 | -0.445 | 0.444 |
| Experiential attitude | -0.183 | -0.364 | 0.346 | -0.181 | -0.477 | 0.495 |
| Financial literacy | 0.035 | -0.355 | 0.339 | -0.480 | -0.454 | 0.478 |
| Injunctive norm | -0.223 | -0.359 | 0.347 | 0.687 | -0.859 | 0.844 |
| Instrumental attitude | -0.251 | -0.356 | 0.345 | 0.804 | -0.893 | 0.892 |
| Intention to save regularly | -0.259 | -0.349 | 0.351 | 0.716 | -0.661 | 0.650 |
| Perceived control | -0.086 | -0.351 | 0.341 | 0.041 | -0.568 | 0.574 |
| Regular saving behaviour | -0.053 | -0.36 | 0.352 | -0.021 | -0.659 | 0.680 |
| Self-efficacy | -0.059 | -0.356 | 0.343 | 0.12 | -0.451 | 0.478 |
| Time preference | 0.177 | -0.357 | 0.343 | -0.337 | -0.513 | 0.542 |

Invariance is assessed by examining whether Mean Original Difference and Variance Original Difference falls between the 2.5% and 97.5% permutation-based confidence intervals. If they do, then full invariance is achieved, and the composite mean values and variances are equal. Otherwise, partial invariance is achieved. In Table 6.18, this

benchmark for Variance Original Difference was not met. Hence, there is partial invariance which means data of the two groups cannot be pooled. This result in Step 3 is desirable as the purpose of the experimental phase is to analyse group-specific effects, and not to pool the groups as one group. Since partial measurement invariance has been established, assessing each group's structural model is done in the following section.

6.9.4.3 Structural model assessment

The first step in conducting a structural model assessment is to check for collinearity between the constructs. Results are presented in Table 6.19. As all the VIF values were below the threshold value of 3.3, it is concluded that collinearity is not an issue.

Table 6.19: Inner VIF values

| Construct | Control Group | | Treatment Group | |
|------------------------------------|-----------------------------|--------------------------|-----------------------------|--------------------------|
| | Intention to save regularly | Regular saving behaviour | Intention to save regularly | Regular saving behaviour |
| Descriptive norm | 1.206 | | 1.249 | |
| Experiential attitude | 1.596 | | 1.697 | |
| Injunctive norm | 1.170 | | 1.580 | |
| Instrumental attitude | 1.733 | | 1.721 | |
| Perceived control | 1.921 | | 1.880 | |
| Self-efficacy | 1.720 | | 2.069 | |
| Intention to save regularly | | 1.267 | | 1.153 |
| Financial literacy | | 1.834 | | 2.666 |
| Time preference | | 2.173 | | 2.701 |

This is followed by an assessment of each group's PLS path model's predictive accuracy by running the blindfolding procedure with an omission distance of 7 for Control Group and omission distance of 8 for Treatment Group. Table 6.15 presents

the results. Q^2 value higher than 0, 0.25 and 0.50 depict small, medium, and large predictive accuracy of the PLS path model (Hair et al., 2019). For Control Group, the Q^2 values are more than 0.25, thus depicting that there is medium predictive accuracy of its PLS path model. However, for Treatment Group, there is low predictive accuracy both for Intention to save regularly and for Regular Saving Behaviour.

Table 6.20: Q^2

| Exogeneous construct | Q^2 (Control Group) | Q^2 (Treatment Group) |
|------------------------------------|---|---|
| Intention to save regularly | 0.260 | 0.196 |
| Regular saving behaviour | 0.376 | 0.237 |

Finally, the R^2 values which measure each path model's explanatory power are examined. Results are presented in Table 6.21. The explanatory power of the exogenous constructs on Intention to save regularly is almost the same for both groups. However, there seems to be a marked difference in the R^2 for Regular Saving Behaviour, with R^2 for Control Group higher than R^2 for Treatment Group (0.560 versus 0.373). It appears that participating in a financial awareness programme negatively impacts R^2 for Regular saving behaviour. The lower R^2 value indicates that the exogenous constructs (intention to save regularly, financial literacy, and time preference) are not explaining much in the variation of the endogenous variable (regular saving behaviour) for Treatment Group compared to the explanatory power of these variables on regular saving behaviour for Control Group.

Table 6.21: R^2

| Endogenous construct | Control Group | Treatment Group |
|------------------------------------|----------------------|------------------------|
| Intention to save regularly | 0.410 | 0.434 |
| Regular saving behaviour | 0.560 | 0.373 |

The next step is to assess group differences using MGA.

6.9.5 Multi Group Analysis (MGA) results

MGA analysis allows testing whether differences between group-specific path coefficients are significantly different (Matthews, 2017). This study's MGA results are presented in Table 6.22.

Table 6.22: PLS-MGA results

| Hypothesis | Path | Path Coefficients- diff (Control - Experimental) | p-Value new (Control vs Experimental) | Conclusion |
|------------|---|--|---|--------------------|
| H7a | Experiential attitude -> Intention to save regularly | 0.013 | 0.489 | Not significant |
| H7b | Instrumental attitude -> Intention to save regularly | -0.256 | 0.074 | Significant |
| H8a | Injunctive norm -> Intention to save regularly | 0.103 | 0.271 | Not significant |
| H8b | Descriptive norm -> Intention to save regularly | 0.105 | 0.251 | Not significant |
| H9a | Perceived control -> Intention to save regularly | 0.366 | 0.039 | Significant |
| H9b | Self-efficacy -> Intention to save regularly | -0.298 | 0.072 | Significant |
| H10 | Intention to save regularly -> Regular saving behaviour | 0.082 | 0.330 | Not significant |
| H11 | Financial literacy -> Regular saving behaviour | -0.189 | 0.136 | Not significant |
| H12 | Time preference -> Regular saving behaviour | 0.177 | 0.212 | Not significant |

PLS-MGA shows the probability values of one-tailed tests of each parameter's bootstrap estimate of one group and the bootstrap estimates of the same parameter in the other group. The new p-value can easily detect whether there are significant differences in the path coefficients of the two groups. If new p-value is less than 0.1,

there exists a significant difference in a specific path coefficient. An analysis of the results shows that there are three path coefficients where there are significant differences in path coefficients of the two groups. The three path coefficients are Instrumental attitude to Intention to save regularly, Perceived Control to Intention to save regularly, and Self-efficacy to Intention to save regularly. Whilst the path coefficients for Instrumental Attitude to intention to save regularly, and Self-efficacy to Intention to save regularly are higher for Treatment Group, the path coefficient for Perceived Control to Intention to save regularly is higher for Control Group. This implies that members of Treatment Group had lower perception of perceived control after participating in a financial awareness programme.

6.10 Summary of findings

The primary purpose of this phase of experimental research is to assess the impact of participating in a three-month financial awareness programme on the path coefficients of this study's framework. To assess the impact, two almost identical groups, Control Group and Treatment Group, were formed, with only the Treatment Group members participated in a financial awareness intervention. In addition to conducting a basic moderation analysis to test whether financial literacy moderates the relationship between intention to save regularly and regular saving behaviour, a multi-group analysis was also done. The hypotheses for Multi Group Analysis relate to whether there are significant differences in path coefficients of Control Group and Treatment Group. There are two path coefficients where path coefficients for Treatment Group are higher than the corresponding values for Control Group. The first is the path coefficient of instrumental attitude to intention to save regularly. Secondly, the path coefficient of self-efficacy to intention to save regularly. However, for path coefficient perceived control to intention to save regularly, it is significantly higher for Control Group than

the path coefficient for Treatment Group. For the remaining hypotheses, there are no significant differences in the path coefficients of the two groups. To sum, there are three significant differences in the path coefficients. As to the effect of participating in a financial awareness programme on the remaining path coefficients, the participation has not significantly affected the other path coefficients.

Universiti Malaya

CHAPTER 7: DISCUSSION AND CONCLUSION

7.1 Introduction

This chapter consists of seven sections. In the first section, the research summary is presented. In addition, this section contains a recap of this study's research framework. As this study collected its data using three data collection stages, over three time-periods, each research method is explained in section two, in addition to providing the findings of each phase of data collection by relating these to the research questions. Section three then discusses the findings. In this section, results of this study are compared with those of other similar studies. In the fourth section, the contributions of the study are explained. The implications of this study to government and policy makers, to researchers, and to education and programme providers are explained in the fifth section. Limitations to this study are highlighted in section six. The last section presents suggestions for future research that might be useful to build on this study.

7.2 Summary of research

This study builds on previous research on determinants of saving behaviour (e.g., Shafinar Ismail et al., 2020; Baidoo et al., 2018; Magendans et al., 2017; Brown & Taylor, 2016; Shim et al., 2012; Delafrooz & Paim, 2011; Loibl et al., 2011; Croy et al., 2010a). Although studies on determinants of saving behaviour is diverse, there exists perception that determinants of saving behaviour have yet to be conclusively identified (Copur & Gutter, 2019; Gerhard et al., 2018; Grigoli et al., 2017; Cobb-Clark et al., 2016). In addition, the focus of prior studies on saving behaviour was on children, students, and youths. This study differs in this aspect by investigating saving behaviour of income-earning Gen Ys in Malaysia. Gen Y is the most recent cohort to enter employment, probably entered employment around the year 2000 and the youngest Gen Ys are beginning to enter employment. Hence, it is a fast-growing income-earning

generational cohort (Rohani Mohd et al., 2016). Prior studies revealed Gen Ys to be highly indebted, has a lower level of self-control than other generational cohorts, has impulse-buying behaviour, seemed to want instant gratification and are brand conscious (Rey-Ares et al., 2021; Bolognesi et al., 2020; AIF, 2015). Possibly a result of these, Gen Ys are found to be experiencing financial stress and anxiety (Bolognesi et al., 2020; AIF, 2015) with many of them living beyond their means and are not prepared for long-term financial security. Despite these observations, in-depth studies on Gen Ys financial behaviour seem to be lacking (Rey-Ares et al., 2021). Thus, based on the aforementioned background of study, this study's aim is to identify determinants of regular saving behaviour among Gen Ys in Malaysia.

The research framework used in this study is the Montaña and Kasprzyk (2008) Integrated Behavioural Model (IBM) which is based on the TPB, but the antecedents of intention are more specific than the antecedents of TPB. This exploratory study investigated the predictive power of constructs in the model: these are attitude (experiential and instrumental), perceived norm (injunctive and descriptive) and personal agency (perceived control and self-efficacy) in predicting saving intention. Further to this, whether saving intention predicts self-reported regular saving behaviour. In addition, there are other factors that are predicted to directly affect behavioural performance. In this study, the factors are financial literacy and time preference. Financial literacy has been researched extensively but findings have not been conclusive. This study investigated two ways in which financial literacy affects saving behaviour; first, whether it directly affects saving behaviour and second, whether it moderates the relationship between intention to save and regular saving behaviour. In addition, whether a financial awareness intervention significantly affect the path coefficients of the constructs in this study. Time preference was added as the third direct

predictor of saving behaviour for a few reasons. First, it was found that young people tend to underestimate their survival or mortality (Heimer et al., 2019), which could cause them to have higher consumption and less savings during working lives. In addition, this generational cohort was found to subscribe to the motto You Only Live Once (YOLO), which could cause them to be present-biased, with preference for short-term saving goals. Both these factors can be linked to time preference, where those who have future time-preference (future biased) are more likely to save regularly and vice-versa, those with present time preference (present biased) are more likely to spend in the present and less likely to save for the future (Xiao & Porto, 2019). In addition, self-control has been linked to time preference (Thaler & Shefrin, 1981), such that people with good self-control are more likely to save regularly (Strömbäck et al., 2017). Compared to financial illiteracy, lack of self-control was found to have a stronger role in explaining consumer over-indebtedness (Gathergood, 2012). As prior studies have overlooked the effect of self-control problems on Gen Ys' financial behaviours and attitudes (Rey-Ares et al., 2021), this study attempts to investigate the significance of time preference as a determinant of regular saving behaviour among Gen Ys. Unlike financial literacy, where knowledge about financial matters could be increased through financial education, there is no evidence whether any interventions can alter time preference of an individual. Time preference could just be a choice (Finke & Huston, 2013), or explained by genetic variation (Cronqvist & Siegel, 2015).

7.3 Research findings

This study was done in three phases. It began with an elicitation interview phase (Phase One) to elicit Gen Ys underlying beliefs about performing regular saving. The next phase (Phase Two) involves primary data collection using questionnaires where 500 useable responses were obtained. Hypotheses relating to the relationships between

the constructs of this study's research framework are tested. As prior studies are inconclusive on the effectiveness of financial literacy interventions of financial behaviour, this study in Phase Three conducted an experiment involving two groups – one group was a recipient of a financial awareness programme but the other did not receive the intervention. At the end of a three-month programme, all participants completed the same questionnaire administered in Phase Two. Table 7.1 provides a brief comparison of the three phases, in terms of the rationale and evaluation of each phase.

Table 7.1: Comparison of the three phases of this study

| Phase | Rationale | Evaluation |
|--|---|---|
| One: Elicitation interviews | <p>As per the requirement in a TPB-based study, interviews were conducted to identify salient underlying beliefs regarding regular saving behaviour among a sample of Gen Ys in Malaysia.</p> <p>This is a formative phase where the findings are used to prepare a questionnaire which is empirically grounded to the target population.</p> | <p>To the best of knowledge, there is no prior study using the IBM for financial behaviour research. As such, this phase was useful to identify underlying beliefs especially on Experiential Attitude and Perceived Control. The information gathered in this phase is also useful to understand the results in Phase Two.</p> <p>Behavioural attributes, outcomes, normative referents, facilitators, and barriers are identified. This information complements information from prior studies to provide questionnaire content and IBM measures for this study, thus increasing the likelihood that the questionnaire has face and content validity and relevant to the target population.</p> |

Table 7.1, continued

| Phase | Rationale | Evaluation |
|----------------------------------|---|---|
| Two: Survey | <p>A survey was done to evaluate the applicability of the IBM in predicting regular saving behaviour among Gen Ys in Malaysia.</p> <p>Further analyses were done on:</p> <ul style="list-style-type: none"> • The predictive power of the model in predicting Intention to save regularly and Regular saving behaviour. • Whether positioning Experiential Attitude as an outcome variable (because of regular saving behaviour) could enhance the predictive power of the model. • Whether financial literacy, age, and gender act as moderators. | <p>This Phase is useful in evaluating the significance of the paths of this study's Conceptual Framework. Significant relationships were found between all the constructs to Intention to save regularly, with the exception for Experiential Attitude and Descriptive Norm. This seems consistent with the information gathered at Phase One. For Experiential attitude, most of the participants in Phase One found it difficult to express their feelings towards regular saving behaviour. For Descriptive Norm, most of Phase One participants said they were not aware whether people around them are saving money.</p> |
| Three: Experimental study | <p>This is in line with recommendation by Lusardi and Mitchell (2014) that an appropriate way to investigate the effectiveness of financial literacy in influencing saving behaviour is via an experimental study.</p> <p>Experiments were done on the effects of a financial education programme on students' financial literacy, and their saving or financial behaviour (De Beckker et al, 2021; Zhu et al., 2021; Brugiavini et al., 2020; Kalwij et al., 2019; Fan & Chatterjee, 2018; Batty et al., 2015). However, there does not seem to be any such experiments beyond student setting, although surveys were used, for instance, to investigate the effects of employer-based financial education on personal saving (Bernheim & Garrett, 2003), and the impact on employee retirement saving decisions one year after completion of a learning module on retirement planning (Clark et al., 2017).</p> | <p>The findings of this study using PLS-MGA revealed that the path coefficient of Financial Literacy to regular saving behaviour though higher for Treatment Group, it is not significantly higher compared to Control Group. This supports prior studies (e.g., Fernandes et al., 2014) on the lack of effectiveness of financial literacy intervention programmes.</p> |

The following sub-sections present the findings of these three phases of data collection.

7.3.1 RO1: Salient beliefs underlying regular saving behaviour among Gen Ys in Malaysia

From the findings of Phase One study, participants were aware of the importance of regular saving and of the need to save. Nevertheless, having to save regularly is not pleasurable, with some unable to describe their feelings. Their primary motive for saving is for emergency and safety reasons. Participants seemed to be influenced by people older than them; specifically, their parents, and colleagues. Siblings and peers were seldom mentioned as influencers. Having low financial commitments is the main facilitator in their ability to save. Although Gen Ys place importance to the act of saving money regularly, some have doubts whether they would be able to sustain this behaviour. Many seemed unsure of long-term plans. They have not considered future challenges in the economic environment and the impact of any future uncertainties on their saving ability. Nevertheless, some have expressed confidence in their ability to save regularly in the future even if financial challenges come up. The main facilitator is being disciplined and ability to exercise control over behaviour. They also attributed their self-efficacy to habit formed since young. There is also internal conflict to choose between spending and saving, with savings utilised for wedding, relocation, emergency use and for travel. Thus, having self-efficacy is not adequate; self-control is also required. For participants who save residuals, when unexpected expenses incur, they are unable to save much.

7.3.2 RO2: Relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly

Based on the R Square Adjusted for intention to save regularly, 47.3% of the variance in Intention to Save Regularly is explained by the six predictors (exogeneous constructs). Based on path coefficient values, Instrumental Attitude is the most important predictor, followed by Perceived Control, Injunctive Norm, Self-efficacy, Experiential Attitude and finally, Descriptive Norm. As to the model's predictive accuracy, based on PLSpredict, the model has high predictive power in predicting intention to save regularly. Instrumental Attitude, Injunctive Norm, Perceived Control, and Self-efficacy have significant positive relationships with intention to save regularly. However, there is insignificant evidence of a relationship between Experiential Attitude and Descriptive Norm with intention to save regularly. Based on effect size (f^2) values, only Instrumental Attitude has large effect size on intention to save regularly. Perceived Control has medium effect size, but the other constructs (Experiential Attitude, Injunctive Norm, Descriptive Norm, and Self-efficacy) have small effect size.

7.3.3 RO3: Relationship between intention to save regularly, financial literacy, time preference and regular saving behaviour

The explanatory power of the three exogeneous constructs on the endogenous construct (regular saving behaviour) can be deemed moderate, with the three exogenous constructs explaining 41.8% of the variance in regular saving behaviour. Using path coefficients values, intention to save regularly is the most important predictor construct of regular saving behaviour, followed by time preference and lastly by financial literacy. As for the model's predictive accuracy, based on PLSpredict, the model was found to have low predictive power in predicting performance of regular saving. All the three

predictor constructs, financial literacy, time preference and intention to save regularly, have significant positive relationships with performance of regular saving. Based on effect size values, intention to save regularly has the greatest (large) effect size on regular saving behaviour, followed by time preference (medium effect size) and financial literacy (medium effect size).

7.3.4 RO4: Whether participation in a financial awareness programme influences the relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly

There were significant differences in path coefficients for Instrumental Attitude, Perceived Control, Self-efficacy, and intention to save regularly. While the Treatment Group data showed higher path coefficients for both Instrumental Attitude and Self-efficacy, and intention to save regularly, the Control Group data showed a higher path coefficient for Perceived Control and intention to save regularly. No significant differences were found for all the path coefficients.

7.3.5 RO5: Whether participation in a financial awareness programme influences the relationships between intention to save, financial literacy, time preference and regular saving behaviour

There were no significant differences in path coefficients for intention to save regularly, financial literacy, time preference and regular saving behaviour. Although Treatment Group data showed higher path coefficient for financial literacy and regular saving behaviour compared to Control Group data, the difference is not significant. All details of this study are summarised in Table 7.2.

Table 7.2: Summary of Research Study and Research Findings

| Research Objective | Research Methods | Hypotheses | Findings |
|---|--|-------------------|---|
| RO1: To identify and explore salient beliefs underlying regular saving behaviour among Gen Ys in Malaysia. | Elicitation interviews (Phase One) 13 interviewees April 2018 – July 2018 | - | <p>Feel happy/good/great/glad. Saving is important / vital / essential / necessary. Main influencers are parents (including parents-in-law), spouse/partner, colleagues, and friends. Unsure whether people around them save. Decision to save regularly is within their control due to low financial commitments and large enough incomes. They generally believe that they can continue to save in the future as they have the determination and drive to save. Furthermore, habit is already formed.</p> |

Table 7.2, continued

| Research Objective | Research Methods | Hypotheses | Findings | Framework |
|--|--|---|-------------------------------------|--|
| RO2: To examine the relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly. | Survey (Phase Two) 500 responses Oct 2018 – April 2019 | H1a & H1b: Gen Y's (a) experiential attitude, and (b) instrumental attitude is positively related to intention to save regularly. | H1a not supported. H1b supported | <pre> graph LR EA[Experiential attitude] -- grey --> IS[Intention to save regularly] IA[Instrumental attitude] -- red --> IS IN[Injunctive norm] -- red --> IS DN[Descriptive norm] -- grey --> IS PC[Perceived control] -- red --> IS SE[Self-efficacy] -- red --> IS IS -- red --> RSB[Regular saving behaviour] FL[Financial literacy] -- red --> RSB TP[Time Preference] -- red --> RSB </pre> <p>Arrows in red highlight the supported hypotheses.</p> |
| | | H2a & H2b: Gen Y's (a) injunctive norm, and (b) descriptive norm, is positively related to intention to save regularly. | H2a supported H2b not supported | |
| | | H3a & H3b: Gen Y's (a) perceived control, and (b) self-efficacy, is positively related to intention to save regularly. | H3a supported H3b supported. | |
| RO3: To examine the relationship between Intention to Save Regularly, Financial Literacy, Time Preference and regular saving behaviour. | Survey (Phase Two) 500 responses Oct 2018 – April 2019 | H4: Gen Y's intention to save regularly is positively related to regular saving behaviour. | H4 supported | |
| | | H5: There is a positive relationship between financial literacy and regular saving behaviour. | H5 supported | |
| | | H6: Individuals with low (high) time preference are more (less) likely to have regular saving behaviour. | H6 supported | |

Table 7.2, continued

| Research Objective | Research Methods | Hypotheses | Findings | Framework |
|--|--|--|--|---|
| RO4: To examine whether participation in a financial awareness programme influences the relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly. | Experimental Study (Phase Three) 148 participants 74 in Treatment Group, 74 in Control Group July 2019- Oct 2019 | H7a & H7b: The path coefficient of (a) experiential attitude, and (b) instrumental attitude, and intention to save regularly is different between the two Groups. | H7a not supported H7b supported | <p>Arrows in red indicate significant differences in path coefficients.</p> |
| | | H8a & H8b: The path coefficient of (a) injunctive norm, and (b) descriptive norm, and intention to save regularly is different between the two Groups. H9a & H9b: The path coefficient of (a) perceived control, and (b) self-efficacy, and intention to save regularly is different between the two Groups | H8a not supported. H8b not supported. H9a supported H9b supported | |
| RO5: To examine whether participation in a financial awareness programme influences the relationship between Intention to Save Regularly, Financial Literacy, Time Preference and regular saving behaviour. | Experimental Study (Phase Three) 148 participants 74 in Treatment Group, 74 in Control Group July 2019- Oct 2019 | H10: The path coefficient of intention to save regularly and regular saving behaviour is different between the two Groups. | H10 not supported | |
| | | H11: The path coefficient of financial literacy and regular saving behaviour is different between the two Groups. | H11 not supported | |
| | | H12: The path coefficient of time preference and regular saving behaviour is different between the two Groups. | H12 not supported | |

7.4 Discussion of research findings

7.4.1 RO1: Salient beliefs underlying regular saving behaviour among Gen Ys in Malaysia

The participants agreed that saving regularly is a necessary behaviour and that as asserted by Loibl et al. (2011), having the habit of saving regularly matters. The tendency to save regularly seems to be associated with amount saved. When participants are happy with the amount saved, saving regularly becomes pleasurable and more likely to be done. This supports Guven (2012) who said feelings of happiness should encourage people to save more. The participants' primary motive for saving, which is for emergency and safety reasons, supports the finding of Fisher and Montalto (2010) that emergency motive can significantly increase the likelihood of saving regularly. Although interviewees agreed that saving regularly is an important behaviour, they lacked knowledge about the various alternatives to save money. Despite being technology-savvy, they do not make the effort to obtain financial information from the internet. This supports the findings of Calvo-Porrall and Pesqueira-Sanchez (2019) that Gen Ys use and engage with technology for enjoyment and entertainment, and not for information search.

The finding that participants seemed to be influenced by people older than them, such as by their parents and colleagues, supports the findings of Robertson-Rose (2020), Sharif et al. (2020); Robertson-Rose (2019), LeBaron et al. (2018) and Palaci et al. (2017) that parents and older colleagues can be positive models in the areas of saving decisions, money-management skills, and retirement preparedness. On the other hand, siblings and peers were seldom mentioned as influencers, this too is consistent with the findings of Robertson-Rose (2020) and, Kamarudin and Hashim (2018).

Habit formed from young seems to reflect in positive saving behaviour at adulthood, supporting the findings of Brown and Taylor (2016). Majority of the participants save residuals, but when unexpected expenses incur, they are unable to save much. Hence, if money is set aside as another “financial commitment”, there should be better ability to avoid “unplanned expenditures” (Dupas and Robinson, 2013).

7.4.2 RO2: Relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly

Instrumental Attitude is the most important construct that influence intention to save regularly, followed by Injunctive Norm, Perceived Control and Self-efficacy. Instrumental Attitude is determined by beliefs about outcomes of behaviour. The conclusion here is that Gen Ys believe that the act of saving regularly on monthly basis is required and such an act has favourable outcomes. Majority of respondents (90.8%) in this study hold at least a Bachelor’s Degree; thus, it is presumed that their level of knowledge gained through tertiary education could have influenced their Instrumental Attitude. This finding, however, contradicts the findings of Shafinar Ismail et al (2020) and Amer Azlan Abdul Jamal et al. (2016) which found no significant relationship between financial attitude and saving behaviour. The reason could be that in Amer Azlan Abdul Jamal et al. (2016) study, their respondents, being students, were not earning regular income. Shafinar Ismail et al (2020) study, on the other hand, was conducted among government servants, where, as also found by Mohamad Fazli Sabri et al. (2019), civil (government) servants have rising debt levels.

The construct that has medium effect size on Intention to save regularly is Perceived Control. Based on the demographics of respondents in Phase Two survey, 61% are

categorised as younger Gen Ys, i.e., those born between the years 1988 to 1995. This group is likely to be single, staying with parents and has very few financial commitments. As such, if they want to save, they can. However, peer pressure and temptations to buy products online could encourage them to spend.

Injunctive Norm (which is the Subjective Norm in TPB) was found to have a significant positive relationship with Intention to save regularly. The expectation of others - most often parents, spouse, and co-workers - could provide motivation to comply and encourage performance of regular saving. However, the effect size of Injunctive Norm is small. The others who could be considered important to the respondents, such as siblings and friends, do not encourage or talk about saving.

The other construct which has a significant relationship with Intention to save regularly but with small effect size is Self-efficacy. This finding is consistent with the findings in Shim et al. (2012) and Magendans et al. (2017) that Perceived Behavioural Control in TPB (which is perceived Self-efficacy in IBM) influences behavioural intention.

Experiential Attitude does not significantly influence intention to save regularly. This contrasts with the importance of Instrumental Attitude. Information from elicitation interviews could provide some insights here. While rational thinking informs Gen Ys that it is wise, good, and responsible behaviour to save, the act of saving itself is not initially pleasurable. For some, it was painful as they needed to sacrifice spending. It was also stressful when income was not high enough. However, in time when the amount saved has increased, they felt satisfied for having accomplished something. This suggests that favourable Experiential Attitude is a consequence of regular saving behaviour. When the conceptual framework of this study was modified by positioning Experiential Attitude

as a criterion variable and regular saving behaviour as a predictor variable, it was found that regular saving behaviour significantly influences experiential attitude.

Finally, Descriptive Norm had a very insignificant effect on Intention to save regularly. This is again consistent with the findings from elicitation interviews that hardly any discussions are done on the topic of regular saving behaviour among friends or among siblings. So, respondents are rather unsure whether others around them save. Furthermore, the act of saving money regularly is not an observable act. The mean score of the responses for the four statements to tap the construct of Descriptive Norm was 3.792, 3.220, 3.530 and 3.312, indicating that the responses range from 'Neutral' to 'Partially Agree'. As Descriptive Norm refers to perceptions about what others in one's social or personal networks are doing, the effect of Descriptive Norm is low as the respondents generally do not know whether others around them are saving money regularly.

Thus, being educated - with most of the respondents are holders of Bachelor Degrees - they know that saving regularly is important (Instrumental Attitude). The influence of people around them (Injunctive Norm) can motivate the respondents to start saving regularly. Although respondents think that they have control over this behaviour (Perceived Control), Self-efficacy seems to have a lower influence. The reason for this cannot be identified through this survey. However, elicitation interviews have identified peer pressure and year-end festivity spending as a couple of reasons why not utilising money saved can be a problem for Gen Ys.

7.4.3 RO3: Relationship between intention to save regularly, financial literacy, time preference and actual saving behaviour

The finding that intention to save regularly has large effect size and to be the most important predictor construct of regular saving behaviour confirms the proposition by Ajzen (1991) that intention to perform a behaviour is the most important predictor of performance of behaviour. This finding is also consistent with previous studies that found intention to save to be an important predictor of saving behaviour (Allom et al., 2018; Magendans et al., 2017; Shim et al., 2012). In preventing undesirable behaviour – such as, in preventing risky credit behaviours – positive behavioural intention was also found to be the most important factor (Xiao et al., 2011).

The significant positive relationship between financial literacy and regular saving behaviour supports prior studies (Baidoo et al., 2018; Murendo & Mutsonziwa, 2017; Batty et al., 2015; Nurul Shahnaz Mahdzan & Tabiani, 2013). This study also investigated whether financial literacy (high level and low level of financial literacy) moderates the relationship between intention to save regularly and regular saving behaviour. Result showed that there is insufficient evidence that financial literacy moderates the relationship between intention to save regularly and regular saving behaviour. This finding support García and Vila (2020) who found that financial literacy, and awareness of the importance of saving, are not enough for behavioural change of individuals if individuals have weak intention and procrastinate to save. The lack of significant evidence of a moderating effect of financial literacy could be due to respondents being overconfident when assessing their financial literacy, where subjective financial literacy measures were used. This is based on the findings of Lusardi and Mitchell (2014), which found that when respondents are required to indicate self-assessed knowledge, they are generally rather confident of their financial knowledge. This could also apply to Gen Ys

as they were found to be more likely to overestimate their own financial knowledge (Bolognesi et al., 2020). Hence, it is probable that the actual financial literacy of the respondents is lower than what was reported. The lack of a moderating effect could also be attributed to measurement of the moderator variable, where an insufficient number of scale points (for example, use of 5-point scale as opposed to 7-point scale or a continuous scale) could lead to possible information loss and prevents a moderating effect from being detected (MacKinnon, 2011; Aguinis, 1995; Russell & Bobko, 1992). Further, studies based on Malaysian context are recommended to use a 7-point Likert scale for moderating variable due to Malaysia's collectivistic culture (Memon et al., 2019). However, the finding of this basic moderation analysis seems to be consistent with the findings via elicitation interviews of this study which found that personal assessment of financial knowledge does not seem to influence saving behaviour, with some respondents who save substantially every month have assessed their financial knowledge as low.

Time preference was found to be more important than financial literacy in predicting behaviour as the effect size of time preference (0.045) is higher than the effect size of financial literacy (0.033). This supports the finding of Tang and Baker (2016) that whilst financial knowledge is important, it is an insufficient driver of responsible financial behaviour, and for individuals with advancing age and approaching retirement, future oriented attitudes were found to be more directly associated with saving regardless of level of financial knowledge (Rolison et al, 2017). The finding of this study is also consistent with Gathergood (2012) who found lack of self-control (which is linked to time preference) have a stronger role than financial illiteracy in explaining consumer over-indebtedness. In the case of Gen Ys, a greater importance attached to time preference compared to financial literacy could be due to a longer life expectancy of Gen Ys. Gen Ys perhaps understand the need to save for their future especially since the future is

uncertain and lack predictability. Most of the respondents in this study are degree holders. They are probably aware of the opportunity cost of saving money in the form of regular deposits in savings account and could have invested their excess income into investments such as unit trusts, property, or gold. This view is based on Grohmann et al. (2015) which found that increase in financial literacy is associated with higher probability of owning fixed deposits and increase in the probability of owning stocks. This could explain why financial literacy was found to be the least important determinant of regular saving behaviour. Higher level of financial literacy could make people aware of the pitfalls of having too much of liquid savings in savings accounts, and to consider other forms of investments.

This study also tested whether the positive relationship between financial literacy and regular saving behaviour would be stronger for males compared to females. The findings revealed that there is insufficient evidence to conclude that Gender moderates the relationship between financial literacy and regular saving behaviour. This supports Yong et al. (2018) which found no gender difference in the relationship between financial knowledge, attitude, and behaviour. However, it is not consistent with the finding by Tang et al. (2015) which found that financial knowledge (and parental influence) improves women's financial behaviour more than men. A plausible explanation here is the composition of respondents in Phase Two. Most of the respondents (90.8%) have at least a Bachelor Degree and 95% of the 500 respondents staying in an urban area. Such a demographic profile suggests that the tertiary education they have received and living in an urban area, perhaps with easier and greater access to information, have narrowed any gender differences that impact the relationship between financial literacy and regular saving behaviour.

A further test was on whether the positive relationship between time preference and regular saving behaviour would be stronger for older Gen Ys compared to younger Gen Ys. The result shows that the interaction effect is significant: Birth Cohort moderates the relationship between time preference and regular saving behaviour. This supports the finding by AIF (2015) that found older Gen Ys save more than the younger Gen Ys, and the finding by Bolognesi et al., (2020) that older Gen Ys are more prepared for financial emergencies than younger Gen Ys. A study by Andreoni et al. (2019) involving children aged between 3 years to 12 years found that older children display more patience than younger children. This suggests that time preference evolve with age, which supports the finding of this study that older Gen Ys have lower time preference and more likely to save regularly.

7.4.4 RO4: Whether participation in a financial awareness programme influences the relationship between Attitude (experimental, instrumental), Perceived Norm (injunctive, descriptive), Personal Agency (perceived control, self-efficacy) and intention to save regularly

Results highlight two important positive outcomes of a financial awareness intervention - a financial awareness programme can strengthen the relationship between Instrumental Attitude and Self-efficacy with Intention to save regularly. Instrumental Attitude was found in Phase Two of this study to be the most important construct that impacts Intention to save regularly. Hence, the finding that financial literacy intervention can significantly impact the path coefficient of Instrumental Attitude and Intention to save regularly demonstrates a primary importance of such interventions.

The second finding is also significant as Self-efficacy is one of the drivers of financial well-being in adulthood (Drever et al., 2015). In Phase Two of this study, self-efficacy

was found to have a significant relationship with regular saving behaviour, albeit small effect size. In Phase Three of study, there was evidence of a significant difference in path coefficient of Self-efficacy and Intention to save regularly between the two groups. This supports [Salas-Velasco \(2022\)](#) and [Singh et al. \(2019\)](#) that financial literacy is a significant antecedent of financial self-efficacy, and Kuhn and Melzer (2018) that noncognitive abilities, such as self-efficacy, are not pre-determined and can be improved via interventions that boost people's belief in their own capacity to achieve better financial outcomes. In this study's experimental phase, lots of information were shared during the three-month session. Many shared their views on ways they reduced their expenses and increased their income. This could have altered perceived self-efficacy among Treatment Group members. They could have realised that they can overcome difficulties when deciding to save money regularly.

Perceived Control was found in Phase Two of this study to be the second most important construct that impacts intention to save regularly, with medium effect size. However, the path coefficient of Perceived Control and Intention to save regularly is higher for Control Group. This suggests that participating in a financial awareness programme could lead to a lower assessment of Perceived Control. This outcome could be attributable to awareness of barriers to regular saving gained at a couple of financial awareness sessions. Participants could also have developed awareness of the large amount of monthly savings required to achieve financial independence. Gaining such knowledge could have made Treatment Group members more aware of external barriers that hinder performance of regular saving.

The only construct that was found to have a significant positive relationship with Intention to save regularly in Phase Two but was not significantly impacted by financial

awareness intervention in Phase Three is Injunctive Norm. The reason could be the way the sessions were conducted. All sessions were conducted via information sharing on WhatsApp with participants not knowing the identity of others. It is unlikely that members consider other participants as “people who are important to them”. The people who are important to them - these could be parents, spouses, or friends - did not participate in the sessions. Hence, the type of financial awareness programme done in this study should not affect both Injunctive Norm and Descriptive Norm. For those employed, and this includes working Millennials, a well-designed workplace financial wellness education programme is recommended (Bolognesi et al., 2020; Delafrooz & Laily Paim, 2011) - this workplace intervention might influence the path coefficients of Injunctive Norm and Descriptive Norm and regular saving behaviour. The path coefficient of Experiential Attitude and Intention to save regularly has the smallest difference between the two groups. As was postulated in Phase Two study and elicited in interviews, Experiential Attitude seems to be impacted after performance of regular saving.

Thus, three of the four constructs that significantly influence Intention to save regularly in Phase Two were found to be significantly influenced by financial awareness intervention. This supports arguments in favour of financial literacy interventions to improve financial behaviour. In this study, however, these constructs influence intention to save regularly, and not directly impact regular saving behaviour.

7.4.5 RO5: Whether participation in a financial awareness programme influences the relationships between intention to save, financial literacy, time preference, and regular saving behaviour

As for the path coefficients influencing regular saving behaviour, none of the path coefficients was significantly influenced by the financial awareness intervention. This could be because data for regular saving behaviour was collected at the same time as all other data. A time lag might be required for manifestation of behavioural change after an intervention.

The difference in path coefficient of financial literacy and regular saving behaviour of the two groups is found to be insignificant. This supports the findings of García and Vila (2020) that financial literacy and awareness of the importance of saving are not enough for individuals to start saving. Fernandes et al. (2014) who conducted a meta-analysis on the relationship of financial literacy and of financial education to financial behaviours, found that interventions to improve financial literacy explain only 0.1% of the variance in financial behaviours studied, with weaker effects in low-income samples. Drever et al. (2015) too found based on a review of literature that establishing links between financial education programmes and subsequent behaviour has been proven to be challenging.

7.5 Contributions of study

7.5.1 Theoretical contributions

As the determinants of young adults' financial behaviour are multifaceted (Tang et al., 2015), a theory-driven approach was used in this study to identify the determinants of regular saving behaviour. This study's theoretical contribution is it incorporated six predictors of intention to save to identify the predictive power of each in the context of Gen Ys behaviour, instead of the standard three predictors of intention in Theory of

Planned Behaviour (TPB), which are attitude, subjective norm, and perceived behavioural control. As this study is fundamentally based on TPB, the six predictors, two for attitude (experiential, instrumental), two for perceived norm (injunctive, descriptive), and two for personal agency (perceived control, self-efficacy) affect intention, and intention then impacts regular saving behaviour. The findings of this study support the relevance of the predictors in predicting intention to save regularly, with exception of Experiential Attitude and Descriptive Norm where there was insufficient evidence that these two predictors influence intention to save regularly. Further, Experiential Attitude was found to be an effect of regular saving behaviour, and not a predictor of intention.

In addition to intention to save regularly as a direct predictor of regular saving behaviour, two other direct predictors were used. These are financial literacy and time preference. As such, this study incorporated not only sociological and psychological factors, but also economic factors as predictors of behaviour. As predicted, intention to save regularly was found to have significant positive association with regular saving behaviour, and it is the most important predictor out of the three direct predictors of regular saving behaviour. Financial literacy and time preference too were found to have significant positive associations with regular saving behaviour. In terms of predictive relevance of financial literacy and time preference, time preference was found to be a more important predictor than financial literacy. The impact of time preference on other behaviours have been studied, such as on smoking behaviour (Miura, 2019), on physical activity (Hunter et al., 2018), on saving for retirement (Finke & Huston, 2013), and on compulsive buying behaviour (Norum, 2008). However, to the best of knowledge, the effect of time preference on regular saving behaviour among Gen Ys have not been studied. Financial literacy has been recommended as a skill needed for positive financial behaviour. The findings of this study, however, suggest that one way to influence regular

saving behaviour is through savers' time preference, where future time preference could encourage saving behaviour. This then suggests that further research is needed on whether there are interventions that could influence time preference.

7.5.2 Methodological contributions

This study applied the Integrated Behavioural Model (IBM), a model which has been used rather extensively in the field of health sciences. IBM is based on the Theory of Planned Behaviour (TPB); TPB has been used in the study of financial behaviours (see Raut, 2020; Satsios & Hadjidakis, 2018; Magendans et al, 2017; Shim et al., 2012; Loibl et al., 2011; Xiao et al., 2011; Croy et al. 2010a; Xiao & Wu, 2008). The IBM evolved from the TPB, which itself evolved from the Theory of Reasoned Action (TRA). There are a few new/changed determinants within the model, which influence an individual's intention to perform a certain behaviour. These determinants include Experiential Attitude, Descriptive Norm, Personal Agency, and Self-efficacy. Personal Agency is a combination of Perceived Control and self-efficacy. Thus, IBM has more specific predictors of intention, such as attitude is comprised of both experiential and instrumental, norm consists of injunctive and descriptive, and personal agency consists of perceived control and self-efficacy. In addition, intention is not the only direct predictor of behaviour. Other direct predictors to behaviour can be introduced, which in this study are financial literacy and time preference. In this study, these two factors could be considered as interventions to promote change in behaviour. Thus, applying IBM to conduct this study is a methodological contribution of this study. To the best of knowledge, there is no prior study done using IBM for financial behaviour research.

A further contribution in the application of IBM is it uses the model not only to predict behavioural intention, but also eventual performance of the behaviour. Other studies

either do not predict behaviour, and only intention, or omitted intention but linked the constructs directly to behavioural performance (e.g., Amer Azlan Abdul Jamal et al, 2016; Croy et al., 2010a). Another contribution in the application of IBM in this study is that data collection is done in three phases, and that there are time lags between the phases. This contrasts past studies (e.g., Magendans et al., 2017) that used cross-sectional design where data collected at a specific point in time.

This study's further methodological contribution is that it used the considerations for constructing a TPB Questionnaire as outlined in Ajzen (2006). The considerations include defining the behaviour, the measures of attitude, perceived norm and personal agency, and the scales. Prior to preparing the questionnaire, this study used elicitation interviews to explore beliefs that impacts attitude, perceived norm, and personal agency. This step is necessary but often ignored in other TPB-based studies (e.g., Yong et al., 2018; Magendans et al., 2017; Shim et al., 2012; Croy et al., 2010a). To the best of knowledge, this study's conduct of elicitation interviews to explore beliefs is a first such approach in the research on saving behaviour. Via this first phase, this study becomes empirically grounded, and the questionnaire designed is specific to the population being studied.

This study's third methodological contribution is that it used experimental approach to study the effectiveness of a financial awareness intervention. The experimental study was conducted over a three-month period and at the end of the study period, participants were asked to complete a questionnaire. Significant differences in the responses of the two groups (Treatment and Control) which could be attributable to the financial awareness intervention were identified. Results show that that there were significant differences in path coefficients for Instrumental Attitude, Perceived Control, Self-

efficacy, and intention to save regularly. However, the intervention did not significantly influence the path coefficient of Financial Literacy and regular saving behaviour.

7.5.3 Practical contribution

A study on Gen Y is a popular topic of research, and the areas of research encompassed luxury consumption behaviour (Jain, 2020), technology behaviour (Calvo-Porrall & Pesqueira-Sanchez, 2019), green purchase behaviour (Chuah & Lu, 2019), customer loyalty in online shopping (Bilgihan, 2016), and optimizing communication effectiveness (Hartman & McCambridge, 2011). Studies on Gen Y's saving behaviour seem to be lacking. Specifically, studies on saving habits and saving behaviour of Gen Ys in Malaysia focussed on students, such as second year Finance major students (Shaliza Alwi et al., 2015). Gen Y is the largest income-earning generational cohort, with the youngest Gen Ys beginning to enter employment. As such, studies on Gen Ys should target income-earners, especially if the study is on financial behaviour.

Several reports have pictured Gen Y as a generational cohort more interested in spending rather than saving ("Forty per cent of millennials spend beyond their means, says finance minister", 2021; "Millennials Facing Financial Woes," 2017; Bolognesi et al., 2020; AIF, 2015). Factors such as lifestyle and entertainment expenses, impulse buying, and peer pressure have been linked to Gen Ys' lack of self-control, resulting in Gen Ys incurring high spending and debt accumulation. Identifying the determinants of Gen Ys saving behaviour is not an easy task as this generational cohort is a large cohort. Income, expenses, and cost of living have been cited as reasons for inability to save. However, these factors cannot be easily manipulated to increase savings. Attitudinal factors are important too. In addition, providing financial literacy education has been suggested as a method to promote positive behaviour change through changes in attitude

and enhancement of self-confidence (Xiao et al., 2011). This study's practical contribution is that it identified factors beyond income and cost of living as predictors of intention to save and regular saving behaviour. It provided insight on the importance of Instrumental Attitude, and the influence of older family members and colleagues in encouraging saving behaviour. This study also found that Gen Ys felt that if they want to save, they can as the act of saving money monthly is within their control. Thus, it is not self-efficacy that is lacking among Gen Ys. They seem to lack self-control from utilising their savings for unexpected expenses and spending.

Malaysia has been identified as one of the countries that need to strengthen its population's financial knowledge. Specific measures are therefore needed as there is no one-size-fits-all approach to enhancing financial knowledge. The findings of this study shows that even a three-month financial awareness programme was ineffective in increasing Gen Ys' financial literacy levels. Nevertheless, the programme has increased Instrumental Attitude and participants' assessment of self-efficacy in doing regular saving. These two factors have significant relationships with intention to save regularly; thus, their higher path coefficients are good outcomes in attempting to influence regular saving behaviour. This study also highlighted the significance of time preference as a direct predictor of regular saving behaviour - it was found to be a more significant factor than financial literacy.

7.6 Implications of study

Policy makers should find this study useful as the behaviour of Gen Ys in Malaysia is different from the overall perception of Malaysians' financial behaviour. Gen Ys have positive attitude towards saving money: they do save but they use up their savings for unexpected expenses, travel, wedding, relocation and for year-end celebrations. This

means Gen Ys are not saving enough and are not saving for long-term. Policymakers could identify, via collaboration with banks and EPF, on ways to encourage Gen Ys to save regularly for long-term. Government could play its part by creating and increasing awareness amongst Gen Ys on the long-term benefits of having adequate savings, such as on the quality of their lives during retirement and on their ability to cope with unexpected emergencies in the future. Gen Ys need to be aware too of the various avenues to save money. One such avenue is Private Retirement Scheme (PRS), which many Gen Ys are perhaps not aware of. PRS has many benefits and can be used to supplement Gen Ys' EPF contributions.

The findings of this study are also important to researchers on saving behaviour. It highlighted the importance of Instrumental Attitude as a significant predictor of intention to save regularly. Injunctive Norm, that is the expectations of those important to Gen Ys, is another important predictor. The importance of these two constructs suggests that increasing financial literacy is not an individual effort. Family, friends, and colleagues play important roles in forming positive attitude, and in encouraging act of saving regularly.

Finally, the findings of this study are important to education or programme providers. Financial literacy programmes are found to be beneficial as such programmes significantly influence the relationship between Instrumental Attitude and intention to save regularly. However, effectiveness of financial literacy programmes has been debated. Gen Ys have longer financial planning horizon. This study suggests that financial literacy programmes with the objective of promoting delayed gratification could be more effective in promoting regular, long-term saving behaviour. Design of financial literacy programme is also relevant. The design should be specific to the type of

behaviour to be altered (Xiao et al., 2011), whether a programme should be conducted in a classroom setting or via online, and duration of programme. Further, as parents and family were perceived as the main influencers, a family-oriented approach to financial education (as suggested by Robertson-Rose, 2020; Hanson & Olson, 2018; Xiao et al., 2011) might have a positive impact on Gen Ys saving behaviour.

7.7 Limitations of study

This study is limited in the selection of sample. In the first phase, the elicitation interview phase, out of thirteen interviewees, only one interviewee has not managed to save any money. Such an imbalanced sample composition was not done deliberately. It appears that those who have not saved money were reluctant to be interviewed, as this interview topic on saving behaviour might be an uncomfortable topic for them. This could have led to a possibility that only those who saves were more eager to be interviewed – termed self-selection bias (Xiao & Wu, 2008). In Phase Two of this study, younger Gen Ys were overrepresented, again not done deliberately as over-representation in a group as opposed to another group happens even when random sampling methods are used as only those who volunteers to complete a questionnaire will be in the final sample. In the experimental phase, Chinese was the majority in both Treatment and Control Groups. However, this does not reflect the racial composition in Malaysia where Malay is the dominant race. Whilst Muslims form the majority in the Treatment Group, there were slightly higher number of Buddhists in the Control Group. Despite the seemingly un-representativeness of sample composition according to race and religion, this should not diminish the validity of this study's findings as this study did not seek to compare determinants of saving behaviour according to race or religion.

All constructs were measured using 5-point scales. However, using a 5-point Likert scale was found to result in a lower moderating effect (Aguinis, 1995; Russell & Bobko, 1992). If the scales for both the predictor variable (intention to save regularly) and moderator variable (financial literacy) were 7-point scales, these might be more effective to capture the moderating effect.

The experimental design used in this study is to test whether the path coefficients of Gen Ys' saving behaviour determinants increase significantly after participating in a 3-month financial awareness programme. However, this study is unable to conclude whether the changes in the path coefficients would persist in the long-term. A longitudinal study should have three data collection points. If another data collection can be done three months after the end of the financial awareness sessions, giving respondents time to reflect on what they have learnt and modify their behaviour accordingly, this could provide a better insight on the impact of the financial awareness sessions.

Majority of participants in the Experimental Phase stay in Selangor or Kuala Lumpur. There were, however, a few participants who are staying in other states in Malaysia. For the sake of convenience, the sessions were conducted via WhatsApp. Participants were advised to check messages on their WhatsApp group on every Saturdays during the three months. This method, although convenient, made the dissemination of knowledge and sharing of information less effective compared to a face-to-face financial education programme. There is a possibility that some participants did not read the information shared due to lack of time or interest. Some participants did not share their thoughts at all during the three months. As such, whether all benefitted from participating in the financial awareness programme cannot be ascertained, although there was satisfactory participation during the three months.

7.8 Future research

In intervention outcome research, such as Phase Three of this study, the question should not be limited to identifying for which group an intervention works but also the process or mechanism by which an intervention achieves its effects (Peeters et al., 2018; MacKinnon, 2011). The first question was addressed in this study but not the second question on how an intervention works. The second question requires identifying mediating variables. This is particularly important to explain the result for the relationship between perceived control and intention to save regularly and to explain why higher financial literacy does not seem to strengthen the link between intention to save regularly and regular saving behaviour. A prior study, Fessler et al. (2020), conducted such mediation analyses that showed that about 13% of the causal effect of knowledge on behaviour is mediated through financial attitude. More in-depth studies on the influence of mediating variables in explaining the process or mechanism by which an intervention achieves its effects are required (Peeters et al., 2018).

A construct that could predict behaviour is confidence, and that more research is needed to study the relationship between confidence and saving (Babiarz & Robb, 2014). The results of the Experimental Phase of this study, where there was an insignificant difference in the path coefficients of financial literacy and regular saving behaviour in the two Groups could indicate that there might be another construct that moderates the relationship. One suggestion is for further studies to measure financial literacy using objective measures and investigate whether subjective financial knowledge (a measure of confidence) moderates the path coefficient between objective financial literacy and regular saving behaviour.

Interventions can be impactful if proper strategies are used (Drever et al., 2015) such as video intervention (Kuntze et al., 2019), and content-relevant programmes delivered immediately before financial decisions are made (Fernandes et al., 2014). In this study, a broad scope of financial literacy topics, and not focused solely on saving behaviour, was administered over three months. As suggested by Fernandes et al. (2014), if a narrower scope of financial literacy, to provide an understanding of how to acquire the information needed for financial decision-making, were to be administered, perhaps over a one-month period, with data collection done at least three months later, this might be more impactful. There is a precedent of such a study (Bhutoriaa & Vignoles, 2018) where a one-day financial education programme, using a goal-oriented and action-focused approach, was offered in informal community settings to a large sample of women from poor households, and found evidence of modest, positive increase in personal savings.

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