AN INVESTIGATION OF THE ANTECEDENTS AND
THE INFLUENCE OF SOCIAL CAPITAL: A
MULTILEVEL ANALYSIS BASED IN BHUTAN

Phuntsho Choden
Master in Business (Research)

Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

School of Management

Business School

Queensland University of Technology

2016
Keywords

Civic activity, happiness, multilevel modelling, rural neighbourhoods, self-rated health status, social interaction, social capital, social network, social trust, social status, urban neighbourhoods.
Abstract

Social capital, consisting of three elements: social networks, norms of reciprocity, and social trust, is claimed to play a crucial role in the societal development of many countries. This thesis investigates the concept of social capital with an aim to understanding whether social capital is an individual or group phenomenon. Three studies were conducted using two population based data sets, the Bhutan Living Standard Survey, 2012 and the Gross National Happiness Survey, 2010. The first study identified the dimensions of social capital based on the construct as conceptualized by key theorists (Putnam, Leonardi & Nanetti, 1993, Putnam, 2000). The study used exploratory factor analysis and confirmed four dimensions of social capital: social trust, social networks, social interaction, and civic activity.

The second study examined the role of social status and the characteristics of the place in which a person lives in determining an individual’s social capital. The study tested the argument of key theorists (e.g., Bourdieu, 1986; Coleman, 1988; Putnam, 1995, 2000) that social status and the place where people live are important antecedents of social capital. This study used a multilevel model to account for different sources of variance (individual and context) in influencing the outcome measures and found that the context attributed a significant portion of variance. Examining social status and rural/urban neighbourhoods as antecedents of social capital formation, the study found that people in rural neighbourhoods had a higher level of social capital than those who lived in urban neighbourhoods. The findings on social status indicators varied: relative economic status and gender were important determinants, suggesting that higher social status associates with a high level of
social capital. As social status varies with age, the relationship between age and social capital is non-linear and the study found weak evidence of an inverse u-shape effect, particularly on social trust. Surprisingly, education had a negative influence on social trust, indicating that people with a higher level of education are less likely to trust others, contradicting the argument that an individual with higher social status is likely to possess a higher level of social capital than those at a low level of social status.

The third study investigated the relationship between social capital and subjective wellbeing, focusing on self-rated happiness and health status. This study investigated the role of individual and context-level social capital in influencing social outcomes, again employing multilevel regression analysis, which allowed simultaneous testing for the influence of social capital at the individual-level, neighbourhood-level, and in addition, the cross-level interaction effect of social capital on happiness and health status. The study found that individual-level social capital, in particular, social trust and social networks, had an important influence on happiness and health status, while the effects of neighbourhood-level social capital were inconsistent in the two data sets. However, the analysis of the Bhutan Living Standard Survey data showed a positive cross-level interaction effect in two dimensions of social capital i.e., social trust and social networks, suggesting that neighbourhood-level social trust and networks strengthen individual-level trust and networks in enhancing happiness. On the other hand, cross-level interaction on social interaction (based on the Gross National Happiness Survey) had a negative effect.

These three studies make significant contributions to theory and practice. First, the current study makes use of data from a developing country to clarify a conceptual debate, i.e., whether social capital is an individual or group phenomenon; thus,
An investigation of the antecedents and the influence of social capital. Second, the study uses the argument of social status of individuals and the place where people live as potential determinants of social capital of people; thus, it proposes a theoretically informed framework for examining the antecedents of social capital, including both individual differences and the context effect. Lastly, the three studies in this thesis draw important policy implications in promoting social capital and realizing its influence on social outcomes in Bhutan.
Table of Contents

Keywords..............................................................................................................................i
Abstract ...............................................................................................................................ii
List of Figures ...................................................................................................................viii
List of Tables ...................................................................................................................... ix
Acknowledgements ...........................................................................................................xiii

Chapter 1: Introduction .................................................................................................1
1.1. Introduction ...............................................................................................................1
1.2. Research Purpose .......................................................................................................1
  1.2.1 Study I: Dimensions of social capital ................................................................. 5
  1.2.2 Study II: Antecedents of social capital ............................................................... 6
  1.2.3 Study III: Relationship between social capital and outcomes ......................... 7
1.3. Country Background ...............................................................................................9
  1.3.1 Importance of social capital ............................................................................... 10
1.4. Thesis Outline .........................................................................................................12

Chapter 2: Literature Review .....................................................................................16
2.1 Introduction ..............................................................................................................16
2.2 Concept of social capital .........................................................................................17
2.3 Key debate in the concept ......................................................................................18
2.4 Perspective of social capital ..................................................................................19
  2.4.1 Social capital dimensions: Networks, norms and trust ..................................... 22
  2.4.2 Operation of social capital dimensions .............................................................. 24
2.5 Determinants of social capital .............................................................................25
  2.5.1 Determinants representing individual factor ..................................................... 26
  2.5.2 Determinants representing the context factor .................................................... 37
2.6 Relationship between social capital and social outcomes ....................................40
  2.6.1 Social capital and subjective wellbeing .............................................................. 42
  2.6.2 Social capital and health outcomes ................................................................. 50
2.7 Research gap .........................................................................................................60
2.8 Conclusion ..............................................................................................................60

Chapter 3: Research Methodology ..............................................................................63
3.1 Philosophical Stance ..............................................................................................63
3.2 Secondary data: Bhutan Living Standard Survey ..................................................66
  3.2.1. Approach to sample selection in BLSS ......................................................... 66
  3.2.2. Approach to data collection .......................................................................... 67
  3.2.3. Respondents .................................................................................................... 67
  3.2.4. Overview of data collected in BLSS ............................................................... 68
3.3 Secondary data: Gross National Happiness Survey .............................................70
  3.3.1 Approach to sample selection in GNHS ............................................................. 70
  3.3.2 Approach to data collection ............................................................................ 70
  3.3.3 Respondents ..................................................................................................... 71
  3.3.4 Overview of data collected in the GNHS ......................................................... 71

An investigation of the antecedents and the influence of social capital: A multilevel analysis based in Bhutan v
3.4 Data cleaning ............................................................................................................... 72
  3.4.1 Missing data ............................................................................................................ 72
  3.4.2 Treatment of missing data ....................................................................................... 73

3.5 Data analytic approaches ............................................................................................ 74
  3.5.1 Exploratory factor analysis ..................................................................................... 75
  3.5.2 Multi-level modelling ............................................................................................. 75
  3.5.3 Centering ................................................................................................................ 76

3.6 Overview ...................................................................................................................... 78

Chapter 4: Identifying the dimensions of Social Capital in Bhutan ......................... 81

4.1 Introduction .................................................................................................................. 81
  4.1.1 Single index measure of social capital ................................................................. 82
  4.1.2 Multi-dimensional measures of social capital ...................................................... 84

4.2 Defining social capital indicators from the survey ..................................................... 87
  4.2.1 Measures used from the BLSS ............................................................................. 88
  4.2.2 Measures based on the GNHS ............................................................................ 96

4.3 Inter-correlation of social capital indicators ................................................................ 101

4.4 Exploratory factor analysis (EFA) method .................................................................. 102
  4.4.1 Methods of extraction ......................................................................................... 103
  4.4.2 Analysis of the BLSS ......................................................................................... 105
  4.4.3 Analysis of the GNHS ......................................................................................... 110

4.5 Discussion .................................................................................................................... 115

Chapter 5: Antecedents of Social Capital ................................................................. 118

5.1 Introduction .................................................................................................................. 118

5.2 Theoretical background of the role of social status as antecedents of social capital and hypotheses ............................................................ 119
  5.2.1 Socio-demographic variables .............................................................................. 121

5.3 Theoretical background on the role of context as an antecedent of social capital and hypotheses ............................................................. 126

5.4 Data, measurement and analytical strategy .............................................................. 127
  5.4.1 Measures: ............................................................................................................. 127

5.5 Data analysis approach and results .......................................................................... 132
  5.5.1 Data analysis approach ....................................................................................... 132
  5.5.2 Result: BLSS ....................................................................................................... 133
  5.5.3 Result: GNHS ..................................................................................................... 137

5.6 Discussion and conclusion ......................................................................................... 142
  5.6.1 Individual or context effect .................................................................................. 143
  5.6.2 Social status as a determinant .......................................................................... 144
  5.6.3 Context as a determinant ................................................................................... 150
  5.6.4 Limitations and future studies ............................................................................ 151

Chapter 6: Relationship between Social Capital and Social Outcomes .............. 154

6.2 Theoretical background: The relationship between happiness and social capital, and hypotheses ............................................................. 157
  6.2.1 Individual level social capital and happiness ...................................................... 159
  6.2.2 Neighbourhood level social capital and happiness .......................................... 160
  6.2.3 Cross-level interactions ..................................................................................... 161

6.3 Theoretical background: Relationship between health and social capital, and hypotheses162
  6.3.1 Individual level social capital and self-rated health .......................................... 164
  6.3.2 Neighbourhood level social capital and self-rated health status ...................... 165
List of Figures

Figure 1-1: Conceptual Framework ........................................................................ 4
Figure 1-2: Conceptual Framework for Study II ..................................................... 7
Figure 1-3: Conceptual Framework for Study III .................................................... 9
Figure 1-4: Overview of Chapters ........................................................................ 14
Figure 2-1: Conceptual Framework for the Determinants of Social Capital ........ 40
Figure 4-1 a,b): Distribution of the Number of Close Friends (before and after adjustment) .............................................................................. 90
Figure 4-2 a,b): Distribution of the Number of People Helped in the Last 12 Months (before and after transformation) ............................................... 91
Figure 4-3 a,b): Distribution of Sociability I, II and III (before and after transformation) ................................................................................ 92
Figure 4-4 a, b): Distribution of Number of Days that People Contributed to Community Activity in the Previous Year ........................................ 95
Figure 4-5: Scree Plot of Eigenvalue (BLSS) ......................................................106
Figure 4-6: Parallel Analysis Plot (BLSS) ...........................................................106
Figure 4-7: Scree Plot of Eigenvalues (GNHS) ...................................................111
Figure 4-8: Parallel Analysis Plot (GNHS) ..........................................................111
Figure 5-1: Age Predicting Social Capital (BLSS) ...............................................136
Figure 5-2: Age Predicting Social Capital (GNHS) .............................................139
Figure 6-1: Interaction of Social Trust Predicting Happiness ...............................177
Figure 6-2: Interaction of Social Network Predicting Happiness .........................179
Figure 6-3: Interaction Effect of Sociability Predicting Happiness ......................182
Figure 7-1: Conceptual Framework .....................................................................194
List of Tables

Table 2-1: Definition, Purpose and Analysis of Social Capital......................... 21
Table 2-2: Key Literature on Relationship between Social Capital and Social Outcomes (happiness and self-rated health status)........... 58
Table 3-1 Neighbourhoods and Respondents in the two Surveys .................. 72
Table 3-2 Summary of Constructs and Methods Used................................. 79
Table 4-1 Dimensions of Social Capital and Indicators................................. 87
Table 4-2 (a) Mean, Standard Deviation and Correlation (BLSS)................... 97
Table 4-2 (b) Mean, Standard Deviation and Correlation (GNHS)................... 97
Table 4-3 Parallel Analysis (BLSS)................................................................. 107
Table 4-4(a) Rotated Factor Loadings for all Social Capital Items Based on the BLSS................................................................. 107
Table 4-4 (b) Factors with Loading>.3 for Social Capital Items Based on the BLSS................................................................. 108
Table 4-5 Parallel Analysis (GNHS)................................................................. 112
Table 4-6(a) Factor Loadings for all Social Capital Items Based on the GNHS .................................................................................. 113
Table 4-6(b) Factors with Loadings>.3 for Social Capital Items Based on the GNHS .................................................................................. 113
Table 4-7 Correlation Matrix of Social Capital Dimensions ......................... 116
Table 5-1a) Mean, Standard Deviation, and Correlation of Variables (BLSS) .................................................................................. 130
Table 5-1b) Mean, Standard Deviations, and Correlation of Variables (GNHS) .................................................................................. 131
Table 5-2: Multilevel Regression Result for Four Dimensions of Social Capital (BLSS)................................................................. 134
Table 5-3 Multilevel Regression Result for Four Dimensions of Social Capital (GNHS)......................................................................... 141
Table 5.4: Intraclass Correlation for four Dimensions of Social Capital ...... 143
Table 6-1a) Mean, Standard Deviation, and Correlation of Variables (BLSS) .................................................................................. 170
Table 6-1b) Mean, Standard Deviations, and Correlation of Variables (GNHS) .................................................................................. 171
Table 6-2 Multilevel Regression Result for Dependent Variable Happiness (BLSS+GNHS)......................................................................... 176
Table 6-3 Multilevel Regression Output of Self-rated Health Status and Social Capital .................................................................................. 183
Table 7-1a) Overview of the Main Findings of Study II (BLSS)................... 194
Table 7-1b) Overview of the Main Findings of Study II (GNHS) .........................195
Table 7-1c) Overview of the Main Findings of Study III (BLSS+GNHS)..........195
List of Abbreviations

BLSS  Bhutan Living Standard Survey
EFA   Exploratory Factor Analysis
GNH   Gross National Happiness
GNHS  Gross National Happiness Survey
ICC   Intraclass Correlation Coefficient
NSB   National Statistical Bureau
KMO   Kaiser-Meyer-Olkin
Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature: QUT Verified Signature

Date: June 2016
Acknowledgements

I have never believed that a single individual is the sole proprietor of the person one becomes. Like the popular African saying goes, “It takes a village to raise a child”. I believe that everyone who meets you along the way chips in to mould you into who you are proud to be. Along that line, many people are behind who I am today; people who have worked with me and made sure I grew as a professional, as woman, and as an individual.

Undertaking this research on social capital has been the most fulfilling experience of my life and its completion would not have been possible if I did not have the support of many individuals. I would therefore like to extend my sincere thanks to each of them. Foremost on my list is my principle supervisor, Dr Stephen Cox, without whose trust, I would not be here in the first place. Thank you for trusting my ability, it is because of this that I have been able to accomplish what I aspired to. I thank you for your selfless support and guidance throughout my candidature. I am also sincerely and deeply grateful to Professor Lisa Bradley, my associate supervisor, who has been equally involved in providing me with unwavering support and guidance throughout this period. Thank you for your advice and generous support.

I thank Dr Bernd Irmer and Professor Paula McDonald for the constructive and valuable feedback as the panel chair and a member of reviewing team for both my candidature confirmation and the final seminar. Without your timely feedback, this research would not have looked as professional as it looks today. Thank you Dr Jonathan Bader, Research Learning Advisor in the School of Business, QUT for your
keen eyes and doing due diligence of reading through this thesis and providing valuable feedback. I cannot thank you enough for your contribution.

I offer my deepest gratitude to the Business School, QUT for granting me the opportunity to carry out my research and letting me grow amongst your esteemed academia and the well-known scholars from all over the world. Thank you for the generous support of scholarship and other resources that funded my studies.

For the data for this research, I have time and again contacted the officials in National Statistical Bureau and Centre for Bhutan Studies in Bhutan, who have always been willing and helpful. First, I would like to thank the two organisations for allowing me to use the data for this study and second, my sincere thanks go to my colleagues Mr. Lham Dorji, National Statistical Bureau and Mr. Dorji Penjore, and Ms. Tshoki Zangmo, Centre for Bhutan Studies, who played a central role in sharing the datasets with me.

Mr Dennis O’Connell, Ms Carol O’Brien, Ms Trina Robbie, and Ms Milen Tesfai, at the Research Office, QUT Business School are the behind the scenes people who also contributed to completing this research, thank you all for your kind support. And to all of my research fellows at QUT, thank you for the collegial support, inspiration, and for always bringing the “FUN” in the study.

I would like to thank professional editor, Kylie Morris, who provided copyediting and proofreading services, according to the guidelines laid out in the university-endorsed guidelines and the Australian Standards for editing research theses.

A place is as good as the people who live in it, so thank you my dear friends Erika Fish and Ian Gittus, Jennie Elston and John Thompson, Takae and Glenn
Warwick, Mr. Col McCowan and Jaane McCowan, Timothy Cheeseman, Lynda Hartley, Colette Tucker, Ron and Liam Heard for introducing me to real Aussie life and making my stay here comfortable, I take a piece of you with me.

I would also like to thank Bhutanese families in Brisbane and all other student buddies for bringing a bit of Bhutanese into Aussie affairs, a little bit of home always helps. To all my dear friends back home, thank you for your generous words of encouragement.

Most especially, I thank my husband, parents and parents in-law and other family members for their support and constant prayers for my daughter’s and my wellbeing. Thanks to all my siblings for their support in keeping my family together and allowing me to focus on my venture. I especially thank my son Ngawang for the sacrifice and for looking after himself during my long absence, and my daughter Kelzang, for coming along with me and supporting my endeavour.

It was only through the generosity of others that this research was made possible and I remain thankful to everyone who played a role in it.
Chapter 1: Introduction

This chapter explains the main rationale for this thesis investigating social capital in Bhutan. It begins with the background information on the research topic, including the research gaps in the literature. It then presents the country context of the study, the research purpose of this thesis, and the conceptual framework. The chapter concludes with an outline of the structure of this thesis.

1.1. Introduction

Social capital is interpersonal relationships based on mutual trust and norms of reciprocity that facilitate collective action (Coleman, 1988; Putnam, 2000). International evidence suggests that social capital is a powerful artefact of society: where the level of social capital is higher, children grow up healthier, safer, and better educated, people live longer and happier lives, the economy is stronger, and democracy functions (Coleman, 1988; Putnam et al., 1993; Putnam, 2000; Helliwell & Putnam, 2004; Calvo, Zheng, Kumar, Olgiati, & Berkman, 2012; Delhey & Dragolov, 2015). Social capital is a significant predictor of many positive developments, enough to make it well worth our attention.

1.2. Research Purpose

This thesis adopts Putnam’s perspective of social capital, which encompasses social trust, norms of reciprocity, and social networks that enable cooperation among actors for their mutual benefit (Putnam et al., 1993; Putnam, 2000). Despite extensive research on social capital, the concept retains a lack of clarity. A key debate on the concept regarding whether it is an individual or a grouped-based phenomenon still remains. The main purpose of this thesis is to provide better
understanding of the concept by examining two important aspects regarding social capital: antecedents and the influence of social capital.

The investigation of antecedents of social capital (Study II in this thesis) looks at two levels of determinants, individual-level differences and the context effect in predicting social capital. The accumulation of social capital at the individual level can be influenced by group effects, such as neighbourhoods in which people live, or it can be influenced by the characteristics of individuals, such as social status differences. Thus, this thesis aims to examine the role of individuals and the context factors in the accumulation of individual level social capital.

Many studies have argued that there is lack of a clear framework for examining the antecedents of social capital accumulation at the individual level (e.g., Alesina & La Ferrara, 2002; Freitag, 2003; Glaeser, Laibson, & Sacerdote, 2002; Kaasa & Parts, 2008). However, key scholars of social capital, Bourdieu (1986), Coleman (1988), Putnam et al. (1993), and Putnam (2000) all argued that an individual’s social capital depends on their social status, as well as the group effects such as the level of social capital of the place where they live. At the individual level, people with a higher level of social status are likely to accumulate more social capital, while at group level, the dynamics of the local neighbourhoods in which people live determine their level of social capital. For example, Coleman (1988) and Putnam (1995) both argued that people in rural areas are likely to possess higher social capital than those in urban areas, as people in rural areas are socially well-connected. These assertions provide a profound basis for developing a framework consisting of both individual and context level factors in investigating the antecedents of social capital. However, this have not been adequately verified to date.
The investigation of the influence of social capital (Study III in this thesis) focuses on examining the relationship between individual and context level social capital and two social outcomes, the happiness and health status of people. Although social capital is claimed to have significant influence on social outcomes, the relationship needs to be investigated with appropriate consideration made for different levels of influence. Social context can bear important influence on the outcome measures. In most past studies (e.g., Bjørnskov, 2003, 2006; Cramm, Møller, & Nieboer, 2012; Leung et al., 2011; Putnam, 2000; Ram, 2010) that examined the relationship between social capital and subjective wellbeing, it was unclear how much of the influence on the outcome could be attributed to the social context and to the individual level differences. This is particularly important for establishing precise relationships.

By focusing on two important aspects of social capital: antecedents and influence, this thesis aims to provide better understanding of the concept with regard to an important debate about whether it is an individual or a group phenomenon.

Another issue about social capital research is that it is primarily based on observations in developed countries. It is not clear whether the operation of social capital differs significantly in developing nations. Without greater certainty, the potential for social capital to serve as a tool box for developing social and economic policy could be severely constrained. Therefore, research on social capital needs to focus on developing country contexts.

Bhutan presents a special context for investigating social capital. This country retains many social traditions in which people to people connection is comparatively high. The human relationship is the foundation for social capital according to key scholars (Bourdieu, 1986; Coleman, 1988; Putnam et al., 1993; Putnam, 1995, 2000).
Another factor that makes Bhutan a relevant context is the concept of Gross National Happiness (GNH), which the country has adopted as the overarching development philosophy. Given this development goal, balancing social and economic development is given high priority. Maintaining and enhancing community vitality is one of the key domains of measuring social progress under the policy guidance of maximising GNH. The community vitality captures the essence of social capital. However, social capital in this country has scarcely been studied. Despite the government’s recent initiative to measure social capital, independent research in understanding the concept, determinants, and influence on social outcomes has not been undertaken in Bhutan.

Given the potential importance of social capital to socio-economic development, this research aims to address the perceived gaps in the literature. In this respect, the current thesis conducted three studies to investigate the concept of social capital using data from Bhutan. The conceptual framework developed for this research (see Figure 1.1), is examined through these three studies.

![Figure 1-1: Conceptual Framework](image)
Study I constructs the dimensions of social capital in Bhutan, Study II examines the role of social status and the place where people live in determining individual level social capital. Study III investigates the relationship between social capital and social outcomes. All three studies are based on two survey data sets, the Bhutan Living Standard Survey (BLSS), 2012 and the Gross National Happiness Survey (GNHS), 2010.

1.2.1 Study I: Dimensions of social capital

Although social capital is conceived as a multi-dimensional concept comprising more than one element (Coleman, 1988; Putnam, 2000), empirically these are represented in diverse ways. Putnam (2000), in his own scholarly work in the US, represented social capital as a single index based on the correlation between the indicators for different dimensions. Putnam believed that different elements of social capital: trust, networks, and norms have higher order correlation and are expected to function as one. However, many studies following Putnam have represented social capital as multidimensional constructs (e.g., Bjørnskov, 2004, 2006; Elgar et al., 2011; Kaasa, & Parts, 2008; Knack, 2002; Van Oorschot, Arts, & Gelissen, 2006). These studies have also found the inter-correlations between the items representing social capital to be low, suggesting a multidimensional construct. The limited evidence available on social capital in the context of developing countries has measured social capital as a multi-dimensional construct (Narayan & Cassidy, 2001; Grootaert, Narayan, Jones, & Woolcock, 2003).

Scholars have also argued that operation of social capital varies depending on the specific social, cultural, and economic context (Krishna, 2004; Grootaert et al., 2003), it is likely to differ depending on the country investigated. This thesis investigates the dimensions of social capital in Bhutan to determine whether social
capital is best represented as single index or multidimensional construct based on the correlation between the indicators. This study explores the social capital elements identified in the data to answer the first research question of this thesis: What dimensions of social capital can be identified in Bhutan?

The study uses exploratory factor analysis and identifies dimensions of social capital based on the indicators in the data. Identifying the dimensions of social capital using data from Bhutan enriches the literature on social capital, particularly in relation to a developing country context.

1.2.2 Study II: Antecedents of social capital

Study II investigates the antecedents of social capital and examines the role of individual difference and the context effect in determining individual level social capital. The study argues that the social status of the individuals shapes who they are, and follows Hollingshead’s (2011) argument that demographic characteristics are important indicators of social status. Based on this idea, socio-demographic variables including age, relative economic status, education, gender, and marital status are used to represent social status. This study also examines the effect of the context and argues that the place where people live significantly influences their social capital. The study uses rural and urban neighbourhoods as the indicator of the context. Using demographics variables to represent social status, and rural and urban neighbourhoods to represent the place where people live, this study tests a conceptual framework, as shown in the Figure 1-2, to investigate the antecedents of social capital based on the arguments of key scholars (Bourdieu, 1986; Coleman, 1988; Putnam, et al., 1993; Putnam, 1995, 2000), including both individual differences and the context effect. These scholars argued that the social capital of individuals depends on who they are and where they live.
The study uses a multilevel model to examine the relationship between social capital dimensions and two sets of determinants. This method allows partitioning of variance and can suggest the variation in social capital due to individual differences (level 1) and the context effect (level 2).

Study II address the second research questions of this thesis: How much of the variation in individual social capital is due to individual difference (level 1) and the context effect (level 2)? Is social status a significant level 1 predictor, and are rural or urban neighbourhoods a significant level 2 predictor of social capital? This study extends knowledge on antecedents of social capital by examining the role of the social context, as well as the individual level difference, in influencing the social capital of people in a developing country context. Most importantly, it tests a framework for investigating the antecedents of social capital based on the arguments of the key scholars, as presented in Figure 1-2.

### 1.2.3 Study III: Relationship between social capital and outcomes

Although many studies have examined the influence of social capital on social outcomes, it remains unclear how much of the influence can be attributed to social
context and individual differences. As social context is likely to play an important role in influencing social outcomes, particularly happiness and people’s health status, it is essential to distinguish the influences at different levels. Understanding the influence of the context and individual-level actions becomes important from a policy perspective, as it can direct whether policy intervention should be targeted at the individual or context level. Study III examines the influence of social capital at the individual and neighbourhood-levels on individual-level happiness and health status to understand how social capital at two levels operates in influencing the outcomes. Studies based in developing country contexts are increasing; however, the research is still in an exploratory stage and presents varying evidence (Han, Kim & Lee, 2013a; Han, Kim, Lee, & Lee, 2013b; Han, Kim, & Lee, 2012; Tokuda, Fujii, & Inoguchi, 2010; Yip et al., 2007). It is still unclear whether context-level social capital has an independent influence after taking account of individual-level social capital. This signals more studies are required to understand how social capital operates in influencing social outcomes.

This study addresses the third research questions in the thesis: What is the relationship between individual-level social capital, happiness, and health in Bhutan? Does neighbourhood-level social capital have a direct influence on these outcomes, or does it interact with individual-level social capital? This study employs a multilevel model to account for the different sources of variance present in the data. It tests the relationship between social capital and outcomes with individual-level social capital variables, neighbourhood-level social capital, and the cross-level interaction effect of the two levels. The study provides valuable insights into the complex association of social capital and two social outcomes, self-rated happiness
and health status in Bhutan. The relationship tested in this study is illustrated in Figure 1-3.

![Conceptual Framework for Study III](image)

**Figure 1-3: Conceptual Framework for Study III**

### 1.3. Country Background

Bhutan is a landlocked country in South Asia that lived in isolation from the rest of the world for centuries. Modern development only began in the 1960s, by extending connections with rest of the world at its own pace. The country has adopted a distinct development principle of Gross National Happiness through which Bhutan is increasingly known to the rest of the world.

The current population according to the National Statistical Bureau (NSB) is 765,432, and is recorded as growing at the rate of 1.3% per annum (NSB, 2014). The country is governed by a constitutional monarchy operating at three levels of administration: i) central with 10 ministries, ii) district administration, consisting of 20 districts, and iii) block administration (*gewogs*), consisting of 205 *gewogs*. There are 1,044 *chiwogs* consisting of group of households under the administrative blocks that form the neighbourhoods in the current study.

While the term social capital has been developed in the context of Western societies, the concept exists in Bhutan. There are a number of Bhutanese expressions that mirror the forms of social capital discussed in the literature. For example,
Bhutanese often use the term *tha damtshig*, which denotes moral values such as honesty, gratitude, respect, loyalty, and kindness. It is a context dependent term and denotes honesty in transactions, loyalty and kindness in teacher-student and master-servant relations, affection, a feeling of kinship, and a sense of obligation for family and friends (Phuntsho, 2004). According to L. Dorji, Jamtsho, Gyelyshen and C. Dorji (2013) these social values are built upon the idea of reciprocity, widely known as *drinlen jelni* (repaying kindness) and *loteg hingteg* (trustworthiness), and are exercised through *pham puencha* (parents and relatives), *ngen nghew* (kith and kin), and *cham thuen* (networks and friends). Such values and ethos are the basis of social capital viewed as composed of social networks, norms of reciprocity, and trust in people. Therefore, social capital is not a new invention for Bhutanese people.

### 1.3.1 Importance of social capital

In Bhutan, social capital has played an important role historically, and is, at present, an important basis of development strategy (L. Dorji et al., 2013). Strong social norms, trust, networks, and cooperation have enabled rural communities to overcome problems like natural calamity, food and labour shortages, resource sharing, and managing conflicts in the community in the past (L. Dorji et al., 2013; Galay, 2001; Kinga, 2008). Historically, governance systems in Bhutan have encouraged a duty-bound society, characterised by co-dependency, co-existence, altruism and a sense of voluntarism, and cooperation (L. Dorji et al., 2013), which promote a collective culture. At present, social capital forms an important basis for development strategies. For example, the decentralisation of administration or power from the centre to the districts and blocks that began decades ago, was aimed at encouraging civic participation and empowering people at a grassroots level. It is a strategy to encourage development activities that value community institutions based
on interrelationships among social units (L. Dorji et al., 2013). Considering the important role that social capital has in the development of Bhutan, it is worthwhile to investigate the antecedents and influence of social capital and to draw comparisons with developed and the other developing countries.

Despite considerable efforts to retain traditional community values and institutions, the country is undergoing unprecedented change, with rapid economic growth followed by a number of fundamental social changes. The most historic change in the structure of government came in 1998 after the devolution of executive power to the Council of Minister by the then King and the drafting of the first constitution of Bhutan in 2001 (NSB, 2012). These changes led to the introduction of the constitutional monarchy in 2008. In addition, the country is increasingly exposed to various forces of development and urbanisation leading to changes in the context and structure of society. These changes could impact the cohesive society, where rich traditional values and norms direct social behaviour and co-operative action.

The issue of rural-urban migration is an impact of societal change. The increased mobility of individuals could lead to changes in the level of trust that people have for each other (L. Dorji et al., 2013). According to Wangyal (2001), traditional values are endangered with the emergence of lifestyle differences between urban and rural Bhutan due to economic modernisation. A number of social problems are also on the rise, for instance, social crimes including burglary, murder, and suicide are on the rise, and places are no longer safe, especially in urban Bhutan (Editorial, 2015). These incidents suggest the need to examine the role of social values and culture that have inculcated a strong sense of co-existence and co-dependency as a community. Therefore, it is crucial to investigate social capital in Bhutan.
Social capital in Bhutan was assessed by the NSB for the first time in the year 2012 and measured different forms of social capital, including civic participation, social networks, norms of reciprocity, and trust (L. Dorji et al., 2013). While the prevalence of significant social values in society predict elements of social capital, such as norms of reciprocity and trust, more formalised associations of various self-help groups have now emerged in extension to traditional ones (L. Dorji et al., 2013). Self-help groups, such as farmer’s associations, credit/saving groups, and charity groups have arisen in response to the needs of socio-economic development.

There are other forms of associations based on close networks that allow enforcement of group norms; these are the oldest associations in Bhutan to support religious activities and charity work (Dorji, 2005). They operate at various levels; national and local, formal and informal. These relations possess civic elements such as volunteerism, trust, collective action, reciprocity, and sense of commitment (L. Dorji et al., 2013). To date social capital in Bhutan has received very little attention and this research seeks to contribute to building a critical mass of research on social capital in developing countries.

1.4. Thesis Outline

The seven chapters of this thesis are depicted in Figure 1.4. Chapter 2 provides an overview of prior studies on social capital, including the studies examining the determinants of social capital and the relationship between social capital and outcomes, and presents the gaps in the current literature. Chapter 3 explains the methodology used in this research, followed by Chapter 4, which determines the dimensions of social capital in Bhutan. Chapter 5 examines the determinants of social capital and Chapter 6 investigates the relationship between social capital and social outcomes. Finally, Chapter 7 presents the main contributions of this thesis,
including practical and theoretical implications, limitations, and opportunities for future research.
Figure 1-4: Overview of Chapters
Chapter 2: Literature Review

This chapter first presents a brief background on social capital including concept and the key debate followed by an overview of the work of key scholars who have researched this area. The literature on the dimensions of social capital is then examined, followed by the literature on the antecedents of social capital. Finally, the literature on the relationship between social capital and social outcomes, such as health and happiness, is considered, and the research gaps are then presented.

2.1 Introduction

The concept of social capital is widely used across several disciplines of social science, including sociology, political science, and economics. Social capital is generally understood to be a resource generated from social relations, which facilitates both individual and collective actions (Adler & Kwon, 2000; Coleman, 1988, Lin, 1999; Portes, 1998). According to Putnam (2000), the term social capital has been reinvented independently at least six times over the twentieth century, “each time calling attention to the ways in which our lives are made more productive by social ties” (p.19). The conceptual history of social capital credits a practical reformer, L. J. Hanifan, who invoked the concept to explain the importance of community involvement to enhance the performance of schools (Hanifan, 1916).

After its first mention by Hanifan (1916), it was rediscovered independently by the urban scholar Jacobs (1961), economist Loury (1977), French social theorist Bourdieu (1986), and then by Coleman (1987, 1988) who is credited to have put the term firmly on the intellectual agenda in the1980s. Following Coleman, Putnam et al. (1993) made significant contribution to the scholarship with their study on democratic institutions in Italy, which drew widespread attention and debate. Since then, the key theoretical and empirical
contributions have also been from Portes (1998), Lin (1999), and Burt (1992). Putnam et al. (1993) and Putnam (1995, 2000) took into account the original conceptualization of social capital, particularly by Coleman (1988), focusing on collective actions and community involvement.

This thesis uses Putnam et al.’s (1993) and Putnam’s (1995, 2000) perspective of social capital in defining the construct. Putnam’s work effectively follows Coleman’s (1988) conception, which in turn draws on Bourdieu’s (1986). However, this thesis differs from Putnam et al.(1993) and Putnam (2000) in terms of the level of analysis, as it focusses on individual level social capital and social outcomes. The level of analysis in this thesis aligns with the perspective of social capital by Coleman (1988) and Bourdieu (1986). Therefore, this review examines how these three scholars understand and apply the term ‘social capital’.

2.2 Concept of social capital

Social capital relates to relationships based on social interdependence as actors in the society engage in various forms of exchange (Coleman, 1990). It represents the interplay of various forms of relations such as “authority relations” and relationships based on trust and norms for “consensual allocation of rights” among actors in a society (Coleman, 1990 p.300). Trust and norms of reciprocity that underpins the concept of social capital are also seen as significant factors that facilitate social exchange relations (Coleman, 1990; Cook, 2005). Thus, social capital has strong links to social exchange theory.

Social exchanges among the networked actors, popularly termed networking, forms an important part of social capital (Coleman, 1990; Cook, 2005; Lin, 2002; Putnam, 2000). According to Coleman (1990) social structural resources, by which he referred to network resources, are important social capital for individuals. Bourdieu (1977) argues interactional pattern of norms, rules and practice as mechanisms which inform social interactions and decision making in a society. This trinity of terminologies is employed strategically and
specifically by the actors in order to accumulate individual social and symbolic capital (Recke, 2011). In addition, networking and access to group goods are main the focus of Bourdieu’s perspective of social capital. Therefore, social capital is closely associated to social network analysis endorsed by social network theorists such as Granovetter (1973), and Burt (1992).

2.3 Key debate in the concept

A key debate in the concept of social capital is whether it represent an individual or a collective phenomenon. The sociological analyses of social capital have been founded on the relationship between individuals or between individual and group, generating benefits for individual actors (Portes, 1998). When exporting the social capital concept to other disciplines, for example by Putnam et al. (1993) and Putnam (1995), it became an attribute of the “community itself” and in its new form, benefits accrued are more of collective in nature, such as reduced crimes rates, corruption, and better governance, rather than of an individual focus (Portes, 2000 p.3). According to Portes (2000) and Portes and Vickstrom (2011), the transition of the concept from an individual asset to a community resource has never been explicitly theorised and this has led to confusion of its the meaning that as social capital is associated with all things positive in social life. These individual and collective definitions are not always compatible and can stands at odds. Further, it is difficult to disentangle the cause and effects of social capital as a collective trait and gives rise to circular reasoning. Scholars have prevented this circularity in the case of the individual version of the concept. Lin (2002) also argued for limiting the definition of social capital to the diversity of resources that can be accessed through individual network ties, as a specific referent that is, the individual, becomes useful for theoretical development.

However, key scholars of social capital Bourdieu (1977, 1986) and Coleman (1988, 1990) postulated that social conceptions can be both individual and collective in nature as
these elements are not clearly independent from each other. Coleman (1990) explained the interconnections between individuals and social structure in the Macro-to-Micro and Micro-to-Macro transitions, suggesting the interdependence of phenomena. Similarly, Bourdieu (1986) believes in similar interconnections between individual objects or agents and social or physical space in his theory of field. Coleman (1990) argued that the social relationship developed among individuals when attempting to make the best use of their resources is seen both as a component of social structure and as resources of individuals. In addition, Coleman (1988, 1990) also argued that social capital of individuals comprises of varieties of entities and consists of aspects of social structure, which facilitates actions of individuals who are within the structure. These arguments support the existence of duality of meaning of the concept. Therefore, the existing debate in the concept needs to be clarified through deploying several empirical studies using robust approaches of analysis incorporating notions of both the individual and collective nature. The next section review the perspectives of social capital and constructs represented by the key scholars in the field.

2.4 Perspective of social capital

As social capital is widely used, there are many definitions. However, for this study the perspectives of the influential theorists: Bourdieu (1986), Coleman (1988), and Putnam (1995, 2000), Putnam et al. (1993) are used. All three argued that norms of reciprocity and trust within networks are capital resources that are inherently social, the outcomes of which are various forms of collective actions (Winter, 2000). Bourdieu (1986) highlighted group membership or connections, which he believed provided individuals with access to group resources. Bourdieu (1986) saw social capital as a resource interrelated with other forms of capital (economic, symbolic, and cultural). His application of social capital relates to understanding how individuals use social capital to improve their economic position in capitalist societies (Winter, 2000). Bourdieu (1986) argued that economic capital is the
essential resource in capitalist societies and saw social capital and cultural capital as instrumental in increasing economic capital of individuals. Thus, his focus was on individual-level outcomes.

The second seminal perspective on social capital was introduced by Coleman (1988). Coleman conceived social capital as aspects of social structure comprising obligations, expectations, and trustworthiness of structure, information channels, and norms, as well as effective sanctions that encourage or constrain certain actions that exist in a social relationship. These aspects of social structure are a resource for actors, which they can use to achieve their interests. According to Coleman (1988), the particular application of social capital is in understanding the role of norms and sanctions within family and community networks in facilitating the attainment of human capital (Winter, 2000). Coleman’s (1988) concern was to understand the role of family support in the educational achievement of high school children. Both Bourdieu (1986) and Coleman (1988) viewed social capital as a means to increase an individual’s resources; thus, they focused on individual-level outcomes.

A more recent key scholar was Putnam (1995, 2000), Putnam et al. (1993), whose work formed the basis of many subsequent empirical studies. Putnam’s interest lay in how social capital operates at a regional level to facilitate democratic institutions and economic development. He extended the operation of social capital beyond the application intended by Bourdieu (1986) and Coleman (1988), although Putnam specifically drew the concept directly from Coleman (Winter, 2000). Putnam et al. (1993) perceived social capital as a “feature of social organization, such as networks, norms, and trust that facilitate action and cooperation for mutual benefits” (p.167).

Another scholar Woolcock (1998, 2000, 2001) also argued for an emerging consensus in the definition of social capital as the norms and networks that facilitate collective action. However, Woolcock (1998, 2001 p.9) maintained that the definition of social capital must
circumvent “tautological reasoning” thus any definition needs to focus on its sources rather than consequences. According to Woolcock (2001 p.9), trust is seen as an outcome of “repeated interactions, a credible legal institutions, and of reputation” and it cannot be part of the definition of social capital but rather a measure of it. This is a diversion from Putnam’s conception where trust is equally important part of social capital definition along with others elements such as networks and norms of reciprocity. This thesis adopts Putnam’s (1995, 2000) and Putnam et al.’s (1993) widely used definition of social capital in which networks, norms, and trust are the key indicators.

Although Bourdieu (1986), Coleman (1988), and Putnam (1995, 2000) and Putnam et al. (1993) all argued that social capital is a resource, they differed in the purpose for which it was put to use and in their level of analyses. Table 2.1 summarizes how the three key scholars understood social capital.

Table 2-1: Definition, Purpose and Analysis of Social Capital

<table>
<thead>
<tr>
<th></th>
<th>Definition</th>
<th>Purpose</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bourdieu</td>
<td>Resources that provide access to group goods</td>
<td>To secure economic capital</td>
<td>Individual in class competition</td>
</tr>
<tr>
<td>Coleman</td>
<td>Aspects of social structure that actors can use as resources to achieve their interest</td>
<td>To secure human capital</td>
<td>Individuals in family and community settings</td>
</tr>
<tr>
<td>Putnam</td>
<td>Trust, norms, and networks that facilitate cooperation for mutual benefit</td>
<td>To secure effective democracy and economy</td>
<td>Regions in national settings</td>
</tr>
</tbody>
</table>


Putnam’s (2000) and Putnam et al.’s (1993) perspective of social capital as a multidimensional construct comprising of trust, norms of reciprocity and networks, founded on Coleman’s (1988) and Bourdieu’s (1986) conception, forms the basis for most empirical studies on social capital. As noted above, this thesis follows Putnam’s (2000) and Putnam et
al.(1993) perspective of social capital to define the dimensions of social capital. In the following sections dimensions of social capital are discussed in detail.

2.4.1 Social capital dimensions: Networks, norms and trust

In the following sections, the dimensions of social capital according to Putnam et al. (1993) and Putnam (2000) are reviewed.

Networks

Networks are patterns of social exchange and interactions, which can be either formal or informal (Putnam, 2000). Informal networks are a group of people engaged in organized, purposeful work to make things happen in the community. Formal organizations include a whole range of civic associations, including school service groups, such as Parent Teacher Associations; recreational groups, such as sports clubs; work-related groups, such as labour and professional organizations; religious groups, and so on.

Informal networks refer to engagement in more spontaneous and flexible activities, ranging from getting together for drinks after work, talking to the next-door neighbour, to nodding to another regular jogger (Putnam, 2000). Informal networks occur far more frequently than formal networks, providing crucial support in everyday life and playing an important role in sustaining social networks for the creation of social capital. These two network types can also overlap, as one who participates in formal networks is also likely to engage in informal activities.

Norms of reciprocity

Norms, according to Putnam et al. (1993) in their definition of social capital, refer to norms of reciprocity that enable collective actions and cooperation. Norms of reciprocity are of two types, specific and generalised, and their focus was on generalised norms. Generalised reciprocity involves doing things for others now, knowing that somewhere down the road
others will help you in some way by reciprocating your action. It represents a continuous relationship of exchange that does not involve an immediate trade of an item at a given time, but involves mutual expectations that benefits granted now must be repaid in the future. This idea of non-obligatory exchange is reaffirmed by Grant (2014) when the author argued for the difference between a “giver” and a “taker” (p.5). Takers help others strategically for their own advantage while givers help others without the expectation of a return. These two types of people fall at opposite ends of the reciprocity spectrum (Grant, 2014). A giver is a follower of generalised norms of reciprocity that encourages giving and helping others without expectation of a return. Putnam (2000) claimed generalised norms of reciprocity as the “touchstone” of social capital.

Social trust

Trust is recognised as an essential component of social capital because it “lubricates cooperation” (Putnam et al., 1993 p.170-171). Putnam et al. (1993) and Putnam (2000) used the term ‘thick’ and ‘thin’ trust to distinguish between the trust in persons who are intimate, and trusting a stranger. Trust rooted in personal relations that are strong, recurrent, and nested in wider networks are referred to as ‘thick trust’, while a trust in general others, such as a new acquaintance, or trust implicitly based on some conditions, such as shared social networks and norms of reciprocity, is called ‘thin trust’.

In a small community that is closely knit, and in which people interact on a daily basis, norms of reciprocity and honesty operate very strongly and the trust they place in each other is ‘thick trust’. As in a more complex society, people do not know and interact with each other, but still require some form of trust for the community to function, otherwise the concept of ‘thick trust’ may not operate. In such instances ‘thin trust’ becomes useful, and Putnam (2000) referred to it as ‘social trust’ and claimed that it is useful, as it extends the trust radius beyond personal contacts.
2.4.2 Operation of social capital dimensions

According to Putnam (2000), networks, norms, and trust are fully integrated in their operation, and as such, networks are well founded on norms of reciprocity and trust, and they reinforce each other in promoting collective action for mutual benefits. Putnam (2000) further argued that generalized norms of reciprocity fuel social trust. He gave examples of activities such as “keeping eye on a friend’s house or caring for neglected children” and about community norms of raking one’s lawns in autumn to prevent leaves blowing onto a neighbour’s yard (Putnam et al., 1993; Putnam, 2000). Networks of civic engagement such as neighbourhood associations, cooperatives, and sport clubs are essential elements of social capital, as they foster robust norms of reciprocity. These norms are the basis for sanctioning those who do not reciprocate. Such sanction is generally effective, as the trustworthiness, or not of a particular individual is communicated across social networks. Thus, strong norms of generalized reciprocity lead to higher compliance and cooperation (Putnam et al., 1993).

Further, voluntary cooperation underpins engagement in community affairs. Voluntary cooperation is higher in a community that has a high level of norms of reciprocity, due to high level of trustworthiness and trust among the members. Norms of reciprocity and trust in others allow “spontaneous cooperation” to thrive (Putnam et al., 1993). Trust and norms discourage opportunistic behaviour in the presence of risk and uncertainty, thus enabling cooperation among actors for collective benefits. Formal networks are believed to have high potential for promoting collective actions, as networks can connect individuals who are beyond one’s own circle of networks (Putnam, 1995, 2000; Putnam et al., 1993).

Social capital like any other capital is not free from a ‘dark side’. Putnam (1995, 2001, 2007) acknowledged the negative externalities and argued there is no guarantee that what gets done through networks will be socially beneficial as it can be used for destructive ends. For example the network of people who formed conspiracy or youth gangs, where these
networks and norms enable members to cooperate effectively to do destruction to the wider community. Further, obligations and conforming to the norms, experience mainly with bonding type of social capital are seen as a disadvantage in maintaining social capital, which can lead to its own destruction (Coleman, 1990; Putnam, 2000).

To summarize, the social capital elements: trust, norms, reciprocity, and networks all mutually co-exist in social life, and Putnam (2000) described them as “tangled as well-tossed spaghetti” (p.137). It is important to understand social capital as a multi-dimensional construct, although Putnam (2000) and a few other researchers (Bjørnskov, 2003; Hawes, Rocha, Meier, 2012; Krishna, 2004) have represented it as a single index. The issue of the measurement of social capital regarding the use of a multidimensional or single index is discussed in more detail in Chapter 4. The current thesis maintains a multi-dimensional focus of the concept. The next section reviews the extant empirical studies on the determinants of social capital.

2.5 Determinants of social capital

The key scholars of the concept of social capital (Bourdieu, 1986; Coleman, 1988; Putnam et al., 1993; Putnam, 1995, 2000) discussed above suggested that the level of social capital possessed by individuals differs depending on two factors, ‘who the actor is’, that is, aspects that pertains to the individual themselves; and the place ‘where actors live’, that is, their context. The individual factor ‘who the actor is’ is defined by the social status of that actor and in this study it is represented by socio-demographic variables such as age, gender, level of education, and relative economic status. The social context factor ‘where the actor lives’ is defined by place. Place may be represented by country, different regions within the country, or village. In this study the context is represented by rural/urban neighbourhoods. In the following section, the arguments regarding the relationships between the individual and context factors, and social capital based on the extant literature are developed.
2.5.1 Determinants representing individual factor

The three key theorists discussed above claimed that the social capital of individuals is determined by their social status. Bourdieu (1986) argued that the volume of social capital accumulated by a given agent depends on the size of his/her network connections and the capital (economic, cultural, and symbolic) possessed by those to whom he/she is connected. For Bourdieu, social capital is a resource associated with power and class, which reflects social status. Similarly, Coleman (1988) argued that individual actors in the social system differ in the volume of social capital that they can draw upon. Coleman gave an example of a situation in a hierarchical family setting, in which a patriarch or god-father accumulates large sets of obligations to call upon any time he wants. He also cited an example of traditional stratified village settings where certain wealthy families accumulate extensive “credit slips” that they can call in at their need. Further, Coleman (1988) added that in political settings, a legislator with some extra resources can, by effective use of the resources, build up obligations from other legislators, which can make it possible to get legislation passed. This accumulation of obligations represents social capital. These examples suggest that social capital is associated with social status. The references to a patriarch, wealthy family, and a legislator all reflect social status.

Putnam (2000) argued that social capital was associated with the wealth, power, and level of education of individual actors when in virtually all societies “have nots” are less trusting than “haves”, because the haves are treated by others with more honesty and respect (p.138). Additionally, he argued that distrust was more common among the disadvantaged, those with poor education, low income and status. According to Putnam (2000), people who grow up in well-to-do families with economically valuable social ties are more likely to succeed in the economic market, not just because of their wealth and education, but because they can also exercise their connections. Further, Putnam argued that the well to do are the
most generous with their toil and treasure. Those who have more resources are more likely to volunteer, to donate money, and to give blood (Putnam, 2000 p.118). By engaging in these civic activities, they exercise the opportunity to generate social capital. In this way, Putnam associated social trust, social networks, and engagement in civic activities to social status of individuals, such as wealth and education. Therefore, individuals with high social status are likely to accumulate more social capital. These arguments by key scholars suggest that social capital depends on the social status of individuals that defines who the actor is.

*Social status and demographic variables representing individual factors*

According to Putnam (1995, 2000) socio-demographic variables such as age, education, income, and marital status determine the accumulation of social capital in the US. However, Putnam did not explicitly link demography to social status. An argument for demography as an indicator of social status is provided in the work of Hollingshead (2011). Hollingshead used a four factor index, consisting of education, occupation, gender, and marital status as primary indicators of social status. According to Hollingshead (2011), the combination of these factors estimates a meaningful status position of individual and members of nuclear families in the society. Although the four factor index is developed in a context of nuclear family setting in a western society, in absence of similar literature which cuts across different societies, it provides a basis for using demographic variables as indicator of social status. Further, the index is widely used (Adams & Weakliem, 2011). The argument of the current thesis for using socio-demographic variables as indicators of social status is based on Hollingshead’s (2011) idea and integrated with Putnam’s (1995, 2000) work on determinants of social capital.

These scholarly works by Putnam (1995, 2000) and Hollingshead (2011) provide the theoretical ground for arguing that social status indicators constitute socio-demographic variables, which determine the accumulation of the social capital of individuals. The next
section reviews the empirical studies and provides detailed evidence of the relationship between social status and social capital, represented by socio-demographic variables and social capital.

Evidence on social status and social capital

Income or wealth

Wealth is a clear indicator of social status and an important determinant of social capital. Conceptually, social capital is a member of a family of interdependent capitals, such as financial, symbolic, cultural, and human (Bourdieu, 1986; Coleman, 1988). Individuals with higher income or wealth can invest and accumulate more social capital, also referred to as a “capital accumulation effect” (Van Oorschot, Arts, & Gelissen, 2006).

Wealth as an important determinant of social capital has been emphasised by Putnam (1995, 2000) as discussed above. It is generally true that those with more wealth can take risks, and by doing so they are more likely to accumulate more social capital. Social trust carries risk, but it is riskier for the poor than the rich, as the poor cannot afford to lose even a little of what they have if their trust is betrayed, while it is less costly for the rich and people with high status if they are wrong (Delhey & Newton, 2003; Freitag, 2003; Stolle, 1998). Further, Brehm and Rahn (1997) argued that income inequality reduces interpersonal trust due to increased competition over scarce resources. Delhey and Newton (2005) argued that wealth and income equality are two important features of countries with a high level of trust. With regards to community participation, Putnam (2000) argued that wealthy people are more generous and active participants in civic activities as they can donate money, volunteer and help others (p.118). In support of this argument, Fidrmuc and Gërjsxani (2005) showed that civic participation increased with income in Europe.

Past studies show support for the argument that people with more wealth accumulate more social capital, because they enjoy a higher social status than others. For example, in
Europe, Van Oorschot et al. (2006) showed that social capital was higher among Europeans who lived in households with a higher income. Other cross-country studies in Europe have also suggested individuals with higher household income have more social capital than others (Kaasa & Parts, 2008; Fidrmuc & Gërxhani, 2005; Van Oorschot & Arts, 2005). Evidence from developing countries is limited, Tan and Tambyah (2011) suggested that people with higher incomes trust others more in China, Japan, Singapore, and South Korea than in other Confucian countries.

The empirical literature represents income as either individual income levels or as a relative income measure. Kaasa and Parts (2008) argued that relative income is more important than absolute income in determining the welfare of a person. Kaasa and Parts (2008) and Van Oorschot and Arts (2005) used self-rated household income in the deciles categories as a relative measure of income. This current thesis uses a measure of relative income, as income measure is not available in the data. The self-rated economic status of households, how rich or poor people believe themselves to be in comparison to their neighbour, is used as a measure of relative income. A number of studies have argued that self-reported socio-economic status relative to others is more important than absolute income in determining wellbeing (Blanchflower & Oswald, 2000; Easterlin, 1995, 2003; Helliwell & Putnam, 2004; Kaasa & Parts, 2008). In short, there is strong evidence that economic status is an important indicator of social status, which influences social capital. The next section reviews education.

*Education*

According to Putnam, (1995, 2000), education is a measure of social class and economic differences, and Helliwell and Putnam (2007) also argued that education is an associate of social status. Similarly, Hollingshead (2011) argued that education provides the skill required to enter into occupations that carry social prestige, and is therefore an indicator
of social status. Thus, it follows that people with a higher level of education will accumulate more social capital.

In addition, Putnam (2000) argued that education provides social skill and knowledge that are the basis for everyday social interaction and engagement in community activities. Therefore, education is a powerful predictor of trust and associational membership, and is a correlate of all forms of civic engagement, including social trust (Putnam, 1995). Many others have also argued that education provides knowledge and information on social skills, which expands the horizon of individuals and makes people more open-minded to accepting otherness (Brehm & Rahn, 1997; Freitag, 2003; Netwon 1999; Soroka, Helliwell, & Johnston, 2003). Therefore, Alesina and La Ferrara (2002) argued that social trust is a moral or cultural attitude strongly influenced by the level and type of education an individual receives. This is because education can increase a person’s cognitive skill (Helliwell & Putnam, 2007). Further, Christoforou (2011) argued that education is one of the prime agents of socialization, can grant individual access to social networks, and transmit values of reciprocity and cooperation. These arguments indicate that education is a source of skill, knowledge, and information about social systems, and therefore provides distinct social status to the individuals who possess it. Social status in turn influences the level of one’s social capital.

Several empirical studies have suggested a positive association between different dimensions of social capital and education in various parts of the world. For example, Huang, Brink and Groot (2009), in a meta-analysis of 154 evaluations on social trust and 286 evaluations on social participation, argued that education is a robust and strong correlate of individual social capital. In Europe, several studies (Kaasa & Parts, 2008; Van Oorschot et al., 2006; Van Oorschot & Arts, 2005) found education to be positively associated with different indicators of social capital. Similarly, Fidrmuc, and Gërëxhani (2005) and
Christoforou (2011) suggested that education is positively associated with active participation in voluntary organizations and group memberships. A positive association between education and promoting social trust and membership of voluntary groups was also suggested by Huang et al. (2012).

Studies conducted in developing nations have also indicated that education has a strong influence on social capital. For example, Jicha, Thompson, Fulkerson and May (2011) argued that education is a positive correlate of network, trust, and reciprocity in the Caribbean. Similarly, Tan and Tambyah (2011) showed that education has a strong influence on trust: higher education levels achieved in China, Singapore, and South Korea lead to more trust. Although most studies have shown that education is a strong and robust determinant of social capital, there are a few exceptions. For example, there is a negative relationship in the context of Vietnam (Tan & Tambyah, 2011), and Halman and Luijtkx (2006) found education had no effect on formal engagement in Europe. The next section looks at the evidence of the relationship between age and social capital.

**Age**

Age represents the different stages of life of individuals through which their social status evolves. Putnam (1995, 2000) argued that age has a life cycle effect. According to Putnam (2000) the life cycle patterns in social behaviour are typically caused by one of three factors: the demands of family i.e., marriage and parenting, the declining energy from adolescence to old age, and the shape of the career. These patterns reflect the social status associated with different stages of life. As the age of individuals captures these stages of life, it can represent their social status.

In Hollingshead’s (2011) work, age is not mentioned as an indicator of social status explicitly, but was implied when he argued that education varies during childhood and youth,
but the effects are established in the adult years. Similarly, occupation may change in the early years of adult life, but is established in the late twenties or thirties. While gender remains constant through the life cycle, marital status may or may not be stable throughout adult years. This suggests that social status associated with one’s level of education, occupation and career, and marital status can change over the lifetime. The age of individuals captures the effect of these changes. For this reason, age can represent social status.

The life cycle effect of age on social capital, which Putnam (2000) suggested, was tested by Glaeser, Laibson and Sacerdote (2002). Their study found the relationship in the US to be an inverted u-shape. They argued that organization membership is highest when a person is in his/her 30s and 40s, that is (the working period of their life), which means group membership first increases and then decreases with age. Alisena and La Ferrara (2002) also argued that social trust increases with age, but at a declining rate in the US, which supports the inverted u-shaped relationship. The inverted u-shaped relationship between age and group membership was also reported by Christoforou (2011) in southern European countries (Italy, Spain, Portugal, and Greece) as in the US. Similarly, Fidrmuc and Gërpxhani (2005) found the inverted u-shaped effect of age on civic participation in less developed European countries, where participation in collective action aimed at distributive objectives increases and falls with age more dramatically than in the developed Western Europe.

However, the claim of the inverted u-shaped relationship is not consistent and varies across countries, and also for different dimensions of social capital. For example, Christoforou (2011) argued that in northern European countries the effect of age on group membership is u-shaped rather than an inverted u-shape. In northern European countries the young and retirees are active members of society who take a greater role in social groups and organizations. Fidrmuc and Gërpxhani (2005) found that the relationship between age and access to networks may be the cause of the u-shape in both member and candidate countries
of the European Union. Older individuals tend to have more limited access to social networks and the decline in access slows down at a higher age (Fidrmuc & Gërxhani, 2005).

The effect of age differs for different dimensions of social capital as Kaasa and Parts (2008) argued in their work in Europe, where they found that age associated positively with formal networks and negatively with informal networks. People tend to join more organizations as they age, which increases their formal networks, but the range of their informal network decreases, possibly due to lack of time, and later because of their health.

Regarding level of trust, Whiteley (1999) argued that older people are more trusting due to their life experience: they socialize and rely more on each other in less secure circumstances. Halman and Luijkhx (2006) and Van Oorschot et al. (2006) supported the argument that older people with greater life experience have higher social capital represented by various indicators, civism, trust, and networks. Tokuda and Inoguchi (2008) found that age and trust were positively associated in Japan. Similar findings were reported by Tan and Tambyah (2011) in Confucian Asia, particularly in China, Hong Kong, and South Korea. However, u-shape nor inverse u-shape relationships between age and social capital have not been examined in Asia.

Evidence suggests that age has a special effect on the accumulation of social capital, particularly relating to the life cycle effect. While inverse u-shape or u-shaped relationships between age and social capital have been found in the US and in Europe, it would be interesting to test the effect in a developing country context. Social status changes over different stages of life and age capture different phases of social status that influence the level of social capital.

*Gender*
Gender indicates social status in many societies, and females are associated with lower social status than males. It is an important indicator of social status, particularly in traditional societies with patriarchal values where women are given less importance than men. Hollingshead (2011) argued that the gender of an individual plays a key part in the roles they play in the “performance of maintenance functions in the society” (p.23). Females are associated mostly with familial responsibilities, while males have greater access to paid work, which gives them higher social status than those holding the familial jobs. Women’s engagement in familial responsibilities are more likely to connect them to information about the domestic realm while men’s networks are more likely to provide access to information about possible jobs, business opportunities and for professional achievement (Lin, 2000).

Several studies have examined gender inequality in social capital and argue that the difference in the types of networks that men and women engage is the main cause of inequality. For example, the difference in composition of men’s and women’s personal network which arises in part from their dissimilar location in social structure (Lin, 2000; Moor, 1990). Further, the tendency of developing homophilous (associating with those who are similar) networks by both men and women places women at a disadvantaged position especially in the work world where similar others are not in influential positions as men (Ibrarra, 1992, 1997; Lin, 2000; Timberlake, 2005). The difference in types of ties that men and women possess is likely to influence their social status. As females are at disadvantage compared to men, they are more likely to associate with lower social status and less powerful than males.

Even when women enter the labour force and are exposed to a series of work oriented associations, they are associated with familial obligations within the household and are constrained in participating in social groups and organisations (Christoforou, 2011). Research has also suggested that any inequality and discrimination based on gender, race, ethnicity, or
religion discourages social trust in society (Alesina & La Ferrara, 2000, 2003). This implies that gender inequality can affect social capital, and such inequality is always in favour of women than men.

However, empirical evidence on the relationship between gender and social capital are diverse, mostly depending on the dimensions of the social capital examined (Kaasa & Parts, 2008; Nieminen et al., 2008; Van Oorschot & Arts, 2005; Schyns & Koops, 2010). Evidence from developing countries is also not consistent. For example, females in the Caribbean demonstrate higher levels of trust than men, but men are more likely to engage in reciprocal activities than women (Jicha et al., 2011), while no gender effect on social trust was observed in a cross-country study in Asia (Tan & Tambyah, 2011).

Although there is no empirical evidence regarding the relationship between gender and social capital in Bhutan, gender as an indicator of social status is expected to play an important role in determining the individual level of social capital. Women in Bhutan have lower social status compared to men due to patriarchal values, and also due to lack of or limited education (NCWC, 2008; NCWC, 2012; ADB, 2014). A notable example of women’s low social status is their composition in the top management positions in civic service, Bhutan’s largest employer. According to the Royal Civil Service Commission (2014) only 14 females hold executive positions, while there are 144 males in the same positions. As having a position in the civil service is associated with high social status in the country, few women in these positions indicate that women in general have lower social status than men.

**Marital status**

According to Hollingshead (2011), marital status defines the relationship of adult men and women to the family system and is an important indicator of social status, due to the difference in the ways adult family members take part in the economic system. Social status
of both spouses with full time participation in the labour market would be higher than those with only a single spouse employed gainfully outside the house, or others who are single, widowed, and divorced (Hollingshead, 2011). Married and both spouses working full time indicates a higher social status and they are associated with having a higher level of social capital.

The marital status of individuals influences the level of their social capital (Putnam, 1995, 2000). Married men and women rank higher on measures of social trust and civic engagement than single people (Putnam, 1995). Putnam (2000) also argued that distrust is more common among people who are divorced. On social networks, Putnam (2000) argued that marriage for both men and women increases the time spent at home and in formal community organisations, and reduces the time spent in informal networking. This claim found evidential support with Kaasa and Parts (2008) who indicated that married people tend to have fewer informal networks than singles in Europe. However, it is argued that reduction in time for informal network is compensated with increase in time spent in formal network.

A varying effect of marital status of individuals on the level of trust was reported by Tan and Tambyah (2011) in Singapore and South Korea. The effect varies in an interesting way: married people were the most trusting in Singapore, while divorced/separated were the most trusting in South Korea. The South Korean finding contrasts with a Japanese study (Tokuda & Inoguchi, 2008), which found that mistrust was associated with singles (or divorced, separated, or widowed).

Summary

This review of the literature suggests that social status defining ‘who the actor is’ is an important determinant of individual-level social capital, as suggested by the key scholars (Bourdieu, 1986; Coleman, 1988; Putnam, 1995, 2000). The evidence shows that demographic variables, such as wealth, education, age, gender, and marital status, have
important influence on individual-level social capital. The evidence with regards to ‘where’, i.e., the context factor in determining social capital, is reviewed next.

2.5.2 Determinants representing the context factor

An important factor that determines social capital is the location, or where individuals reside. The aspects of communities are important predictors of social capital according to the key theorists whose work informs this study. For example, Putnam (1995, 2000) claimed that in America, people living in big cities express less social trust than those living in small towns. According to Putnam (1995, 2000), the characteristics of urbanisation, such as a loose sense of community, high mobility, divorce, and smaller family size, reduce social capital. Rural communities are socially well connected (Putnam, 1995, 2000). Similarly, Coleman (1988) referred to urban localities as having high degree of “social disorganization” and low social capital (p.S103). Rural areas are expected to be more cooperative due to a stronger sense of community identity, while in the bigger urban areas people have less sense of community as they are more anonymous. According to Putnam (1995, 2000) the density of social connection is lower in cities than in farming villages. This argument suggests that aside from the individual-level effect, there is a higher level effect of the community features that determines the level of the social capital of people, which is important to investigate.

Following Coleman (1988) and Putnam (1995), Onyx and Bullen (2000) investigated the differences in social capital in rural and urban areas in Australia. Their study found differences in respect to both the pattern and the absolute levels of social capital. Rural areas have significantly higher levels of feelings of trust and safety, participation in the local community, and neighbourhood connections; while urban areas demonstrated a higher level of social agency, proactivity in social contexts (e.g. ability of finding information for decision making), and a higher level of tolerance for diversity.
Several other studies have also indicated differences in the level of social capital between rural and urban areas. These studies found that rural areas had higher social connectedness than urban areas (Greiner et al., 2004; Kavanagh, Turrell, & Subramanian, 2006; Van Hooijdonk et al., 2008). Other researchers have argued that societal features such as the size of the place, index of crime, income inequality, race and ethnic fragmentation, region of residence, neighbourhoods, and the degree of urbanization are important for social capital formation (Alesina & La Ferrara, 2002; Brehm & Rahn, 1997; Christoforou, 2011; Costa & Kahn, 2003; Delhey & Newton, 2003, 2005; Frietag, 2003; Halman & Luijkx, 2006; Lindstrom, Merlo, & Ostergren, 2002).

The examination of determinants of social capital needs to capture the effect of both individual-level social status and the higher level effect of the features of the community where the individuals are located. Most studies investigating the antecedents of social capital have not methodically examined the influence of the individual and context factors. The effect of factors at different levels, i.e., individual and context, has been systematically investigated by few studies, namely Halman and Luijkx (2006), Lindstrom et al. (2002), and Subramanian, Lochner and Kawachi (2003). Lindstrom et al. (2002) and Subramanian et al. (2003) examined the influence of neighbourhoods in Sweden and the US in determining individual level social capital and found that the context factor played an important role in determining individual-level social capital. On the other hand, Halman and Luijkx (2006) conducted a cross country comparison in Europe, in which the individual country formed the context. These studies used multilevel models to examine the effect of both individual characteristics and the feature of society in influencing the level of individual social capital. Limited research in this area calls for more studies that methodically examine the influence of factors at different levels to indicate the role of individual-level characteristics, as well as the features of communities in determining the level of individual social capital.
The current study is based in a small country where communities are located in several dispersed and isolated areas due to its geography. Each community can have distinct social norms shaped by localised customs and institutions (Galay, 2001; Dorji, 2005). Capturing these diversities may provide a meaningful context factor. On the other hand, there is no diversity in the governance system, and less diversity in terms of ethnicity, race, and religion. However, an important societal feature that has emerged with economic modernisation is the difference between rural and urban areas. Bhutan has a strong value system that has largely been shaped by the Buddhist culture: the recognition of interdependency, need for empathy, reciprocity, responsibility and self-development are some of the prominent features, in addition to common values such as honesty, compassion, harmony, and tolerance (Wangyal, 2001). These social values are the foundation of human relationships (L. Dorji et al., 2013), which form the basis for the social capital of people. However, with the rise of urbanisation, individuals care less about social norms and traditional values that cultivate interdependence and social connectedness. Modernisation has triggered changes in attitude, values, and expectations of the urban population (Wangyal, 2001). This change in people may have impacted their social activity and connectedness, especially in urban centres. Therefore, the urban and rural residence of people may affect their level of social capital. Although the importance of the role of other community features, such as level of income and education is not ruled out, the current focus is on one feature of community i.e., the role of rural and urban neighbourhoods.

Figure 2-1 shows the relationship between indicators of social status (who) and the place (where) in determining individual-level social capital.

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Social capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural/urban neighbourhoods (level 2)</td>
<td>Individual level social capital</td>
</tr>
<tr>
<td>Social status (level 1)</td>
<td></td>
</tr>
</tbody>
</table>
Summary

Although there is widespread agreement on the relevance of the place where people live to social capital accumulation, the numerous measures of contextual factors used makes it difficult to compare the findings. Moreover, most literature on the determinants of social capital has been based either in the United States or Europe, while the studies on developing countries are very limited. It is unclear as to whether Western country studies may be directly applicable to developing nations.

The next section reviews the evidence regarding the relationship between social capital and outcomes, particularly relating to the wellbeing and health of individuals.

2.6 Relationship between social capital and social outcomes

Social capital is recognized as having a significant influence on a number of social outcomes. Putnam (2000) argued that civic connections make us healthy, wealthy, and wise. He further asserted that living without social capital is not easy, whether one is a villager, a poor person, or a rich entrepreneur in high tech industrial districts (p.287). Hence, social capital is crucial for every individual or society. Further, evidence from many countries (mostly from developed countries) indicates that social capital plays an important role in societal development and is associated with several social outcomes.

A high level of social capital and connectedness are associated with lower crime rates, improved child welfare and educational performance, better public health, effective
governance, reduced political corruption and tax evasion, as well as improved economic performance, and many more positive outcomes (Bjørnskov, 2006; Helliwell, & Putnam, 2004; Knack & Keefer, 1997; Putnam et al., 1993; Putnam, 2000; Woolcock, 2001). Evidence from developing countries is limited, but also suggests the positive relationship between social capital and social outcomes, particularly happiness and self-rated health (Calvo et al., 2012; Han et al., 2012; Tokuda et al., 2010; Yip et al., 2007).

This review covers the literature on the relationship between social capital and the two main social outcomes, subjective well-being and self-rated health. These two social outcomes have become the focus of considerable research. Several studies have suggested that higher social capital has a positive effect on people’s happiness and also enhances the health of individuals (Bjørnskov, 2003; Calvo et al., 2012; Gundelach & Kreiner, 2004; Hamano et al., 2010; Helliwell & Putnam, 2004; Putnam, 2000; Song & Lin, 2009).

Empirical studies have examined social capital at both individual and collective levels (Kawachi, Kim, & Subramanian, 2004; Snelgrove et al., 2009; Chappell & Funk, 2010; Han et al., 2013a; Han et al., 2013b). The collective-level social capital represents the country, region, or community level. This level represents the context or place, from here on the term ‘context’ is used to represent the place or collective level. Evidence has shown that it is important to distinguish between the two levels, as the benefit of social capital at both levels has important implications for well-being policy. Yip et al. (2007) argued that this distinction is important to determine whether intervention or policies should be targeted at individuals or places. Therefore, research focus needs to be on distinguishing the effect of social capital at individual and context-level on social outcomes, to capture the dynamics at play.

The next section explains the outcome variables and examines the empirical evidence concerning the relationship between social capital and social outcomes, with an emphasis on subjective well-being and self-rated health status.
2.6.1 Social capital and subjective wellbeing

Subjective wellbeing

Many studies examining the effects of social capital on well-being have focussed on subjective wellbeing, life satisfaction, or self-rated happiness. Subjective well-being refers to the well-being defined by the individual themselves (Helliwell & Putnam, 2004). Stiglitz, Sen and Fitoussi (2009) referred to subjective well-being as an approach used for assessing quality of life comprising three separate aspects: life satisfaction, which refers to a person’s overall judgment about their life at a particular point in time; the presence of positive feelings, which refers to the flow of positive emotions, such as feeling happiness and joy, or a sense of vitality and energy; and the absence of positive feelings, which refers to the flow of negative emotions, such as feeling angry, sad or depressed (p.146). This explains that both life satisfaction and self-reported happiness are aspects of subjective wellbeing. In particular, self-reported happiness pertains to the presence of positive feelings.

Self-reported happiness indicates people’s feelings in real time, which results in a measure of the experienced effect of happiness (Kahneman et al., 2006). According to Veenhoven (1991), happiness and life satisfaction are synonymous. Life satisfaction is the individuals’ judgement about the overall quality of their life as a whole i.e., how well they like the life they lead. In this sense, the term happiness means life satisfaction. Similarly, other researchers (Bjørnskov, 2003; Leung et al., 2011; Matsushima & Matsunaga, 2015) used the terms happiness and life satisfaction interchangeably. In this thesis, the term happiness as a measure for subjective well-being is used interchangeably with life satisfaction.

Evidence of the relationship between social capital and subjective well-being

There has been an increasing body of literature linking social capital to subjective well-being in recent years. Nonetheless, the outcome differs depending on a number of aspects,
such as how social capital and well-being are conceptualized and operationalized, the level of analysis and control variables used, and also the study population (Han et al., 2013a). Studies have used individual-level, context level, and some others used multi-level analyses. The following review groups the studies by the level of analysis used and begins with evidence from studies focusing on only one level i.e. either at the individual-level or the place level, which are presented separately. Evidence from studies that include both levels in the analysis i.e. multilevel studies, is reviewed in the following section.

**Individual level studies**

Several studies have investigated the relationship between social capital and subjective well-being at the individual level. For example, Leung et al. (2011) investigated the relationship between social capital and happiness using data from the Canadian General Social Survey of Social Engagement Cycle 17. They found that different social capital elements were associated with happiness even after controlling for various social status indicators. Similarly, Winkelmann (2009) found that social capital at the individual level was positively associated with the level of subjective well-being using data from the German socio-economic panel 1984-2004. These studies present evidence from Western countries.

The relationship between happiness and social capital at the individual level has been investigated in a number of non-Western countries. Matsushima and Matsunaga (2015) used the Japan General Survey, 2010 and found different facets of social capital related to individuals’ happiness differently: trust and volunteering had a positive relationship, while the number of memberships in organizations did not. Further, the study suggested that relationships between volunteering and happiness differ depending on one’s life stage, measured by age. Similarly, Addai, Opoku-Agyeman and Amanfu (2013) investigated the determinants of happiness and life satisfaction in Ghana using the World Value Survey. The study found that only civic engagement, including activism, reading newspapers, connecting
with friends, and participating in parliamentary elections, had a positive significant association with subjective wellbeing. The remainder of the measures of social capital, such as interpersonal trust, institutional trust, and civic involvement, did not exhibit a statistically significant relationship with life satisfaction. On the other hand, Ekici and Koydemir (2013) investigated the relationship between social capital and happiness in Turkey. Their analysis revealed that social capital measures at the individual level, including norms and trust in institutions, were positive correlates of individual happiness. The different findings might be attributed to the different contexts of the studies.

In Latin American countries, Ateca-Amestoy, Aguilar and Moro-Egido (2013) used the Latinobarómetro survey, (2007) and found social capital at the individual level to be positively correlated with individual life satisfaction. Yamaoka (2008) used a cross-sectional survey in East Asia to investigate the relationship between social capital at the individual level and life satisfaction. The study found that interpersonal trust, norms of reciprocity, and trust in organizations indicated positive associations with life satisfaction.

The individual level studies assessing the relationship between social capital and subjective well-being have used various indicators of social capital, as well as different measures for life satisfaction. Due to these variations, and other influences pertaining to socio-cultural effects of different countries, it is difficult to draw comparison across studies. Nonetheless, evidence presents some pattern of relationship with regard to trust and norms of reciprocity, which some studies referred to as cognitive social capital, as a positive correlate of happiness (except the study from Ghana). On the other hand, the association of group memberships and networks, also referred to as structural social capital, differs from one study to another. These differences may be caused by varied measurement or indicators used in different studies. Group membership and social networks can be significantly influenced by the socio-cultural aspects of different countries or societies. However, a limitation in this type
of study is that it can only examine individual level relationships and cannot account for the context-level effect in explaining the relationships. The next section reviews the evidence from contextual-level studies.

**Contextual level studies**

Empirical evidence examining associations between social capital and subjective well-being at the context level is provided mainly by cross-country studies (Bjørnskov, 2003; Bjørnskov, 2006; Ram, 2010). These studies examined both social capital and subjective well-being at the country level. Bjørnskov (2003) examined the relationship between social capital and happiness in 32 countries including Europe, America, and Asia. Social capital (measured as an index comprising of general trust, civic participation, and perceived corruption) using the World Value Survey is demonstrated as the most important factor in explaining why some nations are happier than others. Similarly, Bjørnskov (2006) examined the relationship between social capital and life satisfaction, employing the available cross-country data in the World Value Survey. He used Putnam’s three elements, generalized trust, norms, and networks independently. The study found the effect on life satisfaction was exclusively due to the trust component.

On the other hand, Ram (2010) revisited the previous findings on the relationship between social capital and happiness using different cross-country samples and model specifications based on the World Value Survey. Social capital was represented with generalized trust following Bjørnskov (2006). The study concluded generalized trust to be a weak predictor and most estimates showed a lack of a significant association between social capital and life satisfaction. This study suggested caution in interpreting the role of social capital in generating happiness.

Evidence from these country level studies depicts a varied relationship between social capital and subjective well-being. The relationship seems to vary depending on how social
capital elements are represented and also varies depending on the country examined. Bjørnskov (2003) exhibited that social capital is a strong predictor of happiness when the relationship is examined in homogeneous countries like Nordic and Western countries, but the relationship changes when more countries are included in the analysis. Bjørnskov (2006) and Ram (2010) also suggest that relationship differ depending on elements of social capital and also between different country groups. This reflects that social capital is a better predictor of happiness in more homogeneous settings than otherwise. Therefore, the socio-cultural factors of each country are important to consider in examining the relationship between social capital and happiness, and it is difficult to generalize the findings.

**Summary**

Both individual and context level studies have limitations. For example, individual studies cannot account for the effect of place, which might have an additional effect on top of the individual-level effect on subjective wellbeing. On the other hand, the context-level studies are unable to show a true contextual effect, as it is not clear whether the results from these studies reflect a genuine contextual effect or whether they are caused by individual differences in the level of social capital (Kawachi et al., 2004; Poortinga, 2006). Furthermore, Poortinga (2006) argued that studies focusing purely on the context or individual level are inadequate in dealing with the cross-level interaction effect between the two levels, which is likely to occur, as discussed in the next section. For these reasons, multi-level modelling that simultaneously estimates different level of variables can be used as a solution to limitations posed by single level studies. The next section reviews empirical studies using multilevel analysis.

**Multilevel analysis**

More recent studies examining the relationship between social capital and subjective well-being have employed a multilevel approach. This statistical approach provides a robust
framework of analysis, as it allows estimation of relationships between individual-level social capital and subjective wellbeing, accounting for the effect of variation between contexts or communities. In addition, it can analyze the effect of context-level social capital on subjective wellbeing and how this effect varies for different individual-level factors. For this reason, it is used to address some limitations of the single level studies reviewed earlier.

However, some multi-level studies only used individual-level social capital variables, and were not able to explain the contextual effects of social capital on subjective wellbeing, (for example, Cramm et al., 2012; Hooghe & Vanhoutte, 2011). On the other hand, there are other studies that considered both individual and contextual social capital in examining the association between social capital and life satisfaction. For example, Yip et al., (2007) considered both individual and contextual social capital in examining the association between social capital and life satisfaction in rural China. This study reported an intraclass correlation of 3.7%, i.e. variance, attributed to village level (level 2) variable in the baseline model. The study found that the both individual and village level trust was positively associated with individual-level life satisfaction. However, they did not find significant association between organizational membership and life satisfaction at the individual-level.

Similar to the above study, Tokuda et al. (2010) also considered both individual and contextual social capital in examining the relationship between social capital and happiness in a cross-country study of 29 Asian countries. The study represented social capital with social trust and found that individual social trust and country level (aggregated) social trust were all independently associated with individual happiness. The study also reported that people were more likely to be happier if they lived in countries with a higher level of aggregate social trust, regardless of individual level social trust. However, this study did not report intraclass correlation, thus, the variance attributed to the country level is not known. One limitation of
both Tokuda et al. (2010) and Yip et al. (2007) is that they did not consider other contextual factors that might be associated with social capital or subjective wellbeing.

In contrast to the above studies, Helliwell and Putnam (2004) investigated the relationship between both individual and community level (level 2) social capital and subjective well-being with controls for both individual and community level variables. The study used data from the World Value Survey, the US Benchmark Survey, and a comparable Canadian survey. The community level (level 2) in the case of the World Value Survey is the country and for the other two data sets is a level closer to the census districts. The study found that both individual and contextual level social capitals tended to be associated with happiness and life satisfaction. Likewise, Elgar et al. (2011) used the World Value Survey for 50 countries, to examine the association between individual and contextual level social capital and life satisfaction and account for both individual and contextual level confounders. The study reported intraclass correlation of 17%, i.e., the variance attributed to the country level variables. It found that individual-level social capital variables were associated with life satisfaction, while contextual social capital variables were not. Moreover, the study found significant cross-level interactions between national and individual level social capital for subjective wellbeing. This suggests that individual wellbeing benefits of social capital are enhanced for people living in countries that are also high in social capital, particularly social trust.

Evidence of the relationship between social capital and subjective wellbeing in South Korea was presented by Han et al. (2013a). They used data from the Seoul Welfare Panel Study to investigate the association of social capital at both the individual and aggregate administrative area level (level 2) and subjective wellbeing, while accounting for control variables at multiple-levels. This study reported an intraclass correlation of 3.3% (variance attributed to area level) for the baseline model. All individual level social capital variables,
including organizational participation, perceived helpfulness, and trust in authority were positively associated with subjective wellbeing. Area level participation and perceived helpfulness were positively associated with subjective-wellbeing, whereas trust in authority exhibited no relationship. However, the study did not examine the cross-level interaction of social capital at individual and contextual levels. Han et al. (2013b) conducted a similar study examining the association between happiness and various dimensions of social capital at individual and area level (level 2). This study also reported a similar intraclass correlation as above. They found that only trust from the area level social capital was associated with happiness, while all of individual level social capital: political participation, trust, and organizational were not associated with happiness. Further, this study examined the cross-level interaction but did not find the effect.

**Summary**

Studies using a multilevel approach are recent, and most available non-Western country analyses are based on this approach. It is difficult to draw comparisons among past studies, as they examine different elements of social capital and the contexts also differ, but a general pattern can be seen, particularly with regard to social trust, which is positively associated with life satisfaction. Although previous studies have considered the effect of individual-level and context-level social capital on life satisfaction, it is still unclear whether context-level social capital is an independent determinant after taking account of individual-level social capital and other variables such as social status indicators. Few studies have examined cross-level interaction (Elgar et al., 2011; Han et al., 2013b; Tokuda et al., 2010) but the findings are not consistent, calling for further research.

The next section reviews evidence on the association between social capital and health outcomes.
2.6.2 Social capital and health outcomes

Self-rated health status

Self-rated health status is a commonly used health outcome in public health research. Good health and longevity are part of the broader measures of wellbeing, it is therefore meaningful to examine the association between social capital and health status. The relationship between social capital and health status has been examined using a wide range of health outcomes, including self-rated health status, disease and disability, mental health and health behaviour of people (De Silva, Hutty, Harpham, & Kenward, 2007; Fujisawa, Hamano, & Takegawa, 2009; Han et al., 2012; Hyypä & Mäki, 2003; Kawachi, Kennedy, & Glass, 1999; Poortinga, 2006). In the current thesis, self-rated health status as a measure of an individual’s health is one of the investigated social outcomes.

Social connectedness is recognized as resulting in remarkable health benefits. For instance, people who are well integrated into their community are less likely to experience colds, suffer heart attacks, strokes, cancers, depression, or premature death (Putnam, 2000 p.326). According to Putnam (2000), social capital enhances health in multiple ways: a) social network acts as a safety net and provides tangible assistance in terms of money, recuperating care, and transportation, which reduces both psychological and physical stress; b) it can also act to reinforce healthy norms by discouraging people from engaging in other health damaging behaviour; and c) social capital serves as a ‘physiological triggering mechanism’, it stimulates people’s immune system to fight against disease and buffer stress (p.327). Additionally, Putnam also argued that socially cohesive communities are best able to organize politically to ensure first-rate medical services. These arguments suggest that social capital at individual and context levels both have an important influence on health status.

Evidence of the relationship between social capital and self-rated health status
The association between social capital and various health outcomes has been examined in several industrial and developing countries (Cram & Nieboer, 2011; De Silva et al., 2007; Macinko & Starfield, 2001; Han et al., 2012; Islam, Merlo, Kawachi, Lindström, & Gerdtham, 2006; Kawachi, Kim, Coutts, & Subramanian, 2004; Kumar, Calvo, Avendano, Sivaramakrishna, & Berkman, 2012). These studies presented diverse evidence depending on which health outcomes and dimensions of social capital were examined; however, most found a positive relationship between social capital and health outcomes. The relationship between social capital and health was examined using both single and multi-level analysis. Single level analyses were either at individual or context (place) level of analysis. This review groups the evidence by level of analysis used.

**Individual level studies**

Several studies have investigated the association between self-reported health status and social capital at the individual level. For example, Veenstra (2000) examined the relationship between social capital at the individual level and self-rated health in Canada using survey data from a health district in Saskatchewan. The study found that individual level social capital represented with civic participation, trust in government, neighbourhood, and general people were positively and significantly related to self-rated health of elderly group. Similarly, Rose (2000) examined social capital and self-assessed health outcomes in Russia and found individual-level social capital measures including self-efficacy, trust in others, informal networks, and social support were associated with self-rated health. Hyyppä and Mäki (2003) examined social capital and self-rated health in Finland and their study reported that trustful friendship network, active social participation, and religious involvement were all related to self-rated health, even after adjusting for other health-related variable such as gender, age, BMI, and household income.
A cross-national study by Pollack and Knesebeck (2004) examined the relationship between self-rated health and individual-level social capital using data from Germany and the USA. Their study represented social capital with norms of reciprocity, civic trust, and social participation. The study found that lack of reciprocity and civic mistrust was associated with poorer self-rated health in both countries and the latter was also associated with functional limitation in performing physical activities and depression in the USA, but not in Germany. Lack of participation was associated with poorer health and depression in Germany.

Similarly, Yamaoka (2008) used a cross-sectional survey in East Asia to investigate the relationship between social capital at the individual level, self-reported somatic symptoms, and health satisfaction. The study found that interpersonal trust, norms of reciprocity, and trust in organizations indicated positive associations with both health outcomes, while organizational membership was related only to self-reported somatic symptoms. Similar findings were reported by d’Hombres, Rocco, Suhrcke and Mckee (2010) who examined the association between individual social capital and self-reported health in transitional countries. This study found individual-level trust to be positively associated with self-reported health and social isolation was negatively associated with it. On the other hand, participation in local organizations was more ambiguous and not significantly related to health.

While these individual level analyses provide diverse evidence, they indicate a general sense of a positive association between social capital and self-rated health. Specifically, trust and norms of reciprocity have a positive association with health outcomes in both western and non-western countries, while the association is not clear with the membership of organizations, particularly in non-Western countries. Next, evidence from studies using a context-level of analysis is discussed.
Context level studies

This section presents evidence of the association between social capital and health outcomes at the contextual level. Several studies, mostly based in the USA and other Western countries, found an association between a variety of indicators of social capital (trust, reciprocity, group membership) and health outcomes (mortality, public health index, community level generalized health perception). For example, Kawachi et al., (1997) assessed state level social capital in the US with aggregated measures of social trust and reciprocity and memberships of various associations. This study found that lower levels of social capital were associated with an increase in mortality rates. In Canada, Veenstra (2002) examined the mortality rate at the district level and found that social capital indicated by associational density, social involvement, and civic participation, was significantly associated with the mortality rate, such that a higher level of social capital was linked to a lower mortality rate. Similarly, Skrabski, Kopp and Kawachi (2004) found country level aggregated social capital variables (perceived trust, reciprocity, and membership) were significant predictors of the mortality rate in Hungary.

The evidence from the US shows that the state with a high score of social capital index also scored higher in the public health index and had low mortality rates according to Putnam (2000). Similarly, the association between generalized health perception and social capital at the aggregated community level was conducted in Japan by Fujisawa et al. (2009). They found that aggregated social capital variables at the community level: perceived helpfulness, greeting, and social cohesion, were all positively associated with generalized health perception.

Summary

These country level studies have shown that a variety of social capital variables are positively associated with contextual level outcomes such as mortality rate, self-rated health,
and general health perception. Single level studies i.e. both individual and place levels established a general tendency of positive association between social capital and health outcomes.

**Multi-level analysis**

The relationship between the individual and contextual effect of social trust on self-rated health in the US was examined by Subramanian, Kim and Kawachi (2002) using a multilevel analysis. The study used the Social Capital Community Benchmark Survey and found that the significant association between community (level 2) social capital and self-rated health disappeared when controlling for individual-level trust. However, this study found a significant cross-level interaction effect between community-level and individual-level trust. Self-rated health status was low among individuals who expressed a low level of trust and lived in communities with a higher level of trust.

Similarly, Poortinga (2006) examined the association between self-rated health and individual-level social capital in 22 countries in Europe. The study used the European Social Survey and found that individual-level social trust and civic participation variables were strongly associated with self-rated health, while country level (level 2) social trust and civic participation were not related to health when individual-level differences in social capital and social status indicators were accounted for. However, the study found a significant cross-level interaction as in Subramanian et al. (2002) indicating that individuals with a higher level of social capital (trust and civic participation) more often report good or very good health in countries with higher levels of social capital. This suggests that the benefits of social capital seem to be generated through an interaction between individual-level social capital and their social environment.

While the above studies presented evidence from developed Western countries using a multilevel analysis, few studies have examined the association between health and social
capital in non-Western nations, particularly in Asia. For example, Yip et al. (2007) considered both individual and contextual social capital in examining the association between social capital and self-reported general health and psychological health in rural China. They reported intraclass correlation of 1.3% for self-reported health and 1.9% for psychological health. This study found that the both individual and village level (level 2) social trust were positively associated with health outcomes. However, they did not find significant association between structural social capital (organizational membership) and both health outcomes. Similarly, Fujisawa et al. (2009) used a survey in Japan to examine the association between social capital and general health perceptions using a multilevel analysis. The study reported that the indicator of community social capital, i.e. aggregated kindness and greeting, as well as a social cohesion index, were significantly associated with general health after adjusting for individual level social capital. However, neither study considered contextual factors other than social capital, which might be associated with social capital or health outcomes.

The association between social capital and self-rated health status was also examined by Han et al. (2012) in South Korea using a multilevel analysis. The study represented network source and organizational participation as individual-level social capital, and area-level organizational participation as the level 2 variable. The study reported the area-level variance (intraclass correlation) of 5% for the baseline model. The individual-level social capital was associated with self-reported health, even after accounting for the effect of both individual and area-level variables in explaining the relationship. The study did not find significant relationships between area-level organizational participation and self-reported health, but did report a significant cross-level interaction of social capital. Thus, in areas with lower organizational participation, the probability of reporting good health was higher for individuals with high organizational participation than those with low organizational participation.
Apart from the above studies, cross-country examination has provided evidence of the relationship between social capital and self-rated health. Elgar et al. (2011) examined the association between individual and contextual level social capital and self-rated health in 50 countries using the World Value Survey. The study reported intraclass correlation of 9% and found that individual-level social capital variables were positively associated with self-rated health status, while country-level social capital (level 2) variables were not. However, the study found significant cross-level interactions effects between country-level and individual level social trust on health. This suggests that the level of social trust of the country enhances individual-level social trust in influencing self-rated health.

Cross country evidence based on low income countries was presented by De Silva et al. (2007). The study used data from the Young Lives Survey across 234 communities in Peru, Ethiopia, Andhra Pradesh (India), and Vietnam to examine the association between social capital and mental health, controlling for a wide range of individual and community level variables. It found that only individual-level cognitive social capital (trust, social harmony, perceived fairness, and sense of belongingness) was associated with a reduced likelihood of common mental disorders across all four countries. The findings for structural social capital (membership of groups, involvement in citizenship activities, and social support) were mixed and culture specific, with some aspects associated with an increased chance of a mental disorder. The findings suggest that structural social capital has context specific effects, while cognitive social capital has more universal effects on mental health.

Summary

Over all, these studies have shown varied evidence and this makes it difficult to draw comparisons, as they used different elements of social capital, health outcomes, and the context used also differed (community, area and country), which could influence the result. However, there was a general pattern in the findings with regard to social trust, which was
found to be positively associated with health (De Silva et al. 2007; Elgar et al. 2011; Poortinga, 2006; Subramanian et al, 2002; Yip et al., 2007). With the inconsistent findings, particularly on the effect of context-level social capital on self-rated health, it still remains unclear whether context-level social capital has an independent influence after taking account of individual-level variables. Among the few studies on developing countries, most have not investigated the effect of cross-level interaction between two levels of social capital, which may have an important insight into the relationship between social capital and self-rated heath status.

Table 2.2 presents the key literature at the individual, context, and multilevel, including both individual and context level analysis, which are reviewed in this section.
## Table 2-2: Key Literature on Relationship between Social Capital and Social Outcomes (happiness and self-rated health status)

<table>
<thead>
<tr>
<th>Level</th>
<th>Outcome Well-being</th>
<th>Outcome Health</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leung et al. (2011)</td>
<td>Positive association between social capital (trust and obligations, information channel, and norms of sanctions and sense of belongingness) and happiness in Canada.</td>
<td>Positive association between trustful friendship network, active social participation, and religious involvement and self-rated health, even after adjusting for other health-related variable such as gender, age, BMI, and household income.</td>
</tr>
<tr>
<td>Matsushima and Matsunaga (2015)</td>
<td>Positive association between social capital (trust and volunteering) and happiness, while membership in organization was not. Moreover, the association between volunteering and happiness differed depending on one’s life stage measured by age.</td>
<td>Positive association between individual-level trust with self-reported health, while social isolation was negatively associated with it. The participation in local organizations was not significantly related to health.</td>
</tr>
<tr>
<td>Hyypä and Mäki (2003)</td>
<td>Positive association between interpersonal trust, norms of reciprocity, and trust in organizations with wellbeing in East Asia</td>
<td>Positive association between interpersonal trust, norms of reciprocity, and trust in organizations and two health outcomes (self-reported somatic symptoms and health satisfaction), while organizational membership was related only to self-reported somatic symptoms.</td>
</tr>
<tr>
<td>D'Hombres et al. (2010)</td>
<td>Positive association between interpersonal trust, norms of reciprocity, and trust in organizations with wellbeing in East Asia</td>
<td>Positive association between interpersonal trust, norms of reciprocity, and trust in organizations and two health outcomes (self-reported somatic symptoms and health satisfaction), while organizational membership was related only to self-reported somatic symptoms.</td>
</tr>
<tr>
<td>Yamaoka (2008)</td>
<td>Positive association between interpersonal trust, norms of reciprocity, and trust in organizations with wellbeing in East Asia</td>
<td>Positive association between interpersonal trust, norms of reciprocity, and trust in organizations and two health outcomes (self-reported somatic symptoms and health satisfaction), while organizational membership was related only to self-reported somatic symptoms.</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bjørnskov (2006)</td>
<td>Social capital represented with trust, norms and networks. Of these, only trust predicted life satisfaction.</td>
<td>Positive association between aggregated social capital variables (perceived helpfulness, greeting, and social cohesion) and generalized health perception in Japan.</td>
</tr>
<tr>
<td>Ram (2010)</td>
<td>Weak relationship between generalized trust and life satisfaction.</td>
<td>Social capital (perceived trust, reciprocity, and membership) at the country level is a significant predictor of the mortality rate in Hungary. Social capital (associational density, social involvement, civic participation) were significantly related to the mortality rate, such that higher social capital corresponded with fewer deaths at districts level in Canada.</td>
</tr>
<tr>
<td>Fujisawa et al. (2009)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Summary</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Veenstra (2002)</td>
<td>Positive association between individual-level social capital (trust, group, civic, and linking) and life satisfaction, but contextual social capital was not. Reported significant cross-level interactions between national and individual level social capital for subjective wellbeing.</td>
<td></td>
</tr>
<tr>
<td>Elgar et al. (2011)</td>
<td>Positive association between individual-level social capital (organizational participation, perceived helpfulness, trust in authority) and subjective life satisfaction. Cross-level interaction not examined.</td>
<td></td>
</tr>
<tr>
<td>Han, Kim, and Lee (2013a)</td>
<td>Positive association between individual level social capital (organizational participation, perceived helpfulness, trust in authority) and subjective life satisfaction. Cross-level interaction not examined.</td>
<td></td>
</tr>
<tr>
<td>Poortinga (2006)</td>
<td>Positive association between individual level social capital and self-rated health but contextual social capital was not. Reports significant cross-level interactions between national and individual level social capital for health.</td>
<td></td>
</tr>
<tr>
<td>Tokuda et al. (2010)</td>
<td>Positive association between both individual and aggregate social trust and happiness. No cross-level interaction of social trust effect on happiness. No inter correlation reported.</td>
<td></td>
</tr>
<tr>
<td>Yip et al. (2007)</td>
<td>Positive association between both individual and village level trust and life satisfaction but not organizational membership. Reports ICC of 3.7%.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive association between both individual and village level trust and health outcomes (self-rated general health and psychological health) and not organizational membership. Report ICC of 1.3 and 1.9 for 2 health outcomes.</td>
<td></td>
</tr>
</tbody>
</table>
2.7 Research gap

Reviewing past evidence reveals the following research gap in the literature, which this thesis aims to fill.

First, previous studies have paid more attention to investigation of the influence of social capital on social outcomes and less attention to the antecedents of social capital accumulation. There is a lack of a clear framework for investigation of the determinants of social capital in the literature that will illuminate the knowledge on a conceptual debate, i.e., whether social capital is an individual or group phenomenon. Moreover, evidence pertaining to developing country contexts in examining the determinants of social capital is particularly scarce. Second, although studies on the relationship between social capital and social outcomes in developing countries are increasing, research is still in the exploratory stage and has provided varying evidence (Han et al., 2013a; Han et al., 2013b; Han et al., 2012; Tokuda et al., 2010; Yip et al., 2007). In this respect, the role of the individual and social contexts in influencing happiness and self-rated health still remains unclear. It is important to distinguish between different levels of influence to establish precise relationships to direct policy interventions. Furthermore, the influence of social capital at the neighbourhood-level and the cross-level interaction effect of social capital at the individual and context level on social outcomes has not been adequately explored. This indicates more studies are necessary to benefit the literature on social capital, and a particular focus on the developing country context is important.

2.8 Conclusion

This chapter reviewed the literature on three main issues of social capital: 1) the perspective of social capital concepts, 2) the antecedents of social capital, and 3) the relationship between social capital and social outcomes. The review of key
literature on social capital suggests that social capital is a multidimensional construct composed mainly of three dimensions, social trust, networks, and norms of reciprocity (Coleman, 1988; Putnam, et al., 1993; Putnam, 2000). However, empirical studies have represented them as either single index or multidimensional measures, mainly depending on how the different indicators used related to each other. The matter is investigated further in Study I in Chapter 4.

The review suggests that there is no consistent framework used for investigating the determinants of social capital. Study II of this thesis investigates this further and argues that the social status of individuals and the place where people live are important determinants of social capital. As discussed in this chapter, the key scholars of social capital (Bourdieu, 1986; Coleman, 1988; Putnam et al., 1993, Putnam, 2000) argued that individuals with a higher level of social status are likely to accumulate a higher level of social capital and they also argued that the place where people live is an important factor. Coleman (1988) and Putnam (2000) in particular argued that people living in rural areas are likely to have a higher level of social capital than those living in urban areas. However, as these arguments have not been tested adequately thus far, the current thesis aims to perform this test and propose a framework for examining the determinants of social capital based on the arguments made by the key theorists.

The review also suggests that the comparative role of individual versus the context level effect in influencing social outcomes has not been well established. Further, evidence regarding the role of neighbourhood-level social capital in influencing social outcomes of individuals is not clear, and there is scant evidence of the cross-level interaction effect of social capital at individual and neighbourhood-levels in influencing the outcomes. Study III in this thesis aims to investigate the
relationship between social capital and two selected social outcomes, happiness and self-rated health status. This thesis investigates the role of individual-level and context-level social capital and also tests the cross-level interaction effect on social outcomes. Both Studies II and III examine the comparative role of the social context and the individual differences in influencing the outcome measures, i.e., social capital in Study II and self-rated happiness and health status in Study III.

These studies aim to provide a better understanding of the concept of social capital and its operation in a developing country context.
Chapter 3: Research Methodology

This chapter presents the research methodology used in this thesis to examine the hypothesized relationships. It first starts with the philosophical stance that justifies the research approach. Then presents data including approach to data gathering and sample selection of two datasets, and describes the research methods used in this thesis. The description of variables used in the analyses is explained in detail in Chapter 4, where social capital dimensions are constructed using factor analysis. This chapter describes the data sets used and the main statistical approaches employed: factor analysis for exploring the dimensions of social capital, and a multilevel regression analysis for testing the hypothesized relationships. The chapter excludes the description of specific variables used in the analyses, as they are explained in Chapter 4. The approach used for treating missing variables and the centering of variables for use in the multilevel modelling is also explained in this chapter.

This chapter is organized as follows: Sections 3.1 presents the philosophical stance, sections 3.2 and 3.3 present the two survey datasets, Section 3.4 presents the missing data and treatment, Section 3.5 presents the statistical approach used in the thesis, and Section 3.6 presents the overview of the studies and the methodology used in this thesis.

3.1 Philosophical Stance

The philosophical underpinning of the methodology adopted in this thesis is epistemological view of objectivism. Epistemology refers to the philosophy of knowledge, which is concerned about the way reality is known and the relationship between the knower (research participant) and would be knower (the researcher)
Epistemology of objectivism is the underpinning philosophy of the positivist stance, which assumes that knowledge or reality exist and human beings discover it (Crotty, 1998). Positivists hold a view that the knowledge is directly measurable and observable, and verified mainly by separating the phenomena into different components and examining them (Krauss, 2005). Positivists believe existence of knowledge independent of researchers and the goal of knowledge is simply to describe the phenomena experienced (Krauss, 2005).

The dissatisfaction with the positivists’ view of existence of objective understandable reality gave rise to emergence of post positivism (Ponterotto, 2005). Post positivists acknowledge that the reality is “intractable” and one can never truly comprehend the reality, so human intellectual mechanism can only imperfectly understand the “true” reality (Ponterotto, 2005). Although there are differences, both perspectives aim to explain the reality through prediction and control of phenomena, and accentuate that phenomena examined, identified and generalised are linked with cause and effects (Ponterotto, 2005). Both positivists and post positivists paradigms emphasise on objective and detached role of researcher. These paradigms serve as theoretical lens of quantitative research, which employs surveys and statistical analysis to test hypotheses (Crotty, 1998; Ponterotto, 2005).

This thesis relies on the philosophical stance of post positivism as it aims to enrich the understanding of operation of social capital in a developing country context through exploring the dimensions of social capital as defined by scholars elsewhere. It is also aimed at furthering knowledge of relationships between social status and social capital, and the influence of social capital on social outcomes such as self-rated happiness and health status. In this sense, the thesis believes that the
knowledge exists and the research further expands it. As the constructs used in this thesis are not directly measurable, they are only imperfect measures of the reality, thus it follows the conceptual framework, which is based on approximate measures of reality. The approach employed in this thesis is guided by the purpose of inquiry, which justifies the use of quantitative approach founded on positivist paradigm. This thesis aimed at expanding the existing knowledge and not at creating deeper understanding of the reality by immersing in the context. Therefore, the constructivist’s epistemology which views that the reality is not independent of researchers and the knowers is not suitable for the current research.

Assumptions of quantitative approach of research such as reality can be investigated breaking them in small portions, single unitary reality and measuring reality with fix set of questions are considered as some of its limitations (Krauss, 2005). However, the research approach used is driven by the nature of the inquiry (Crotty, 1998) and research questions that are quantitative in nature must be addressed through using quantitative method.

This thesis employs a secondary data with large sample size, which is a national database. It is seen as an advantage from the perspective of having a representative sampling. There are consequences because of the limitations in the measures, which are discussed in relevant sections in the remaining chapters (chapter 4 section 4.3, chapter 5 subsection 5.6.4 and chapter 6 subsection 6.6.4.

Because of measurement problems, an alternative approach of using locally developed scale could have pursued but at the cost of not having a representative sample. Between the choice of a nationally representative sample, and a newly developed local measure, the choice was made to persist with the representative
sample. The data gathering process and the statistical analysis used are explained in the following sections.

3.2 Secondary data: Bhutan Living Standard Survey

The main data set used in the study is the Bhutan Living Standard Survey (BLSS) 2012, which includes a module on social capital measurement. The BLSS is an initiative by the government of Bhutan, administered by the National Statistical Bureau (NSB), to collect comprehensive socioeconomic information for updating the poverty profile and monitoring poverty related indicators (NSB, 2013). The survey is repeated every four to five years. The BLSS, 2012 is the third survey, and it uses the method adopted by the World Bank’s Living Standards Measurement Study as in the previous rounds. The data are not publically available: permission for use and access was provided from the National Statistical Bureau of Bhutan.

3.2.1. Approach to sample selection in BLSS

The survey used random stratified and cluster based sampling approaches. The survey covered 20 administrative districts and 205 (gewog) administration blocks, which are further grouped into clusters of households forming neighbourhoods known as chiwogs. The chiwog represents level 2 (context-level) in the analyses, with one individual respondent in a household (the household head) employed as the level 1 (individual-level). The selection of sample households for the survey was based on different sampling frames for the rural and urban areas. Household listings at the chiwog levels were used in constructing the sampling frame of primary sampling units for rural areas, while urban block counts and household listings in the most densely populated urban areas were the basis for the sampling frame of primary sampling units for urban areas (NSB, 2013). Neighbourhoods (chiwogs) with fewer
than 10 households were combined with adjacent neighbourhoods in both rural and urban areas (NSB, 2013).

The primary sampling units were selected in proportion to size, and households in each primary sampling unit were drawn randomly to ensure that the selection probability remained constant within and cross the urban or rural areas. The survey covered 8968 households clustered into 842 chiwogs. The number of households sampled in a neighbourhood ranged widely between 1 to 112 households.

3.2.2. Approach to data collection

The data were collected using a face to face interview. The field survey took place from March to May 2012, except for one gewog, which was inaccessible during these months due to weather conditions. For this particular gewog, the field survey was conducted in August 2012. A total of 142 fields operators, including enumerators and supervisors were employed for the survey. The overall response rate was 93%, with rural areas having a slightly higher response rate than urban areas. The households were treated as unresponsive after three revisits to contact an adult member (NSB, 2013).

3.2.3. Respondents

All members of the family were asked the main survey questions. However, the questions on social capital were answered by only the head of the households (60%) or their representative in their absence (40%), and not by all individuals in the households. A total of 8,968 households responded to the survey. Forty-eight percent of the respondents were from rural areas. Respondents were aged from 15 to 103 years, with the mean age of 44. Seventy-three percent of the respondents were male and 27% were female. The mean education level of respondents was five years of education and 82% of respondents were married.
3.2.4. Overview of data collected in BLSS

The survey gathered data on demographic characteristics of household members, household assets, credit and income, remittances, housing, access to public facilities and services, education, employment, health of household members, process of commodity, and household consumption expenditure. In addition, a separate module for measuring social capital, questions on happiness, and self-rated economic status were also included in the survey (NSB, 2013). The social capital module is explained next.

Social capital

This was the first survey specifically attempting to measure social capital in the country, though other surveys\(^1\) (e.g. GNH, 2010) have also covered certain elements of social capital. The social capital module uses the World Bank’s Social Capital Integrated Questionnaire (SC-IQ). The SC-IQ was developed mainly to provide a core set of questions for generating quantitative data with a focus on applications in developing countries as part of a larger household survey, such as the Living Standards Measurement Survey (Grootaert et al., 2003). The instrument was designed based on extensive input from a panel of experts and the lessons learned from previous social capital surveys conducted in various countries and several studies sponsored under the social capital initiative of the World Bank. The survey was pre-tested in Nigeria and Albania (Grootaert et al., 2003).

The survey instrument captures the multi-dimensional nature of social capital as perceived by Putnam (2000), where group membership, networks, norms, and

\(^1\) GNH survey was analysed for comparison in this study
trust form important elements of social capital (Grootaert et al., 2003). The original survey instrument of the World Bank poses questions that range across six dimensions: (1) groups and networks; (2) trust and solidarity; (3) collective action and cooperation; (4) information and communication; (5) social cohesion, inclusion and empowerment; and (6) political action. However, the Social Capital Module of Bhutan consists of 38 questions covering the first three dimensions of the original survey fully and a few relevant questions from the latter three. The selection of questions was based on relevance and resource availability (L. Dorji et al., 2013).

Although the tools used in the survey in Bhutan capture the information on the core elements of social capital, some important information may have been left out, as it selects the questions from three dimensions mentioned above and leaves out most questions from the latter three dimensions. For example, there are some relevant questions that ask for the characteristics of individuals, including social status, which could have benefitted the current study.

In using the survey instrument in different social contexts, Grootaert et al. (2003) suggested a careful examination of application to the place and investment of appropriate time and resource in selecting questions and adapting them to the context. For example, investing appropriate time in adapting questions to Bhutan’s context by using some daily activities of people could have captured the information on norms of reciprocity better than the one that existed in the data. Similarly, the questions on informal networks could adequately capture traditional forms of social capital that are a common feature of Bhutanese communities. These might form the basis of some limitations in the current data.
3.3 Secondary data: Gross National Happiness Survey

Primarily for the purpose of testing the robustness of findings, a secondary data set was analysed, the Gross National Happiness Survey (GNHS) 2010, another population based survey of the country.

The GNHS, 2010 was conducted by the Centre for Bhutan Studies and GNH Research to develop GNH indicators. The survey was developed based on the two rounds of previous surveys, a pilot survey in the 2006 and the first GNH survey in 2007. The 2010 GNH survey implemented revised questionnaires containing over 750 variables (Ura, Alkire, Zangmo, & Wangdi, 2012). The data contains information on some of the important elements of social capital that are comparable with information in the social capital module of BLSS, 2012.

3.3.1 Approach to sample selection in GNHS

As with the BLSS, the sample selection approach used was random stratified and cluster based sampling. The sampling unit is the household clustered in each enumeration area, the primary selection units in the sampling frame. The survey was conducted nationwide, with a representative sample from stratum (rural and urban), as well as districts. The targeted sample was 8,700, covering all districts and gewogs, but 7,142 respondents completed the survey. These respondents were clustered into 715 neighbourhoods (chiwogs). The number of households in neighbourhoods ranged widely between 1 to 65 households, which differs from the BLSS.

3.3.2 Approach to data collection

The data was collected using face to face interview. The field survey took place from April to December 2010. A total of 55 enumerators in five teams were employed and each team was led by a field supervisor from the Centre for Bhutan Studies (Ura et al., 2012).
3.3.3 Respondents

A total of 7,142 individuals responded to the survey and each individual represented the household. Respondents represent 20 districts and covered both rural and urban areas. Seventy-eight percent of the respondents were from rural areas. Respondents were aged 15 to 98, with a mean age of 41 years. Forty-eight percent of the respondents were male and 52% were female. The mean education level of respondents was three years of education and 80% of respondents were married. The questions were at an individual level.

3.3.4 Overview of data collected in the GNHS

The survey includes 33 indicators for the nine domains of GNH, which were constructed using 124 variables. The nine domains measuring GNH represent: 1) psychological wellbeing, 2) health, 3) education, 4) culture, 5) time use, 6) good governance, 7) community vitality, 8) ecological diversity and resilience, and 9) living standards. The survey also gathered information on demographic characteristics of respondents and self-rated economic status. Out of this extensive information in the survey, the current study analysed those indicators relevant to social capital measures, which are mostly from measures of community vitality. The selected indicators of social capital were comparable to the ones from the BLSS, 2012 and in the purview of Putnam’s (2000) and Putnam et al.’s (1993) perspective of social capital elements. These indicators are explained in detail in Chapter 4.

Table 3-1 shows the number of neighbourhoods (chiwogs) and respondents in the two surveys.
Table 3-1 Neighbourhoods and Respondents in the two Surveys

<table>
<thead>
<tr>
<th></th>
<th>BLSS</th>
<th>GNHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>Bhutan</td>
<td>Bhutan</td>
</tr>
<tr>
<td>District</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Gewog</td>
<td>205</td>
<td>205</td>
</tr>
<tr>
<td>Chiwog</td>
<td>752</td>
<td>842</td>
</tr>
<tr>
<td>Respondents</td>
<td>7142</td>
<td>8968</td>
</tr>
<tr>
<td>Minimum age</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

3.4 Data cleaning

The outliers in the variables used in the analyses, distribution of the data, and missing data were examined prior to conducting the analysis. Missing data and the treatment of it are explained in this chapter, while the outliers and the distribution of data in each variable are explained in Chapter 4.

3.4.1 Missing data

Missing data was observed in both data sets. GNH data had widespread missing cases, while BLSS had fewer cases. There were 739 cases with missing data in the variables used for the analysis from GNH data, accounting for 10% of the respondents. Data were missing mainly from the social capital indicators, which had 630 cases of missing data. There were two types of missing data, a) no response (220 cases), and b) respondents who chose a non-substantive category of response, for example ‘don’t know’ (410 cases). The total missing cases from type (b) formed the major portion (65%) of missing cases. The largest number of missing cases was from the item measuring participation in local festivals and community events, where 152 respondents chose the option ‘no such event in my community’. The two outcomes variables; happiness and self-rated health status had 13 and three missing cases each, and of the demographics variables, age had 16 missing cases, gender had eight cases, relative economic status had 21 cases, and marital status had nine missing cases.
In the BLSS data, there were only three variables used in the analysis that had missing cases, education and relative economic status, and two missing cases were social capital items. Information regarding years of education had 20 missing cases, that is, the respondents chose the option ‘others’, which was ambiguous. For relative economic status, 121 respondents chose the option ‘don’t know’. These respondents were treated as with other non-respondents. A total of 143 cases of 8,968 respondents had missing data.

3.4.2 Treatment of missing data

No missing cases in the datasets were deleted from the analysis in Chapters 5 and 6, however, the missing data were not included in the factor analysis. The majority of cases of missing data on social capital indicators in the GNHS were respondents choosing a non-substantive category, which were not clearly missing by definition, but could not be included as a substantive category of response. Therefore, missing data were imputed on the factor score. In addition, the method used for imputing missing data, multiple imputation was not available for use with factor analysis within Stata; thus, prohibiting the formation of social capital factor scores based on missing data imputed at the item level. Therefore, missing data were imputed after the formation of the factor score.

Missing cases were treated with multiple imputation methods (Stata version 13), using the multivariate normal imputation method. While imputing missing cases, it is important to choose a method that is suitable for the pattern of missing cases observed in the data. Multivariate normal regressions method accommodates arbitrary missing pattern and observations to be missing at random or completely at random (Royston, 2004). As the missing cases in the current data sets showed an arbitrary pattern, it was necessary to use multivariate normal imputation.
Multivariate normal regression fills in missing values of continuous variables using a data augmentation method, an iterative Markov Chain Monte Carlo, assuming the multivariate normal distribution of the data. The data augmentation process fills in missing values in variables $x_i$ with draws from the conditional posterior distribution of $x_i(m)$ given the observed data and current values of model parameters independent for each observation $i=1\ldots N$ (StataCorp., 1985).

Multiple imputation method has an advantage over other methods of imputation, for example, it is a single imputation method and particularly suitable for dealing with missing values in survey data. For each missing value in the data, the multiple imputation method imputes several $m$ values instead of just one as in a single imputation method. The imputation for each missing value creates $m$ complete data sets and each completed data set is analysed as though the imputed data were the real data obtained from the non-respondents (Rubin, 2004). An important feature of the multiple imputation method is that it is efficient, as imputations are randomly drawn in an attempt to represent the distribution of the data, and provide valid inferences (Rubin, 2004).

The multiple imputation model can be estimated either for only those variables to be used in a specific analysis or for all of the variables in a dataset. An advantage of imputing for a specific set of variables is that it makes it easier to include all relevant variables. The imputation model in this thesis was run for only those variables used in the analysis.

### 3.5 Data analytic approaches

This thesis employed two main quantitative approaches, exploratory factor analysis to identify the dimensions of social capital from the data, and multilevel linear regression for the substantive analysis. The rationales for using these two
approaches are explained next. All analyses were undertaken using Stata version 13.1.

3.5.1 Exploratory factor analysis

The first study of this thesis required identification of the dimensions of social capital based on the indicators from the two data sets. This called for a factor analysis method, which is either a principle component analysis or exploratory factor analysis. The choice of either method should be based on the purpose of the research (Benson & Nasser, 1998). The main goal here was to identify the dimensions of social capital based on the correlations among the indicators as arising from smaller set of latent variables or factors. Exploratory factor analysis (EFA) is used widely used when the goal is to interpret the underlying relationships between measured variables to identify a set of latent constructs (Benson & Nasser, 1998). Therefore, EFA was used to identify the dimensions of social capital using the indicator variables available in the data. Details of the analyses are explained in Chapter 4. The EFA was conducted using Stata program version 13.

3.5.2 Multi-level modelling

Study II and III of this thesis test hypothesized relationships between sets of social status indicators and social capital, and between social capital and two social outcomes respectively. The data was gathered using a multistage stratified sampling approach, which means the data structure was hierarchical with individuals grouped in neighbourhoods. When observations are nested in some cluster, they are correlated due to the influence of common group-level characteristics. With data of a hierarchical nature, each level of hierarchy or nesting can contribute to variability in the outcomes. Ignoring the effects of the higher level groups within the individuals
may lead to incorrect standard error leading to improper interpretation that the regression coefficients are significantly different from zero.

In the presence of such a nested data set, the use of least square regression violates the main assumption that the observations are independent from one another. Using least square regression in such case results in smaller standard errors than there should be, leading to a greater chance of committing a Type I error. Multilevel analysis takes into account the independence violation among individuals in the same cluster and distinguishes between individual and contextual effects (Goldstein, 2003; Luke, 2002). Therefore, the current thesis used multilevel modelling to test the hypotheses.

A multilevel model through partitioning of variance can show how much variance is attributed to the individual-level and group-level effect in explaining the outcome. Therefore, it is an important statistical tool used in the analysis of group effect, which may be geographical or spatial, for example the neighbourhood effects in this thesis. Multilevel modelling is represented by the following equation.

\[ Y_{ij} = \alpha_j + X_{ij}\beta + \epsilon_{ij} \]

Where \( i \) denotes the level-1 unit (eg individuals in this thesis and \( j \) denotes the level-2 (neighbourhoods). The group specific effect \( \alpha_j \) is allowed to vary across level-2 units \( j \).

3.5.3 Centering

Centering is a statistical process particularly important for multilevel modelling (Enders & Tofghi, 2007). A multilevel model allows researchers to examine explanatory variables at different levels of the data hierarchy and centering has an important impact on parameter estimates and the substantive interpretation of those
estimates. Centering transforms a variable, \( X \), by subtracting a meaningful constant, often either a grand mean or a group mean. Grand mean centering expresses scores as an individual’s deviation from the grand mean (that is, the mean of the entire sample) while group mean centering expresses scores as an individual’s deviation from their cluster or group specific mean (Enders, 2013; Enders & Tofighi, 2007).

For multilevel modelling, group mean centering for the level 1 variables is recommended, particularly when the substantive interest involves a level 1 predictor (Enders, 2013; Enders & Tofighi, 2007). It gives unbiased estimates of within cluster regressions. The rationale behind this is the fact that centering within the group removes all between cluster mean differences on the predictor variable and yields a pure estimate of the pooled within cluster, that is level 1, regression coefficients (Enders, 2013; Enders & Tofighi, 2007). The use of group mean centering in the level one predictor implies that an individual’s relative position within a group is an important determinant of his or her behaviour. For instance, individuals’ relative socio-economic status within a neighbourhood can be an important indicator of their status.

In the analysis chapters, continuous variables, mainly education and age, are group mean centered; while dummy coded and categorical variables, relative economic status, gender, marital status, are not centered. Enders and Tofighi (2007) suggested leaving a dummy coded variable in its raw metrics. In Chapter 5, age is used as a categorical variable, mainly to facilitate testing the hypothesis on the effect of different age groups as done in other studies (Christoforou, 2011; Glaeser et al., 2002).

Grand mean centering on the other hand, is used in a situation when the substantive interest is on level 2 variables, the cluster level. Grand mean centering is
the method of choice for assessing the impact of cluster-level variables, controlling for individual level differences on a number of level 1 covariates. As level 2 variables are constant within each cluster, group mean centering is not an option (Enders & Tofighi (2007). It is important that the method of centering should be based strictly on the research question. Level-2 explanatory variables (aggregated social capital at neighbourhood levels) were not centered in this thesis, as they were constant within each cluster. The neighbourhood rural/urban (Level 2) variable was a categorical, thus it was not centered.

3.6 Overview

A summary of the different constructs and methodology used in the three studies in this thesis is depicted in Table 3-2. The table presents the main constructs used, their role, such as dependent, independent, moderator, and the key information on the methods, namely the research approach, research strategy, and data analysis.
### Table 3-2 Summary of Constructs and Methods Used

<table>
<thead>
<tr>
<th>Construct</th>
<th>Study I</th>
<th>Study II</th>
<th>Study III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social capital indicators from the two data sets</td>
<td>Factor variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual-level social capital: social trust, network, sociability, civic engagement</td>
<td>Result</td>
<td>Outcome variables</td>
<td>Explanatory variable (level 1)</td>
</tr>
<tr>
<td>Neighbourhood-level social capital: aggregated social capital at the neighbourhood level</td>
<td></td>
<td></td>
<td>Explanatory &amp; moderator (level 2)</td>
</tr>
<tr>
<td>Rural/urban neighbourhood</td>
<td>Explanatory variable (level 2)</td>
<td>Explanatory variable (level 2)</td>
<td></td>
</tr>
<tr>
<td>Happiness</td>
<td></td>
<td></td>
<td>Outcome variable (level 1)</td>
</tr>
<tr>
<td>Health status</td>
<td></td>
<td></td>
<td>Outcome variable (level 1)</td>
</tr>
<tr>
<td>Individual-level characteristics: social status indicators</td>
<td>Explanatory variable (level 1)</td>
<td>Explanatory variable (level 1)</td>
<td></td>
</tr>
<tr>
<td>Data analysis</td>
<td>Exploratory factor analysis</td>
<td>Multilevel modelling</td>
<td>Multilevel modelling</td>
</tr>
<tr>
<td>Missing value treatment</td>
<td>Multivariate normal imputation multiple imputation</td>
<td>Multivariate normal imputation multiple imputation</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 4: Identifying the dimensions of Social Capital in Bhutan

4.1 Introduction

This chapter explores the social capital indicators in the two data sets used to identify the dimensions of social capital prevailing in Bhutan. The key scholars of social capital (Bourdieu, 1986; Coleman, 1988; Putnam, et al., 1993; Putnam, 2000) conceived it as comprising of different elements representing social networks, social trust, and norms of reciprocity. Thus, it is a multi-dimensional construct. This multidimensional concept is explicitly discussed and operationalized, particularly by Putnam (2000, 2001) whose work has served as a foundation for many empirical studies. Despite this conceptual agreement among the scholars, there are no reliable universally accepted measures for different elements of social capital (Putnam, 2001). In the absence of a ‘gold standard tool’ to measure social capital, the empirical studies have used diverse and varied indicators of the construct (T. Agampodi, S. Agampodi, Glozier, & Siribaddana, 2015).

Social capital is measured using proximate indicators when direct measures are not available. While empirical studies have acknowledged that social capital is multidimensional, some studies use a single dimension, for example, social trust is commonly used as a single indicator of social capital. Other studies have constructed a single composite index (Bjørnskov, 2003; Hawes et al., 2012; Krishna, 2004; Putnam, 2000) to represent social capital based on the correlation between multiple measures, and still others have represented it as multidimensional (Bjørnskov, 2006; Elgar et al. 2011; Kaasa & Parts, 2008; Van Oorschot et al. 2006). The next section examines the relevant past studies.
4.1.1 Single index measure of social capital

In his seminal work, Putnam (2000) measured the dimensions of social capital in the US: social trust, network, volunteerism, and civic engagement. He constructed a state-level social capital index by factoring 14 items to develop a single index, which he used as a determinant of numerous social outcomes. The social capital items were highly correlated, with a correlation coefficient ranging from 0.6 to 0.9 (Putnam, 2000 p.291). This unitary index of social capital supports the argument that networks, trust, and norms of reciprocity (represented with volunteerism and civic engagement) work interactively and are mutually reinforcing (Putnam, 1995, 2000; Putnam et al., 1993). Thus, according to Putnam (2000) different dimensions of social capital are so highly associated that they can be represented as one index.

A single index was also used by Hawes et al. (2012) following Putnam (2000). They measured social capital in the US as community organizational life, engagement in public affairs, and community volunteerism and constructed a single index comparable to Putnam’s social capital index. This study factored 22 items using survey data. Their index retained the first factor and the correlations between the items ranged from a low coefficient of 0.2 to a high of 0.8 with an average of 0.6. Their single index was found to be highly comparable with Putnam’s index.

Others researchers have also operationalized social capital as a single index, mainly based on factor scores of items using principle component analysis. For example, Bjørnskov (2003) used the World Value Survey to measure social capital as an index comprising general trust, civic participation, and perceived corruption. These items loaded highly with a factor loading of 0.82, 0.75 and 0.88 respectively. Krishna (2004) also represented social capital with single index in north Indian villages. It was a locally-relevant scale that included six dimensions: membership in
a labour exchange group, dealing with crop disease, dealing with natural disaster, trust, solidarity, and reciprocity. The author argued that these activities were aspects of social relations that assisted mutually beneficial collective action within the context of farming villages in India. These six elements were highly correlated and loaded highly on a single common factor. The scores on the six items were aggregated at the village level to represent an aggregated single social capital index.

The use of a single social capital index has been criticized by other researchers who have argued that the elements of social capital are independent. These studies rely on two main pieces of evidence: 1) outcomes of factor analysis of indicators of social capital suggesting independent factors, and 2) differentiated empirical relationships between the dimensions of social capital and the determinants and outcomes. For example, Bjørnskov (2006) argued that Putnam’s claim that social capital can be represented with single index was not supported in the cross-country data of the World Value Survey. Using principle component analysis of social capital indicators, he instead found that three dimensions of social capital comprising of social trust, social norms, and associational activity were all separate dimensions. Moreover, he claimed that the trust component alone triggered the effect on governance and life satisfaction. Similarly, Claibourn and Martin (2000) found no evidence supporting the hypothesis that interpersonal trust encourages group membership. Their study found limited evidence to support that belonging to a group makes individuals more trusting.

Other studies have also suggested the consequences of different features of social capital are dissimilar and cannot be treated as one. For example, Knack and Keeper (1997) found that trust and civic cooperation were significantly related to economic growth and investment, while associational activity measures were not.
Beugelsdijk et al. (2004) and Whiteley (2000) confirmed that trust leads to higher growth, but neither found a relationship between growth and voluntary associational activity. Similarly, Bjornskov (2004) found that social trust was highly associated with lower corruption, but social norms were unrelated to corruption, and Knack (2002) found that trust led to better governance, while associational activity did not. These studies suggest that various elements of social capital operate in different ways, and therefore need to be represented as separate dimensions, rather than being collapsed into a single index.

4.1.2 Multi-dimensional measures of social capital

Recent studies investigating social capital considered the multiple dimensions of the construct separately. These studies can be classified in three groups. The first looks at the influence of social capital on self-rated health and life satisfaction, the second group focusses on determinants of social capital, while the third is concerned with measuring social capital in developing countries.

The relationship between social capital and self-rated health and life satisfaction was investigated in 50 countries by Elgar et al. (2011). They represented four dimensions of social capital: trust, group membership, attitude towards civic duty (e.g., cheating on taxes, accepting bribes, etc.), and linking (e.g., confidence in police, justice system, and in the government) separately, and found unique main effects of all dimensions at the individual level on two social outcomes. Similarly, Yip et al. (2007) used two dimensions: organizational membership and trust, in studying the relationship between social capital and health and wellbeing. Their findings indicated that trust at both the individual and contextual level (i.e. village level) was associated with subjective well-being and psychological health in rural
China, while membership was not. These studies suggest that it is important to consider each dimension separately.

Several cross-country studies from Europe examined individual characteristics and the features of the place as determinants of social capital. Kaasa and Parts (2008) considered five dimensions of social capital separately. They found that determinants such as age, gender, and socio-economic status had differing influence on different dimensions. Further, studies found that dimensions of social capital were weakly correlated and supported the idea that they were distinct, and also found that determinants had differing effects on these dimensions (Halman & Luijkkx, 2006; Van Oorschot & Arts, 2005; Van Oorschot et al., 2006).

Some studies focussed on determining the suitability of particular dimensions for measuring social capital in developing countries, for example, Narayan and Cassidy (2001) emphasized that multi-dimensional measures of social capital were particularly relevant for developing countries. Their recommended dimensions included generalized norms, togetherness, every day sociability, neighbour connections, volunteerism, and trust. Similarly, the integrated social capital questionnaires of the World Bank suggested a six dimensional measurement of social capital: a) groups and networks, b) trust and solidarity, c) collective action and cooperation, d) information and communication, e) social cohesion and inclusion, and f) empowerment and political action (Grootaert, et al., 2003). This integrated questionnaire provided a set of pretested survey questions on various dimensions of social capital as part of a larger household survey, such as a living standard measurement. The data used in this thesis was collected using a version of the integrated questionnaire of Grootaert et al. (2003).

Summary
The key scholars (Bourdieu, 1986; Coleman, 1988; Putnam et al., 1993; Putnam, 2000) conceived social capital as a multidimensional construct comprising of social networks, social trust, and norms of reciprocity. The review of empirical literature suggests that although few researchers have used a single composite index to represent social capital, multi-dimensional aspects of social capital need to be represented separately to fully understand their determinants and influence on different outcomes. Different items measuring dimensions of social capital are not necessarily sufficiently correlated to allow for aggregation into one index, as in the case of Putnam (2000). This may suggest that various dimensions of social capital operate differently.

Based on the multidimensional perspective of social capital of the key theorists and the evidence across many countries, this study argues that multi-dimensional measures are necessary for examining social capital in Bhutan.

The BLSS data in the current study used the instrument based on the integrated questionnaire of Grootaert et al. (2003). However, it is not known whether dimensions of social capital in the data are mutually reinforcing, as Putnam (2000) has argued. It is important to first examine how correlated the different dimensions of social capital are, in the case of Bhutan. Krishna (2004) argued that operation of social capital differs depending on culture and norms of a specific context. Social norms in practice shape people’s behaviour, which influences their interrelationships, thus, how social capital operates in Bhutan may be different from other countries where it has been examined. Therefore, this study explores whether social capital indicators in Bhutan result in distinct dimensions. The research question in this chapter is: What dimensions of social capital can be identified in Bhutan?
This chapter is organized as follows: Section 4.2 describes the social capital indicators from the survey, Section 4.3 presents the inter-correlation of social capital indicators, Section 4.4 discusses the exploratory factor analysis in determining the dimensions of social capital and Section 4.5 provides the discussion.

4.2 Defining social capital indicators from the survey

Social capital can be reasonably represented by three dimensions; social trust, social networks or group membership, and social norms (Putnam et al., 1993; Putnam, 2000). These dimensions are also used by many empirical studies as the review suggested. The social capital indicators that match these three dimensions in two survey instruments, the BLSS, 2012 and the GNHS, 2010, are identified in this study. Fourteen indicators from the BLSS and thirteen from the GNHS were identified to test whether the dimensions that Putnam (2000) identified emerged from the data. These indicators are discussed in the next section, along with an explanation of the coding. Table 4.1 below depicts the dimensions of social capital and the indicators identified from two surveys to match these dimensions.

Table 4.1 Dimensions of Social Capital and Indicators

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Indicators (BLSS)</th>
<th>Indicators (GNH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network or group membership</td>
<td>i) Group membership; ii) close friend; iii) financial support; iv) Emergency support; v) Assistance given vi) Sociality I vii) Sociability II; viii) Sociability III; ix) General trust; x) Specific trust</td>
<td>i) Friendship score I; ii) Friendship score II; Friendship score III; iii) Friendship score IV; iv) Sociability I; v) Sociability II; vi) General trust vii) Specific trust</td>
</tr>
<tr>
<td>Social trust</td>
<td>xii) Community contribution I; xii) Community contribution II; xiii) Time contribution, and iv) Closeness</td>
<td>viii) Community event; ix) Public meeting; x) Local election; xi) Voluntary. Belongingness; and xii) Voluntary.</td>
</tr>
</tbody>
</table>

However, the outcome of the factor analysis of the indicators in the current study suggested four dimensions of social capital rather than the three mentioned
above. For both data sets, the informal sociability indicators did not load onto social networks, unlike Putnam’s work. Informal sociability formed a separate factor. This is consistent with some other studies (Kaasa & Parts, 2008; Narayan & Cassidy, 2001). In the following sections, the indicators are described, and the factor analysis procedure and results are explained.

### 4.2.1 Measures used from the BLSS

#### Social networks

The survey asked for information on group memberships, four questions on networks of friends and three questions on sociability, all of which represent the dimension of social network (or group members). The questions, particularly about network of friends, assessed the extent of these networks and the support they provide. Each indicator is explained below.

a) Group membership: The survey recorded the number of groups to which a household belonged, as well as the households that did not belong to any civic group. The survey defines the group as formal organized or informal groups of people who regularly get together to discuss collective action. Although group membership is an important element of social capital according to Putnam, the data in Bhutan has a limitation on this variable. Out of 8,968 households, only 636 (7%) of the total households in the sample reported membership in civic groups. Using this information, a simple binary variable was generated with value of 1 for membership in at least one group and 0 for households, which were members of no groups. The indicator of group membership was ultimately dropped from the analysis due to the low factor loading. Although associations of different types exist in Bhutan, they are mainly localized and membership is not widespread. With more developmental activities taking place, forming associations and cooperatives among citizens,
particularly in the rural areas, is encouraged by the government. However, these associations are relatively new and may not have a widespread impact. For this reason, informal social networks, including networks of friends and their support system, and other informal sociability may be more meaningful indicators of social capital in Bhutan.

b) Close friendship score: this was measured by the number of friends that a respondent felt at ease with, could talk about private matters with, or call on for help in times of need. The survey recorded the number of close friends from ‘zero to 99’ that a respondent had. The distribution of data was heavily skewed. This might indicate some of the responses may be invalid, as there were individuals who reported having as many as 99 close friends. The majority of respondents reported having five close friends, which is generally expected. However, in a small rural communities of Bhutan, it may well be that the number of close friends could be higher. For this reason, the number of close friends up to 10 was considered reasonable. Observations with scores greater than 10 were collapsed together and given the score of 11 i.e., winsorizing the outliers. The observations greater than 10 constituted around 5% of total respondents. The distribution of data before and after the adjustment is presented in Figure 4-1(a) & (b) below.
c) Financial support score: This measured the number of people beyond one’s household who a respondent thought could help him or her with a small amount of money in an emergency. The amount was specified as equivalent to the weekly household expenses in rural areas or a week’s urban wage. The response for this question was recorded on a four point scale with 1 for no-one and 4 for five or more people. The original coding of the data was kept.

d) Emergency support score: This was measured by the number of people who a respondent thought were available to help and support during death of a member of family. In Bhutan, death in a household is an event during which family members and the network of friends generally come together to assist. The survey recorded the response on four point scale with a value of 1 for no one and 4 for five or more people. The original coding of the data was retained.

e) Assistance provided score: This measured the number of people with a personal problem that respondents helped in the last 12 months. The responses were recorded between zero to 99 people. The distribution of data was heavily skewed with 60% zero responses as shown in Figure 4-2 below. The majority of the remaining responses fell between one to 10 people helped in the past 12 months. Based on this, the number of people helped in the past one year of up to 10 is considered reasonable. As the respondents who reported helping more than 10 people were few, constituting only 2% of the total, they were collapsed and given the score 11. This indicator was dropped from the analysis later due to a low factor loading.
Informal networks, such as engagement in more spontaneous and flexible activities, including spending time with friends, informal conversation over coffee, or “bowling in a league” (Putnam, 1995, 2000) play an important role in sustaining social networks for the creation of social capital. This informal sociability occurs far more frequently than formal networks and provides crucial support in everyday life. Social capital measures in the BLSS included questions on sociability among people in addition to the above four measures of the extent of a respondent’s network of friends. Three items in the survey measured social interactions that occurred in the past month, these were:

f) *Sociability I*: the number of times a respondent met people in public, either to talk or share food and drinks.

g) *Sociability II*: the number of times people visited the respondent at his or her house;

h) *Sociability III*: the number of times respondents visited others at their homes.

The responses to these questions were recorded between zero to 99 times of interactions in the last month. The distribution of the data was highly skewed with
44% of zero responses and a majority of the remaining responses falling within one to five interactions. Therefore, the original variables were transformed by considering up to five social interactions in the past month as a reasonable level. Respondents reporting greater than five interactions in the last month were grouped together and given the score of 6. The distribution of the data before and after transformation is presented in Figure 4-3 a & b below.

Figure 4-3 a,b): Distribution of Sociability I, II and III (before and after transformation)
Social trust

Trust is categorised as ‘thick’ and ‘thin’ to distinguish between the trust in persons who are intimate, and trusting a stranger by both Putnam et al. (1993) and Putnam (2000). Trust rooted in personal relations that are strong, recurrent, and nested in close networks are referred to as ‘thick trust’, while trust in general others, such as a new acquaintance, or trust implicitly based on some conditions such as shared social networks and norms of reciprocity is called ‘thin trust’.

Generally, in a small community that is closely knit, people interact on daily basis, norms of reciprocity and honesty operate very strongly and the trust they place on each other is ‘thick trust’. On the other hand, in a more complex society, people do not know and interact with each other, but still require some sort of trust for the community to function, the concept of ‘thick trust’ may not operate. In such instances ‘thin trust’ becomes useful, and Putnam (2000) referred to it as ‘general trust’ and claimed that it is useful as it extends the trust radius beyond our personal contacts. Thin trust is represented as general trust and thick trust as specific trust in this thesis. The BLSS has both general and specific questions on trust.

Two questions in the BLSS relates to social trust. The first indicator represents general trust while the latter represents specific trust. Each indicator and the coding is explained below:

a) General trust - measured whether the people in the neighbourhood trusted each other in general. The question was, ‘in general, do you agree or disagree that most people who live in this neighbourhood can be trusted?’ The responses were scored on a five point scale; 1) agree strongly; 2) agree somewhat; 3) neither agree nor disagree 4) Disagree somewhat; 5) disagree strongly. This variable was recoded
by reversing the scale order with value 1 representing disagree strongly to the statement that “most people who live in this neighbourhood can be trusted” and value 5 for agree strongly.

b. Specific trust— measured if respondents could count on their neighbours to take care of their children if they had to be away. This was an ordered categorical variable with the value 1 for definitely not and the value 4 for definitely.

**Attitude to civic activities**

Norms of reciprocity is indicated by people’s willingness to volunteer and contribute to a community activity. According to Putnam (2000), volunteering, philanthropy, altruism, and even spontaneous helping, giving time, and money indicate civic engagement. He emphasized giving time and claimed that it is more meaningful than donating money in terms of social capital generation. Putnam (2000) incorporated measures for contribution to community projects, volunteering, and the number of non-profit organizations to represent norms of reciprocity in his composite index of social capital in the United States. Many other empirical studies have also measured volunteerism and community contribution as elements of social capital (see, Grootaert et al., 2003; Hawes et al., 2012; Onyx & Bullen, 2000).

In the BLSS, there are number of questions asking about participation in community activity. Four indicators from the survey were used to represent the dimension norms of reciprocity, they are explained below.

a) *Community contribution I*: measured whether respondents had worked with others for the community. This was coded as a dichotomous variable with the value 1 representing having worked with others for community, the value 0 for those who did not participate.
b) Community contribution II: measured the number of days that a respondent had contributed to a community activity in the previous year. The responses in the survey were recorded as zero to 99 days of contribution to community activity in the last year. The distribution of the original data was heavily skewed, it had a large number of observations equal to zero. Responses of more than 30 days of contribution were few, constituting only 2% of the total respondents. Therefore, the responses of greater than 30 days were collapsed and given a score of 31. The distribution of the data before and after the transformation is shown in Figure 4-4.

![Figure 4-4 a, b): Distribution of Number of Days that People Contributed to Community Activity in the Previous Year](image)

Figure 4-4 a, b): Distribution of Number of Days that People Contributed to Community Activity in the Previous Year

c) Time contribution: measured the willingness of respondents to contribute their time to a community project if it benefited the larger community more than themselves. This was coded as a binary variable with a value 0 for no contribution and 1 for a contribution of their time. This indicator was dropped after factor analysis due to a low factor loading.

c) Closeness: measured the feeling of togetherness or closeness in the neighbourhood. The survey recorded the responses on a five point scale, with the
value 1 representing very distant and the 5 for very close. However, this indicator was dropped from analysis due to a low factor loading.

The winsorizing outliers in some of the variables presented above did not have a noticeable impact on the results. The correlations among the indicators of social capital before and after transformation did not vary substantively.

The description of the variables, means, standard deviations and correlations of all social capital indicators are presented in Table 4-2(a).

### 4.2.2 Measures based on the GNHS

The following sections explain the social capital indicators identified in the GNH survey, keeping the meaning close to those identified in the BLSS.
### Table 4-2 (a) Mean, Standard Deviation and Correlation (BLSS)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General trust</td>
<td>4.12</td>
<td>1.13</td>
<td>8968</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Specific trust</td>
<td>2.84</td>
<td>1.20</td>
<td>8968</td>
<td>.39***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Close friend</td>
<td>3.61</td>
<td>2.86</td>
<td>8968</td>
<td>.15***</td>
<td>.13***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Financial support</td>
<td>2.68</td>
<td>.96</td>
<td>8968</td>
<td>.11***</td>
<td>.10***</td>
<td>.40***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Emergency support</td>
<td>3.40</td>
<td>.89</td>
<td>8968</td>
<td>.05***</td>
<td>.04***</td>
<td>.14***</td>
<td>.29***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Sociability I</td>
<td>1.73</td>
<td>2.0</td>
<td>8968</td>
<td>-.02***</td>
<td>-.00</td>
<td>.09***</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sociability II</td>
<td>2.87</td>
<td>2.1</td>
<td>8968</td>
<td>-.04***</td>
<td>-.04***</td>
<td>.14***</td>
<td>.17***</td>
<td>.07***</td>
<td>.30***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Sociability III</td>
<td>3.29</td>
<td>2.1</td>
<td>8968</td>
<td>.02</td>
<td>.04***</td>
<td>.15***</td>
<td>.17***</td>
<td>.06***</td>
<td>.29***</td>
<td>.63***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Community(a)</td>
<td>.19</td>
<td>.39</td>
<td>8968</td>
<td>-.01</td>
<td>.01</td>
<td>.08***</td>
<td>.08***</td>
<td>.06***</td>
<td>.08***</td>
<td>.15***</td>
<td>.15***</td>
<td>.58***</td>
</tr>
<tr>
<td>10. Community(b)</td>
<td>2.59</td>
<td>6.5</td>
<td>8968</td>
<td>.01</td>
<td>.01</td>
<td>.08***</td>
<td>.07***</td>
<td>.04***</td>
<td>.06***</td>
<td>.16***</td>
<td>.16***</td>
<td>.58***</td>
</tr>
</tbody>
</table>

Note: Community (a) = community activity I, Community (b) = community activity II

### Table 4-2 (b) Mean, Standard Deviation and Correlation (GNHS)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General trust</td>
<td>3.10</td>
<td>.74</td>
<td>7084</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Specific trust</td>
<td>3.31</td>
<td>.75</td>
<td>7126</td>
<td>.56***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Friendship I</td>
<td>4.36</td>
<td>.98</td>
<td>7121</td>
<td>.11***</td>
<td>.13***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Friendship II</td>
<td>2.82</td>
<td>1.2</td>
<td>7054</td>
<td>.11***</td>
<td>.09***</td>
<td>.32***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Friendship III</td>
<td>3.32</td>
<td>1.3</td>
<td>7029</td>
<td>.10***</td>
<td>.10***</td>
<td>.37***</td>
<td>.42***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Friendship IV</td>
<td>4.73</td>
<td>.74</td>
<td>7110</td>
<td>.04***</td>
<td>.07***</td>
<td>.32***</td>
<td>.14***</td>
<td>.20***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sociability I</td>
<td>2.68</td>
<td>1.07</td>
<td>7110</td>
<td>.03***</td>
<td>.06***</td>
<td>.01</td>
<td>.07***</td>
<td>.04***</td>
<td>.04***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Sociability II</td>
<td>2.28</td>
<td>1.06</td>
<td>7120</td>
<td>.00</td>
<td>.01</td>
<td>.04***</td>
<td>.04***</td>
<td>.05***</td>
<td>.04***</td>
<td>.42***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Community event</td>
<td>2.48</td>
<td>.59</td>
<td>6987</td>
<td>.12***</td>
<td>.19***</td>
<td>.11***</td>
<td>.02***</td>
<td>.12***</td>
<td>.09***</td>
<td>.01</td>
<td>.03***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Public meeting</td>
<td>.64</td>
<td>.48</td>
<td>7111</td>
<td>.13***</td>
<td>.19***</td>
<td>.08***</td>
<td>.00</td>
<td>.06***</td>
<td>.05***</td>
<td>.01</td>
<td>.03***</td>
<td>.28***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Election</td>
<td>.84</td>
<td>.37</td>
<td>7100</td>
<td>.04***</td>
<td>.08***</td>
<td>.07***</td>
<td>.00</td>
<td>.05***</td>
<td>.05***</td>
<td>.01</td>
<td>.01</td>
<td>.17***</td>
<td>.25***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Voluntary</td>
<td>.55</td>
<td>.50</td>
<td>7139</td>
<td>.09***</td>
<td>.12***</td>
<td>.06***</td>
<td>.03***</td>
<td>.07***</td>
<td>.01</td>
<td>.04***</td>
<td>.05***</td>
<td>.15***</td>
<td>.26***</td>
<td>.11***</td>
<td>.11***</td>
</tr>
<tr>
<td>13. Belongingness</td>
<td>2.69</td>
<td>.54</td>
<td>7125</td>
<td>.13***</td>
<td>.21***</td>
<td>.06***</td>
<td>.03***</td>
<td>.06***</td>
<td>.06***</td>
<td>.08***</td>
<td>.06***</td>
<td>.23***</td>
<td>.28***</td>
<td>.13***</td>
<td>.11***</td>
</tr>
</tbody>
</table>

Note: *** p<.01, ** = p<.05
**Social networks**

The variables representing social networks were close to those identified in the BLSS. There were four indicators measuring various aspects of networks of friends, which are described below.

a) *Friendship Score I*: measured the number of close friends a respondent could count on when he/she was sick.

b) *Friendship score II*: measured the number of close friends a respondent could count on when he/she had financial problems.

c) *Friendship score III*: measured the number of close friends a respondent could count on when he/she had emotional problems.

d) *Friendship score IV*: measured the number of close friends a respondent could count on when he/she had to attend an important personal events, such as childbirth, funeral, and wedding, etc.

The respondents in the four different measures were scored on a six point scale, 1) having no one, 2)1-2, 3) 3-5, 4) 6-8, 5) >8, and 6) “don’t know”. Responses in the last group were considered as missing, as it could not be used as substantive category. *Friendship score I* had 21(.3%) missing cases with 17 ‘don’t know’ and four missing responses. *Friendship Score II* had 88 (1%) missing cases with 78 ‘don’t know’ and 10 missing responses (1%), *Score III* had 113 (1.6%) missing cases with 67 ‘don’t know’ and 46 missing responses and *Score IV* with 32 (.4%) cases missing with 25 ‘don’t know’ and seven missing responses.

In addition to measures for network of friendships, informal sociability was represented by two variables:
e) Sociability I: measured how often the respondents socialized with their neighbours in the last month.

f) Sociability II: measured how often the respondents socialized with their relatives (i.e., people who did not live with them) in the last month.

The responses were scored on a 5 point scale with scale 1) not in the last month, 2) once a month, 3) a few times a month, 4) a few times per week. 5) ‘don’t know’. The responses in the last group were considered as missing, as it could not be used as substantive category. Sociability score I had 32 (.4%) missing cases with seven ‘don’t know’ responses and 25 missing responses. Sociability II had 22 (.3%) missing cases with 14 ‘don’t know’ and eight missing responses.

Social trust

Trust is represented by two measures:

a) General trust: measured how much the respondents trust Bhutanese people in general.

b) Specific trust: measured how much the respondents trusted their neighbours.

The responses were scored on a four point scale 1) trust none of them, 2) trust a few of them, 3) trust some of them, 4) trust most of them and 5) don’t know. The responses in the last group were considered to be missing, as they were not part of the substantive category. General trust had 58 (.8%) missing cases with 41 ‘don’t know’ and 17 missing responses. Specific trust questions had 16 missing cases with nine ‘don’t know’ and seven missing responses.

Attitude to civic activity

An active participation in community affairs, such as local festivals, public meeting, local election, and volunteering, are some of the indicators of general norms
of reciprocity. These activities also bring people together and are a way to generate social capital. In Putnam’s composite index of social capital, participation in public affairs such as turnout in presidential elections, attending public meetings, and participation in voluntary activities are measured as indicators of social capital. The GNH survey measures people’s participation in public affairs. These are participation in a) community events, b) public meetings, c) the last local leader election, d) providing voluntary help, and e) number of days spent in attending social and cultural activities in a year. These variables are explained in the following sections.

Community event: measured whether respondents took part in community events such as local festivals. The responses were scored in 4 point scales, a) never b) sometimes, c) always, and d) no such event in my community. The responses in the last category were considered as missing as they could not form a substantive category. There were 155 (2%) missing cases with 152 of category (d) and three missing responses.

a) Public meeting score: measured whether respondents had attended any public meeting in the last 12 months. The responses were coded as a dummy with the value 0 for ‘no’ and 1 for ‘yes’. These variables had 31(.4%) missing responses.

b) Election score: The respondents were also asked whether they participated in the last election. The responses were coded as a dummy with the value 0 for ‘no’ and 1 for ‘yes’. These variables had 42 (.6%) missing responses.

c) Volunteering score: measured whether the respondents engaged in any unpaid voluntary help. The responses were coded as a dummy with the value 0 for ‘no’ and 1 for ‘yes’. This variable had three missing responses.
*d) Belongingness score:* measured sense of belonging to one’s local community.

The question was ‘How would you describe your sense of belonging to your local community?’ The responses were recorded on a 4 point scale, 1) weak, 2) somewhat strong, 3) very strong, and 4) don’t know. There were seven responses in the last category and they were considered as missing. This variable had total of 17 (0.2%) cases missing.

The description of the variables, means, standard deviations and correlations of all social capital indicators are presented in 4-2(b).

**4.3 Inter-correlation of social capital indicators**

The inter-correlation of social capital indicators identified from two data sets (BLSS and GNHS) are depicted in Tables 4.2(a) and 4.2(b). The weak correlations among indicators suggest that they are not highly interdependent. These low correlations might suggest that single item indicators be used in the substantive analysis, however, results would be difficult to interpret and compare with other studies. The alternative is to conduct factor analysis of these indicators, which despite low correlations, still provides an interpretable solution. The factor solution provides interpretable dimensions that are comparable to other studies and this thesis chose the latter as the better option.

The data has some limitation although the survey used the instrument (SC-IQ) developed for measuring social capital in developing countries. The weak inter-correlation of indicators is a limitation in the data. This could be because of how the instrument is put to use in a different context. Grootaert et al., (2003 p.10) suggested a three-step process for adaptations to different country contexts: a) a general review to evaluate if all six modules in the SC-IQ are necessary for a given application, b) a detailed review of the questions and the answer codes to see if they are relevant to
the local context, and c) concerning language and need of translation, which is not always easy.

From the BLSS report, there was some information available on selection of relevant modules of questions but it seemed two latter processes had not been operationalized. Questions were not fully adapted to capture the activities that occurred frequently in the environment of respondents. Further, the questions were in English, which suggests that enumerators relied on translation in the interview. This can lead to inconsistencies, particularly when different local dialects are involved, which may lead to ambiguity.

The inter-correlation among the indicators was weak, even for the GNHS, which suggests that it may be an issue across all surveys in Bhutan. However, similar weak correlations between the indicators of social capital were also observed in the study of Ghana and Uganda (Narayan and Cassidy, 2001). This weakness in the data may also suggest that the survey questions may need a complementary qualitative tool to capture social capital.

Despite some limitations of the data, fourteen items of social capital measures from BLSS, 2012 (four were ultimately dropped) and thirteen from the GNHS, 2010 were analysed using exploratory factor analyses. In the next section, the exploratory factor analysis procedures and results are discussed.

**4.4 Exploratory factor analysis (EFA) method**

The purpose of using factor analysis is to interpret the correlation among the variables representing social capital elements in the data. Exploratory factor analysis is the method used when the purpose of the research is to interpret the correlation among variables arising from a set of latent variables or factors (Benson & Nasser, 1998; Costella & Osborne, 2005; Leohlin, 1990; Widaman, 1993). It is correlation
oriented and aims to reproduce the inter-correlation among the original variables from the set of factors and these factors are linear combinations of only the common parts of variables. The conceptual model underlying EFA assumes the variance of each variable can be decomposed into common and unique variance, and the unique variance can be further decomposed into variance specific to each variable and random error variance in each variable (Benson & Nasser, 1998). This distinction of error variance avoids inflating the estimates of variance accounted for in the estimation (Costella & Osborne, 2005). The following linear model represents EFA.

\[ x_{iv} = w_{v1}f_{1i} + w_{v2}f_{2i} + \cdots + w_{vf}f_{fi} + w_{vu}u_{iv} \]

where \( x_{iv} \) is individual \( i \)'s deviation score on variable \( v \), \( w_{v1} \) is the weight of variable \( v \) on factor 1, and \( f_{1i} \) to \( f_{fi} \) are individual’s scores on the \( f \) factors, \( w_{vu} \) is the weight for the unique factor, and \( u_{iv} \) is individual \( i \)'s unique factor score for variable \( v \).

### 4.4.1 Methods of extraction

The most common extraction method of factors for EFA is principle axis factoring, which uses communalities on the diagonal of the correlation matrix. Communalinity is an estimate that represents the amount of variance an observed variable shares across common factors and indicates whether a variable possesses some error. The procedure in EFA is to extract factors from the communalities one at a time, so that each factor extracts maximum variance from the variables and is independent of the previously extracted factors. Factor 1 extracts the maximum variance possible from the input matrix, while factor 2 extracts as much variance as it can from the resulting residualized input matrix and is independent of factor 1. This
procedure continues until there is no meaningful variance left in the residualized input matrix.

As discussed above, there were fourteen variables based on the BLSS data and thirteen variables based on the GNH data to represent the elements of social capital in Bhutan. Exploratory factor analysis was performed using these variables. To test the sample adequacy for the factor analysis, Kaiser-Meyer-Olkin (KMO) measure of sample adequacy was examined in both data sets. The rule of thumb is that the KMO test statistic must be greater than 0.5 (Williams, Brown, & Onsman, 2012). In order to ensure the factor structures were clean, variables that loaded <.3 on any factor were excluded from the process.

An important step in factor analysis is to decide the number of factors to retain. A rule of thumb is eigenvalues of greater than 1, but there are several methods used for this purpose. The current analysis used Cattell’s (1966) scree test and parallel analysis (Thompson & Daniel, 1996). The simultaneous use of multiple decision rules is appropriate and often desirable (Thompson & Daniel, 1996 p.200). The scree test involves examination of a plot of the eigenvalues for breaks or discontinuities. The criterion is to identify the break point at which the scree begins and retain those factors that are higher than the break point (Hayton, Allen, & Scarpello, 2004).

The rationale of parallel analysis is that nontrivial components from real data with a valid underlying factor structure should have larger eigenvalues than parallel components derived from random data having the same sample size and number of variables (Ford, MacCallum, & Tait, 1986; Hayton et al., 2004). Parallel analysis constructs a number of correlation matrices of random variables based on the same sample size and number of variables in the data set. The average eigenvalues from the random correlation matrices are then compared to the eigenvalues from the real
data correlation matrix. Factors corresponding to actual eigenvalues that are greater than the parallel average random eigenvalues are retained. Actual eigenvalues less than or equal to the parallel average random eigenvalues are considered as being due to sampling error (Hayton et al., 2004; Horn, 1965).

The next important step in factor analysis is the choice of rotation method. In order to redistribute the variance more evenly across the factors for easy interpretation, factors are rotated using oblimin rotation. Oblimin rotation allows factors to be correlated, and in social science, some correlation among factors is generally expected. This rotation approach is more accurate than orthogonal rotation, which produces factors that are uncorrelated (Costello & Osborne, 2005). The next section presents the analysis of the BLSS and the GNHS separately.

### 4.4.2 Analysis of the BLSS

The analysis of the BLSS data indicated that the overall KMO statistic was 0.66, which was sufficient and KMO statistics of each variable is >0.5. Based on the thumb rule of eigenvalue greater than 1, only one factor could be retained, which would result in a factor that explained the minimum of the variance. The result of the scree test was not clear, as there were multiple break points, one at factor 2 and the other at factor 6, as shown in Figure 4-5. However, the parallel analysis suggested five factors to be extracted, Figure 4-6 and Table 4-3 show that average eigenvalues from the real data were greater than ones from the random correlation matrices for the first five factors. This suggested five factors could be extracted, but the loadings of various items in the fifth factor were all <.3. Therefore, only four factors were retained. The residual matrix of the factor indicates residuals were low, suggesting there were no other factors. As explained below, the factors were interpretable and broadly consistent with the dimensions employed by other researchers.
Figure 4-5: Scree Plot of Eigenvalue (BLSS)

Figure 4-6: Parallel Analysis Plot (BLSS)
### Table 4-3 Parallel Analysis (BLSS)

<table>
<thead>
<tr>
<th>Factor #</th>
<th>Actual eigenvalue from EFA</th>
<th>Random order from parallel analysis</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.637</td>
<td>.076</td>
<td>Accept</td>
</tr>
<tr>
<td>2</td>
<td>.915</td>
<td>.067</td>
<td>Accept</td>
</tr>
<tr>
<td>3</td>
<td>.585</td>
<td>.049</td>
<td>Accept</td>
</tr>
<tr>
<td>4</td>
<td>.389</td>
<td>.030</td>
<td>Accept</td>
</tr>
<tr>
<td>5</td>
<td>.171</td>
<td>.018</td>
<td>Accept</td>
</tr>
<tr>
<td>6</td>
<td>.012</td>
<td>.011</td>
<td>Reject</td>
</tr>
<tr>
<td>7</td>
<td>-.005</td>
<td>-.001</td>
<td>Reject</td>
</tr>
<tr>
<td>8</td>
<td>-.031</td>
<td>-.006</td>
<td>Reject</td>
</tr>
<tr>
<td>9</td>
<td>-.074</td>
<td>-.010</td>
<td>Reject</td>
</tr>
<tr>
<td>10</td>
<td>-.108</td>
<td>-.019</td>
<td>Reject</td>
</tr>
<tr>
<td>11</td>
<td>-.214</td>
<td>-.036</td>
<td>Reject</td>
</tr>
<tr>
<td>12</td>
<td>-.241</td>
<td>-.042</td>
<td>Reject</td>
</tr>
<tr>
<td>13</td>
<td>-.246</td>
<td>-.053</td>
<td>Reject</td>
</tr>
<tr>
<td>14</td>
<td>-.255</td>
<td>-.061</td>
<td>Reject</td>
</tr>
</tbody>
</table>

### Table 4-4(a) Rotated Factor Loadings for all Social Capital Items Based on the BLSS

<table>
<thead>
<tr>
<th>Indicators</th>
<th>sociability</th>
<th>Networks</th>
<th>Civic activity</th>
<th>Social trust</th>
<th>Uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td>General trust</td>
<td>-0.013</td>
<td>0.125</td>
<td>-0.011</td>
<td>0.540</td>
<td>0.692</td>
</tr>
<tr>
<td>Specific trust</td>
<td>0.007</td>
<td>0.095</td>
<td>0.005</td>
<td>0.511</td>
<td>0.730</td>
</tr>
<tr>
<td>Close friend score</td>
<td>0.118</td>
<td>0.479</td>
<td>0.070</td>
<td>0.148</td>
<td>0.731</td>
</tr>
<tr>
<td>Financial support score</td>
<td>0.117</td>
<td>0.576</td>
<td>0.047</td>
<td>0.084</td>
<td>0.653</td>
</tr>
<tr>
<td>Emergency support score</td>
<td>0.056</td>
<td>0.372</td>
<td>0.030</td>
<td>0.019</td>
<td>0.842</td>
</tr>
<tr>
<td>Assistance given score</td>
<td>0.175</td>
<td>0.093</td>
<td>0.172</td>
<td>0.056</td>
<td>0.928</td>
</tr>
<tr>
<td>Sociability I</td>
<td>0.334</td>
<td>-0.006</td>
<td>0.038</td>
<td>-0.025</td>
<td>0.887</td>
</tr>
<tr>
<td>Sociability II</td>
<td>0.701</td>
<td>0.058</td>
<td>0.106</td>
<td>-0.016</td>
<td>0.493</td>
</tr>
<tr>
<td>Sociability III</td>
<td>0.700</td>
<td>0.049</td>
<td>0.072</td>
<td>0.018</td>
<td>0.502</td>
</tr>
<tr>
<td>Time contribution</td>
<td>0.020</td>
<td>0.129</td>
<td>0.117</td>
<td>0.094</td>
<td>0.961</td>
</tr>
<tr>
<td>Closeness</td>
<td>0.071</td>
<td>0.226</td>
<td>0.046</td>
<td>-0.009</td>
<td>0.603</td>
</tr>
<tr>
<td>Community contribution I</td>
<td>0.141</td>
<td>0.065</td>
<td>0.611</td>
<td>0.237</td>
<td>0.886</td>
</tr>
<tr>
<td>Community contribution II</td>
<td>0.168</td>
<td>0.014</td>
<td>0.586</td>
<td>0.005</td>
<td>0.628</td>
</tr>
<tr>
<td>Group member</td>
<td>0.065</td>
<td>0.135</td>
<td>0.194</td>
<td>0.056</td>
<td>0.937</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>1.6</td>
<td>0.91</td>
<td>0.58</td>
<td>0.39</td>
<td></td>
</tr>
<tr>
<td>% variance</td>
<td>32</td>
<td>22</td>
<td>22</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>
Table 4-4 (b) Factors with Loading>.3 for Social Capital Items Based on the BLSS

<table>
<thead>
<tr>
<th>Indicators</th>
<th>sociability</th>
<th>Networks</th>
<th>Civic activity</th>
<th>Social trust</th>
<th>Uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td>General trust</td>
<td></td>
<td></td>
<td></td>
<td>0.518</td>
<td>0.717</td>
</tr>
<tr>
<td>Specific trust</td>
<td></td>
<td></td>
<td></td>
<td>0.515</td>
<td>0.723</td>
</tr>
<tr>
<td>Close friend score</td>
<td>0.479</td>
<td></td>
<td></td>
<td></td>
<td>0.732</td>
</tr>
<tr>
<td>Financial support score</td>
<td>0.576</td>
<td></td>
<td></td>
<td>0.645</td>
<td></td>
</tr>
<tr>
<td>Emergency support score</td>
<td>0.372</td>
<td></td>
<td></td>
<td>0.857</td>
<td></td>
</tr>
<tr>
<td>Sociability I</td>
<td>0.329</td>
<td></td>
<td></td>
<td>0.891</td>
<td></td>
</tr>
<tr>
<td>Sociability II</td>
<td>0.698</td>
<td></td>
<td></td>
<td>0.499</td>
<td></td>
</tr>
<tr>
<td>Sociability III</td>
<td>0.703</td>
<td></td>
<td></td>
<td>0.497</td>
<td></td>
</tr>
<tr>
<td>Community contribution I</td>
<td></td>
<td>0.594</td>
<td></td>
<td>0.622</td>
<td></td>
</tr>
<tr>
<td>Community contribution II</td>
<td></td>
<td></td>
<td></td>
<td>0.617</td>
<td></td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>1.2</td>
<td>0.73</td>
<td>0.73</td>
<td>0.56</td>
<td></td>
</tr>
<tr>
<td>% variance</td>
<td>43</td>
<td>25</td>
<td>16</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Negative eigenvalues in Table 4-3 indicate there was no more meaningful variance left in the items to be extracted. This may be due to the low correlation in the indicators. However, the four factor solution for dimensions of social capital is interpretable and makes sense. As presented in Table 4-4(a), the eigenvalue of the first factor was 1.6 and had extracted variance of 32% in the rotated factor loading. Despite poor extraction, the factor loadings indicate an interesting pattern. There are no cross loadings suggesting a clear factor structure. The factor loadings show interpretable factors suggesting four dimensions of social capital. They are sociability, networks, civic activity, and social trust. Table 4-4(a) shows rotated factor loadings for all items after retaining four factors and Table 4-4(b) shows factors with loadings >.3, excluding those indicators with small loadings.

**Sociability**

The first factor was represented with loadings from three informal sociability indicators. The loadings were high, especially for two indicators, suggesting a clear factor structure. This forms an additional dimension as the items did not load
together with social network items. Informal sociability indicators form part of social networks and were expected to load with other indicators of social networks. In Bhutan, informal sociability seems to capture aspects different from social networks measured in the survey, which mainly represents networks of friends (based on the BLSS). A separate loading of factors forming an additional dimension for social interaction may suggest that interactions happen beyond the circle of friends, which may be more meaningful in terms of social capital generation. It may suggest some sort of bridging social capital, which this thesis did not focus on, but which is an aspect that Putnam considered a type of social capital. Kaasa and Parts (2008) considered informal sociability to be a separate dimension of social capital in Europe.

**Networks**

The second factor was represented with loadings from the remaining three indicators of social networks. Two indicators relating to group membership and assistance given were dropped due to low factor loadings. The indicators in this factor represent networks of friends and their support system, which were consistent with the expected theoretical dimension. The dimension represents an informal network system, as it is without the indicator of group membership.

**Civic activity**

The third factor was represented with loadings of indicators from attitudes toward civic activity. Although factors loadings for both indicators were above .5, this factor had only two items, which is a limitation. Two other indicators comprising time contribution and closeness were dropped due to low factor loadings. This factor is consistent with the expected theoretical dimension.
Social trust
The fourth factor was represented with loadings of indicators of trust. There were only two indicators for trust in the data, but both had factors loadings above .5. The factor was consistent with the expected theoretical dimension.

4.4.3 Analysis of the GNHS

The robustness of findings on dimensions of social capital was tested conducting a second analysis using the GNHS 2010. The outcome of the analysis is presented in Table 4.5, 4.6 (a) & (b) below.

The analysis of the GNH data indicates the overall KMO statistic of 0.66 and that the KMO statistic of each variable was >0.5. As in the analysis of the BLSS, four interpretable factors were retained based on the scree test, the parallel analysis, and also considered factor loadings >.3. Again based on the thumb rule of eigenvalue greater than 1, only one factor could be retained, which explains the minimum of the variance. Therefore, other methods were used: such as the scree test and parallel analysis. The scree test suggested four factors to be extracted, Figure 4-6 shows that the scree started at factor five, suggesting that four factors could be extracted. The result of the parallel analysis presented in Figure 4.7 and Table 4-5 shows that average eigenvalues from the real data was greater than those from random correlation matrices for the first five factors, suggesting five factors to be retained. However, the loadings of various items in the fifth factor were all < .3. Therefore, four factors were retained. As in the BLSS, the residual matrix of the factor indicated low residuals, suggesting there were no other factors. The scree plot of eigenvalues and the parallel analysis result are presented in Figures 4-7 and 4-8.
Figure 4-7: Scree Plot of Eigenvalues (GNHS)

Figure 4-8: Parallel Analysis Plot (GNHS)
Table 4-5 Parallel Analysis (GNHS)

<table>
<thead>
<tr>
<th>Factor #</th>
<th>Actual eigenvalue from EFA</th>
<th>Random order from parallel analysis</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.638</td>
<td>.073</td>
<td>Accept</td>
</tr>
<tr>
<td>2</td>
<td>.864</td>
<td>.056</td>
<td>Accept</td>
</tr>
<tr>
<td>3</td>
<td>.615</td>
<td>.043</td>
<td>Accept</td>
</tr>
<tr>
<td>4</td>
<td>.516</td>
<td>.033</td>
<td>Accept</td>
</tr>
<tr>
<td>5</td>
<td>.096</td>
<td>.023</td>
<td>Accept</td>
</tr>
<tr>
<td>6</td>
<td>.002</td>
<td>.010</td>
<td>Reject</td>
</tr>
<tr>
<td>7</td>
<td>-.049</td>
<td>.002</td>
<td>Reject</td>
</tr>
<tr>
<td>8</td>
<td>-.093</td>
<td>-.008</td>
<td>Reject</td>
</tr>
<tr>
<td>9</td>
<td>-.187</td>
<td>-.016</td>
<td>Reject</td>
</tr>
<tr>
<td>10</td>
<td>-.190</td>
<td>-.031</td>
<td>Reject</td>
</tr>
<tr>
<td>11</td>
<td>-.206</td>
<td>-.041</td>
<td>Reject</td>
</tr>
<tr>
<td>12</td>
<td>-.236</td>
<td>-.051</td>
<td>Reject</td>
</tr>
<tr>
<td>13</td>
<td>-.257</td>
<td>-.071</td>
<td>Reject</td>
</tr>
</tbody>
</table>

As in the BLSS, factors were rotated using oblimin rotation to redistribute the variance more evenly across the factors for easy interpretation. The eigenvalue of the first factor was 1.1 and had an extracted variance of 30% in the rotated factor loading. The factor loadings indicate an interesting pattern, which is explained below. Table 4-6(a) shows rotated factor loadings for all items after retaining four factors and Table 4-6(b) shows factors with loadings >.3.
Table 4-6(a) Factor Loadings for all Social Capital Items Based on the GNHS

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Networks</th>
<th>Social trust</th>
<th>Civic activity</th>
<th>Sociability</th>
<th>Uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td>General trust</td>
<td>0.077</td>
<td>0.658</td>
<td>0.029</td>
<td>-0.001</td>
<td>0.661</td>
</tr>
<tr>
<td>Specific trust</td>
<td>0.084</td>
<td>0.674</td>
<td>0.126</td>
<td>0.018</td>
<td>0.702</td>
</tr>
<tr>
<td>Friendship score I</td>
<td>0.568</td>
<td>0.105</td>
<td>0.073</td>
<td>-0.002</td>
<td>0.646</td>
</tr>
<tr>
<td>Friendship score II</td>
<td>0.535</td>
<td>0.082</td>
<td>-0.057</td>
<td>0.051</td>
<td>0.858</td>
</tr>
<tr>
<td>Friendship score III</td>
<td>0.586</td>
<td>0.080</td>
<td>0.053</td>
<td>0.031</td>
<td>0.793</td>
</tr>
<tr>
<td>Friendship score IV</td>
<td>0.368</td>
<td>0.025</td>
<td>0.063</td>
<td>0.042</td>
<td>0.683</td>
</tr>
<tr>
<td>Sociability I</td>
<td>0.045</td>
<td>0.044</td>
<td>0.011</td>
<td>0.557</td>
<td>0.865</td>
</tr>
<tr>
<td>Sociability II</td>
<td>0.048</td>
<td>-0.009</td>
<td>0.039</td>
<td>0.548</td>
<td>0.812</td>
</tr>
<tr>
<td>Community event</td>
<td>0.107</td>
<td>0.166</td>
<td>0.410</td>
<td>0.004</td>
<td>0.882</td>
</tr>
<tr>
<td>Public meeting</td>
<td>0.034</td>
<td>0.168</td>
<td>0.536</td>
<td>0.014</td>
<td>0.561</td>
</tr>
<tr>
<td>Local election</td>
<td>0.050</td>
<td>0.048</td>
<td>0.360</td>
<td>-0.008</td>
<td>0.522</td>
</tr>
<tr>
<td>Belongingness</td>
<td>0.041</td>
<td>0.198</td>
<td>0.370</td>
<td>0.099</td>
<td>0.686</td>
</tr>
<tr>
<td>Voluntary</td>
<td>0.056</td>
<td>0.111</td>
<td>0.316</td>
<td>0.050</td>
<td>0.695</td>
</tr>
<tr>
<td>Eigen value</td>
<td>1.1</td>
<td>1.0</td>
<td>0.9</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>% variance</td>
<td>30</td>
<td>27</td>
<td>24</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

Table 4-6(b) Factors with Loadings>0.3 for Social Capital Items Based on the GNHS

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Networks</th>
<th>Social trust</th>
<th>Civic activity</th>
<th>Sociability</th>
<th>Uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td>General trust</td>
<td>0.658</td>
<td></td>
<td></td>
<td></td>
<td>0.661</td>
</tr>
<tr>
<td>Specific trust</td>
<td>0.674</td>
<td></td>
<td></td>
<td></td>
<td>0.702</td>
</tr>
<tr>
<td>Close friend I</td>
<td>0.568</td>
<td></td>
<td></td>
<td></td>
<td>0.646</td>
</tr>
<tr>
<td>Close friend II</td>
<td>0.535</td>
<td></td>
<td></td>
<td></td>
<td>0.858</td>
</tr>
<tr>
<td>Close friend III</td>
<td>0.586</td>
<td></td>
<td></td>
<td></td>
<td>0.793</td>
</tr>
<tr>
<td>Close friend IV</td>
<td>0.368</td>
<td></td>
<td></td>
<td></td>
<td>0.683</td>
</tr>
<tr>
<td>Sociability I</td>
<td></td>
<td>0.557</td>
<td></td>
<td></td>
<td>0.865</td>
</tr>
<tr>
<td>Sociability II</td>
<td></td>
<td>0.548</td>
<td></td>
<td></td>
<td>0.812</td>
</tr>
<tr>
<td>Community event</td>
<td></td>
<td>0.410</td>
<td></td>
<td></td>
<td>0.882</td>
</tr>
<tr>
<td>Public meeting</td>
<td></td>
<td>0.536</td>
<td></td>
<td></td>
<td>0.561</td>
</tr>
<tr>
<td>Local election</td>
<td></td>
<td>0.360</td>
<td></td>
<td></td>
<td>0.522</td>
</tr>
<tr>
<td>Belongingness</td>
<td></td>
<td>0.370</td>
<td></td>
<td></td>
<td>0.686</td>
</tr>
<tr>
<td>Voluntary</td>
<td></td>
<td>0.316</td>
<td></td>
<td></td>
<td>0.695</td>
</tr>
<tr>
<td>Eigen value</td>
<td>1.1</td>
<td>1.0</td>
<td>0.9</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>Variance</td>
<td>31</td>
<td>28</td>
<td>24</td>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>
CAs in case of the BLSS, the factor loadings showed clear interpretable factors suggesting four dimensions of social capital. The factor structure had no cross loadings. The four factors represented dimensions of social capital: networks, social trust, civic activity, and sociability.

**Network**

The first factor was represented by loadings from the four indicators of social networks. The loadings were moderately high (>.5) (especially three of the four indicators) suggesting better factor structure than having few indicators. Indicators in this factor represented networks of friends and their support system and were consistent with the expected theoretical dimension as in the BLSS. As this dimension has no indicator for group membership, it represents an informal network system.

**Social trust**

The second factor was represented with loadings from indicators of trust. Keeping the factor indicators the same as in the BLSS, only two indicators for trust in the data were considered. Both indicators of trust had factors loadings above .5. This factor is consistent with the expected theoretical dimension suggested in Section 4.2.

**Civic activity**

The third factor was represented with loadings from five indicators of attitude to civic activity. The factor loadings were all above .3 and the factor comprised of five items. This factor is consistent with the expected theoretical dimension suggested in Section 4.2.

**Sociability**

The fourth factor was represented with loadings from two indicators of informal sociability. Loadings of indicators were moderately high (> .5) suggesting a
reasonable factor, though it had only two items in it. This is a new dimension and does not conform to the theoretical dimension suggested in Section 4.2. However, the finding is consistent with the one from the BLSS, where informal sociability indicators loaded on to different factors from the other indicators of social networks.

4.5 Discussion

The BLSS 2012 is the main data used in determining the dimensions of social capital in Bhutan. Based on the review of the literature, social trust, social networks, and norms of reciprocity reasonably represented social capital. The indicators of social capital from the data were identified for all three dimensions following the work of Putnam (2000) in the US. This was replicated using another data set the GNHS, 2010 for robustness.

The correlation of indicators of social capital in both data sets was weak, suggesting that they cannot be added up to construct a composite index. Conversely, it was not possible to use all of them as individual indicators in the analysis, as it would be difficult to interpret and draw comparison to other studies. Therefore, exploratory factor analysis provided an alternative approach and was used to examine whether theoretical dimensions of social capital emerged from the data. The factor loadings were relatively weak and items were largely unique, suggesting that much of the variance was not explained by the factor. However, the factor solutions (see Table 4-4 a & b and Table 4-6 a & b) provided interpretable dimensions comparable to other studies. Despite relatively weak factor loadings, they clearly indicate that social capital is multi-dimensional, unlike in Putnam (2000), where he constructed a composite single index social capital.

The results of the factor analysis of both data sets consistently suggests four dimensions of social capital, confirming the multi-dimensionality of the construct.
These dimensions are social trust, social networks, civic activities, and sociability; and the latter is additional to the theoretical dimensions suggested in Section 4.2. Informal sociability loaded onto a different factor than social networks, suggesting an extra dimension. This indicates that informal sociability captures aspects of networks different from social network measures in Bhutan. Kaasa and Parts (2008) and Narayan and Cassidy (2001) also had a separate dimension, informal sociability, in their studies. Future studies may need to consider different types of social capital, such as capturing bridging and bonding, which the current study did not focus on. The other dimensions of social capital captured here are consistent with theoretical dimensions in the literature.

The factors in the Bhutan data clearly represent theoretical dimensions of social capital, but they are weaker than in some other studies. As explained in Section 4.3, the inter-relations among the indicators was low, possibly due to the way the data was collected and how the instruments were used. Future research may be required to improve these drawbacks.

The four dimensions determined from the factor score are the main social capital variables in the next two chapters of this thesis. The correlation matrix of the four dimensions of social capital from the two data sets is represented in Table 4-7.

<table>
<thead>
<tr>
<th>Table 4-7 Correlation Matrix of Social Capital Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLSS</td>
</tr>
<tr>
<td>1. Social trust</td>
</tr>
<tr>
<td>2. Network</td>
</tr>
<tr>
<td>3. Sociability</td>
</tr>
<tr>
<td>4. Civic activity</td>
</tr>
<tr>
<td>GNHS</td>
</tr>
<tr>
<td>1. Social trust</td>
</tr>
<tr>
<td>2. Network</td>
</tr>
<tr>
<td>3. Sociability</td>
</tr>
<tr>
<td>4. Civic activity</td>
</tr>
</tbody>
</table>
Note: *** = correlation significant at p< .01, ** = p<.05. The missing values are imputed on these factor results for analysis in Chapters 5 and 6.
Chapter 5: Antecedents of Social Capital

5.1 Introduction

Social capital is an important aspect of the societal progress relevant to both developed and developing societies. Empirical evidence has shown that regions and countries with a high stock of social capital seem to achieve higher levels of growth and welfare (e.g. Bjornskov, 2003; Knack & Keefer, 1997; Putnam et al., 1993; Rose, 1999; Woolcock, 2001), while individuals possessing more social capital are usually healthier and happier (Calvo et al., 2012; Hamano et al. 2010; Helliwell & Putnam, 2004; Putnam, 2000; Song & Lin, 2009). For these reasons, it is crucial to understand the determinants of social capital.

However, studies have thus far placed more attention on investigating what it does rather than its formation and determinants. There are still very few empirical studies assessing the effect that different determinants have on social capital, and even fewer in the context of developing countries. Researchers have argued that there is a lack of a consistent framework for examining the determinants of social capital (Freitag, 2003; Jicha et al., 2011; Kaasa & Parts, 2008). The key scholars of social capital (Bourdieu, 1986; Coleman 1988; Putnam et al., 1993, Putnam, 2000) generally agree that the most important factors are: ‘who the actor is’ representing individual factors and the place ‘where the actor lives’ representing the context factor.

The purpose of this chapter is to examine the individual and context level determinants of social capital, with a particular focus on social status and the place where people live. This study argues that the social status of individuals defines individual factors and the place where people live represents the context effect in determining the individual-level social capital. Social status indicators consist of
socio-demographic variables, age, education, relative economic status, gender, and marital status; while the place is indicated by rural/urban neighbourhoods. The research questions that this chapter addresses are: How much of the variation in individual social capital is due to individual differences (level 1) and the context effects (level 2)? Is social status a significant level 1 predictor, and are rural/urban neighbourhoods a significant level 2 predictor, of social capital?

This research has two contributions to the literature on social capital. First, it examines whether social capital is due to individual-level or the context level. Thus, it provides better understanding about the conceptual debate of social capital. In addition, it seeks to extend the knowledge of social capital in a developing country context. Second, it provides a framework for examining the determinants of social capital by proposing social status as the individual factors (that is, level 1) and the rural and urban neighbourhoods as the context factor (that is, level 2).

This chapter is organized as follows: Sections 5.2 and 5.3 present the theoretical background and hypotheses on determinants of social status and the place; Section 5.4 presents the data and measurement; Section 5.5 presents results from two sets of data; and Section 5.6, the discussion.

5.2 Theoretical background of the role of social status as antecedents of social capital and hypotheses

The key scholars of social capital (Bourdieu, 1986; Coleman 1988; Putnam, 1995, 2000) claimed that social capital of individuals is determined by “who the actor is” as discussed in chapter 2, section 2.3.1. The term “who the actor is” pertains to the individual factors. The individual factor is defined by the social status of an actor and in this study it is represented by socio-demographic as stated above.
According to Putnam (1995, 2000) socio-demographic variables such as age, education, and marital status explain the effect on the accumulation of social capital in the US. Although he did not explicitly link the demographic variables to social status, they do provide information about an individuals’ status in the society. The association of demographic indicators to social status was demonstrated by Hollingshead (2011). He developed a widely used index consisting of education, occupation, gender, and marital status as primary indicators of social status (Adams & Weakliem, 2011). Although age was not explicitly mentioned as an indicator of social status by Hollingshead (2011) it was implied when he argued that education, occupation, and marital status may vary over the life cycle. This suggests that social status changes over different stages of life and the age of the individual represent his/her life cycle. As discussed in Chapter 2, Putnam (2000) argued that there is a life cycle pattern in social behaviour, typically caused by one of three factors: demand of family, the declining energy from adolescence to old age, and the shape of the career. Age captures this life cycle effect.

The above arguments suggest that demographic variables indicate the social status of individuals. Several other studies have also argued that individuals’ characteristics represented with socio-demographics variables are important determinants of social capital (Christoforou, 2011; Glaeser et al., 2002; Kaasa & Parts, 2008; Putnam, 1995). Founded on these previous studies, the analysis in this chapter tests the influence of social status represented with socio-demographic variables on the accumulation of social capital in Bhutan. Specific hypotheses for each demographic variable are explained below.
5.2.1 Sociodemographic variables

Economic status

The key theorists of social capital (Bourdieu, 1986; Coleman, 1988; Putnam, 2000) have indicated that people with more income accumulate more social capital because they have a higher social status than others. In addition, empirical studies have also argued that the income of individuals is an important determinant of social capital, for example, Van Oorschot et al. (2006) argued that the ‘capital accumulation effect’ occurs for individuals with high income, as they have the ability to invest in social capital and accumulate more of it. Others argued that social trust, an important dimension of social capital, carries risk, as in trusting others, one takes a risk by believing others to be trustworthy. Rich people with status have more ability than poor to take risk and accumulate more social capital (Delhey & Newton, 2003; Freitag, 2003).

The current study used a measure of relative economic status of households instead of income or wealth in other studies. The relative economic status measures how rich or poor households believe they are compared to their neighbours. This self-reported economic status indicates the relative position of an individual with respect to others in the society. This measure is similar to the subjective social status measure used by many other studies (Adler et al., 2008; Singh-Manoux, Marmot, & Adler, 2005) and has also been used in Japan by Sakurai, Kawakami, Yamaoka, Ishikawa and Hashimoto (2010). These studies claimed that subjective social status is a more integrated indicators of relative socioeconomic status than other socioeconomic status indicators, such as income and education. Kaasa and Parts (2008) argued that relative income is more important than absolute income in determining the welfare of a person. This study tested the effect of relative economic status on social capital of individuals in Bhutan. Therefore, it was expected that:
**Hypothesis 1:** Relative economic status is positively associated with the four elements of social capital (social trust, network, sociability, and civic activity).

**Education**

Education is a measure of the social status of individuals, as education provides the skill required to enter into occupations that carry prestige in the social system (Hollingshead, 2011). Education also provides social skill and knowledge that are basis for everyday social interaction and engagement in community activities, and makes people more open-minded in order to accept otherness (Freitag, 2003; Newton, 1999; Putnam, 1995; Soroka et al., 2003). Furthermore, education provides individuals with access to social networks and transmits values of reciprocity and cooperation, thus, it is the prime agent of socialization (Christoforou, 2011). Therefore, education is an important predictor of trust, associational membership, and all forms of civic engagement. These arguments suggest that education is a source of skill, knowledge, and information about social systems and therefore provides distinct social status to the individuals who possess it. Social status in turn influences the level of one’s social capital. Therefore, it follows that:

**Hypothesis 2:** Education is positively associated with all four elements of social capital.

**Age**

Age represents the life cycle effect as it captures changes in the social status of people over different stages of their life, and these changes in turn affect their level of social capital (Putnam, 1995, 2000). Glaeser et al., (2002) argued that the life cycle effect on social capital is an inverted u-shaped in the US. They argued that group memberships first increase and then decrease with age. In northern European countries, Christoforou (2011) argued that the effect of age on group membership is
u-shaped rather than inverted u-shaped, while in southern European countries (Italy, Spain, Portugal, and Greece) the life cycle effect on group membership is inverted u-shape, as in the US. Behaviour patterns of people explains this, as in the northern European countries, youth and retirees are regarded as active and productive members of society, and are thus encouraged to take part in social groups and organization (Christoforou, 2011).

Regarding trust, Whiteley (1999) argued that older people are more trusting because of their life experience, where they socialize and rely on each other in less secured circumstances. Halman and Luijx (2006) and van Oorschot et al. (2006) demonstrated support for the argument that older people with greater life experience have higher social capital in Europe. This may suggest that age captures the changes in social status over life stages and the effects vary for different countries partly depending on the behaviour pattern.

In Asia, although a positive association between age and social trust was reported by Tokuda and Inoguchi (2009) in Japan and Tan and Tambyah (2011) in Confucian Asia, particularly in China, Hong Kong, and South Korea, a test for non-linear effect of age has not been undertaken. Moreover, not much is known about the effect of age on other dimensions of social capital. While Putnam’s (2000) argument regarding life cycle pattern in social behaviour may be applicable, in addition, Buddhist values significantly influence people’s behaviour in Bhutan. Generally elder people retire from social life and responsibilities, and devote their time to prayer. Based on this belief, it is argued that age will have non-linear effect on accumulation of social capital with an increasing trend in young age and then declining in old age, thus it follows that:
Hypothesis 3): Age has an inverse u-shape effect on all four elements of social capital.

Gender

The gender of respondents represents social status, and generally, females have lower social status than males due to their role in the society. Women are mainly associated with familial obligations within households and Christoforou (2011) argued that they participate less in social groups and organisations even when they are exposed to a series of work oriented associations. In a society where there are distinct gender roles, the difference in social status could be heightened, as women’s roles associated with familial obligations are not for gaining social status. This could lead to women having low social capital.

In Bhutan, gender as an indicator of social status is likely to play an important role in determining individuals’ social capital. Culturally, women have low social status due to prevailing patriarchal values, aided by a lack or limited education of women compared to men (NCWC, 2008; NCWC, 2012; ADB, 2014). The low social status of women is evidenced through many aspects, such as the composition of women in the parliament and in executive positions in civic service, which are important decision making bodies at different levels. Due to having a low social status in the society, women are predicted to associate with low social capital, hence, it follows that:

Hypothesis 4: Females reports lower levels of social capital than men.

Marital status

Marital status is an important indicator of social status, because of the ways adult family members play their roles in the economic system (Hollingshead, 2011).
This difference in ways leads to varying social status in the society, for example, the social status of both spouses with full time employment in the labour force would be higher than others. According to Putnam (1995, 2000), marital status can influence the level of social capital, as married men and women are likely to have a higher level of social trust and civic engagement than single people. Marriage increases the time spent at home and in formal community organisations, and reduces time spent with friends. Therefore, married people are likely to be more engaged in a formal network, while the unmarried in informal networks (Putnam, 2000).

Although Putnam’s work was based in the US more than decade ago, which may be less relevant in the current times, Kaasa and Parts (2008) demonstrated that married persons tend to have fewer informal networks than singles in Europe, which supports for Putnam’s argument.

In Bhutan, marital status such as married, single, divorced, and widowed are associated with social status in the society. Marriage brings together the social capital of two people and may enhance their level of social connectedness, while people who are divorced and widowed generally remain low profile due to the effect of life events, particularly when the events are recent. Singles on the other hand are likely to have lower social status than those who are married, although they are likely to engage in socialising activity. The marital status of individuals represents social status in some ways and is expected to influence the level of social capital of individuals. As no specific hypothesis has been tested in the past, the effect of marital status was explored without formulating any specific hypothesis in the current study.
5.3 Theoretical background on the role of context as an antecedent of social capital and hypotheses

The key theorists of social capital, particularly Coleman (1988) and Putnam (1995, 2000) argued that the place where people live is an important determinant of social capital. Putnam (1995, 2000) argued that the characteristics of urbanisation: loose sense of community, high mobility, divorce, and smaller family size reduce social capital, while rural communities and farming villages are socially well connected. He substantiated his argument by claiming that in America, people living in big cities express less social trust than those living in small towns. Similarly, Coleman (1988) associated urban localities as having a high degree of “social disorganization” and low social capital (p. S103). Rural areas are expected to be more cooperative due to a stronger sense of community identity than in the bigger urban areas, as people have less sense of community as they are more anonymous. Onyx and Bullen (2000) found differences in nature of social capital between urban and rural people in Australia. High levels of trust and safety, participation in the local community, and neighbourhood connections were observed in rural areas, while a higher level of social agency, proactivity in social context (e.g. ability of finding information for decision making), and a higher level of tolerance for diversity were observed in urban areas.

Rural-urban difference is an emerging societal feature in Bhutan, which has historically been a rural society. Differences between rural and urban areas is generally felt in terms of traditional social values and connectedness. The modernisation has inflicted changes in attitude, values, and expectations of the urban population (Wangyal, 2001). Values here reflects a social value system largely based on Buddhist culture, such as interdependence, need for empathy, reciprocity,
honesty, and tolerance, which are the foundation of human relationships (L. Dorji et al., 2013; Wangyal, 2001). The decline in traditional social values in urban areas is expected to affect social connectedness of people.

Based on the above arguments, it follows that in Bhutan:

_Hypothesis 5:_ Individuals living in rural areas have significantly higher social capital than those living in urban areas.

### 5.4 Data, measurement and analytical strategy

Data used for the analysis were from the BLSS, 2012 and GNHS 2010, which were explained in detail in Chapter 3.

#### 5.4.1 Measures:

**The dependent variables**

As discussed in Chapter 4, social capital in Bhutan is a multidimensional construct represented by four dimensions. These four dimensions of social capital: social trust, networks, sociability, and civic activities were the dependent variables for this analysis using both surveys.

**Independent and other variables**

_Relative economic status:_ information was obtained from the head of the household in the case of BLSS 2012, from the question: ‘Do you believe that your household is poor?’ Answer categories ranged from 1) no, 2) neither poor nor non-poor, 3) poor, 4) very poor, to 5 (don’t know) in the original data. This thesis used categories 1 (no) to 4 (very poor) and the responses were reverse coded to order them from poor to rich. In the GNH survey 2010, the information for socio-economic status

---

2 As the meaning of the word ‘poor’ is relative to others, this question is understood as a relative measure of economic status, although the comparative group is not explicitly mentioned in the question.
status was obtained from a similar question: ‘Within your community, do you consider your family to be 1) extremely poorer than most families, 2) a little poorer than most families, 3) about the same as most families, 4) a little wealthier than most families, 5) extremely wealthier than most families, 6) don’t know. Socio-economic status was represented with the respondent’s perception of their own household or family’s economic status compared to others.

*Age:* Age in years. For analysis, dummies representing four age groups were used; 1) age 18-30, 2) age 31-45, 3) age 46-60, 4) age 60+, with the reference age group as 18-30. These age groups approximately represent important life stages in the Bhutanese context. At the age of 18, individuals attain adulthood and at the age 60, people mostly retire from active life.

*Education:* The level of education was measured as years of education completed by the respondents in both surveys. Independent variables, years of education is group mean centered to express each score as a deviation from the mean of the respondent’s neighbourhood and this facilitates the interpretation of the intercept. Group mean centering allows making comparison among the individuals within the neighbourhood and is usually used when the primary interest is to find the association between X and Y in level 1 variables (Enders & Tofighi, 2007; Enders, 2013).

*Gender and marital status* of respondents were represented as dummy variables. Gender is represented with the value 1 for female and 0 for males. There were 4 dummies representing marital status, single, married and living together, divorced and separated, and widow in both data sets. The reference category for marital status was single.
Rural/urban neighbourhood: were represented by dummy variables with the value 1 for rural and 0 for urban neighbourhoods.

The description of all variables: mean, standard deviation, and correlation for two data sets are presented in Tables 5-1(a) and 5-1(b).
Table 5-1a) Mean, Standard Deviation, and Correlation of Variables (BLSS)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Trust</td>
<td>-0.03</td>
<td>.627</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network</td>
<td>0.001</td>
<td>.659</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sociability</td>
<td>0.000</td>
<td>.807</td>
<td>-0.017</td>
<td>.123***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civic activity</td>
<td>0.002</td>
<td>.753</td>
<td>0.002</td>
<td>.064***</td>
<td>.117***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RES(a)</td>
<td>2.88</td>
<td>.645</td>
<td></td>
<td></td>
<td></td>
<td>-0.08***</td>
<td>.053***</td>
<td>.070***</td>
<td>.002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education(b)</td>
<td>-0.001</td>
<td>4.886</td>
<td></td>
<td></td>
<td></td>
<td>-0.064***</td>
<td>.060***</td>
<td>.089***</td>
<td>.045***</td>
<td>.209***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (15-30)</td>
<td>0.219</td>
<td>.413</td>
<td></td>
<td></td>
<td></td>
<td>-0.141***</td>
<td>-0.045***</td>
<td>-0.029***</td>
<td>-0.057***</td>
<td>-0.074***</td>
<td>-0.025***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (31-45)</td>
<td>0.379</td>
<td>.485</td>
<td></td>
<td></td>
<td></td>
<td>0.016</td>
<td>-0.008</td>
<td>-0.004</td>
<td>-0.011</td>
<td>-0.044***</td>
<td>-0.019</td>
<td>-0.041***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (46-60)</td>
<td>0.263</td>
<td>.440</td>
<td></td>
<td></td>
<td></td>
<td>0.058***</td>
<td>0.060***</td>
<td>0.009</td>
<td>0.031***</td>
<td>-0.045***</td>
<td>-0.138***</td>
<td>-0.316***</td>
<td>-0.466***</td>
<td></td>
</tr>
<tr>
<td>Age (60+)</td>
<td>0.140</td>
<td>.347</td>
<td></td>
<td></td>
<td></td>
<td>0.083***</td>
<td>-0.012</td>
<td>-0.041***</td>
<td>0.014</td>
<td>-0.093***</td>
<td>-0.150***</td>
<td>-0.213***</td>
<td>-0.315***</td>
<td>-0.240***</td>
</tr>
<tr>
<td>Gender</td>
<td>0.268</td>
<td>.443</td>
<td></td>
<td></td>
<td></td>
<td>-0.034***</td>
<td>-0.025**</td>
<td>0.010</td>
<td>0.021**</td>
<td>-0.055***</td>
<td>-0.135***</td>
<td>-0.028***</td>
<td>-0.072***</td>
<td>0.009</td>
</tr>
<tr>
<td>Single</td>
<td>0.066</td>
<td>.249</td>
<td></td>
<td></td>
<td></td>
<td>0.061***</td>
<td>-0.007</td>
<td>-0.026**</td>
<td>-0.003</td>
<td>0.054***</td>
<td>0.152***</td>
<td>0.334***</td>
<td>-0.116***</td>
<td>-0.125***</td>
</tr>
<tr>
<td>Married (c)</td>
<td>0.818</td>
<td>.386</td>
<td></td>
<td></td>
<td></td>
<td>0.008</td>
<td>0.019</td>
<td>-0.005</td>
<td>-0.002</td>
<td>0.030***</td>
<td>0.018</td>
<td>-0.112***</td>
<td>0.152***</td>
<td>0.044***</td>
</tr>
<tr>
<td>Divorced (d)</td>
<td>0.044</td>
<td>.205</td>
<td></td>
<td></td>
<td></td>
<td>-0.004</td>
<td>0.017</td>
<td>0.017</td>
<td>0.003</td>
<td>0.014</td>
<td>-0.077***</td>
<td>-0.017</td>
<td>0.029***</td>
<td>0.007</td>
</tr>
<tr>
<td>Widower</td>
<td>0.071</td>
<td>.258</td>
<td></td>
<td></td>
<td></td>
<td>0.050***</td>
<td>-0.008</td>
<td>-0.004</td>
<td>0.003</td>
<td>-0.087***</td>
<td>-0.112***</td>
<td>-0.141***</td>
<td>-0.139***</td>
<td>-0.040***</td>
</tr>
<tr>
<td>RUN(e)</td>
<td>0.479</td>
<td>.500</td>
<td></td>
<td></td>
<td></td>
<td>0.241***</td>
<td>0.139***</td>
<td>0.040***</td>
<td>0.097***</td>
<td>-0.272***</td>
<td>-0.000</td>
<td>-0.219***</td>
<td>-0.145***</td>
<td>0.160***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divorced (c)'</td>
<td>-0.456***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widow</td>
<td>-0.588***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widower</td>
<td>-0.042***</td>
<td>0.173***</td>
<td></td>
</tr>
</tbody>
</table>

Notes. Reduced sample of N = 8422 (age>=18 & neighbourhood size >=6) is used for analysis. (a) RES = relative economic status, (b) Education=group mean centered, (c) Married=married + living together, (d) Divorced=divorced + separated, and (e) RUN=Rural and urban neighbourhoods i.e., level 2 variable. *** = correlation is significant at the 0.01 level, ** = 0.05 level.
Table 5-1b) Mean, Standard Deviation, and Correlation of Variables (GNHS)

<table>
<thead>
<tr>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social trust</td>
<td>-.004</td>
<td>.763</td>
<td>.004</td>
<td>.761</td>
<td>.111***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sociability</td>
<td>-.006</td>
<td>.660</td>
<td>.015</td>
<td>.057***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civic activity</td>
<td>-.014</td>
<td>.692</td>
<td>.191***</td>
<td>.070***</td>
<td>.062***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RES (a)</td>
<td>2.818</td>
<td>.610</td>
<td>-.006</td>
<td>.224***</td>
<td>.089***</td>
<td>-.063***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (d)</td>
<td>-.041</td>
<td>3.831</td>
<td>-.112***</td>
<td>.039***</td>
<td>.048***</td>
<td>-.165***</td>
<td>.188***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (18-30)</td>
<td>.298</td>
<td>.458</td>
<td>-.193***</td>
<td>-.020</td>
<td>.059***</td>
<td>-.271***</td>
<td>.094***</td>
<td>.287***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (31-45)</td>
<td>.334</td>
<td>.472</td>
<td>.005</td>
<td>.011</td>
<td>.003</td>
<td>.028**</td>
<td>.016</td>
<td>-.047***</td>
<td>-.462***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (46-60)</td>
<td>.249</td>
<td>.432</td>
<td>.132***</td>
<td>.024*</td>
<td>-.029**</td>
<td>.212***</td>
<td>-.049***</td>
<td>-.143***</td>
<td>-.375***</td>
<td>-.408***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (60+)</td>
<td>.119</td>
<td>.324</td>
<td>.600***</td>
<td>-.019</td>
<td>-.051***</td>
<td>.060***</td>
<td>-.089***</td>
<td>-.146***</td>
<td>-.240***</td>
<td>-.260***</td>
<td>-.212***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.515</td>
<td>.500</td>
<td>-.116***</td>
<td>-.110***</td>
<td>.017</td>
<td>-.091***</td>
<td>-.070***</td>
<td>-.169***</td>
<td>.160***</td>
<td>-.005***</td>
<td>-.080***</td>
<td>-.112***</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>.082</td>
<td>.274</td>
<td>-.092***</td>
<td>-.014</td>
<td>.012</td>
<td>-.187***</td>
<td>.066***</td>
<td>.246***</td>
<td>.340***</td>
<td>-.147***</td>
<td>-.136***</td>
<td>-.085***</td>
<td>.006</td>
</tr>
<tr>
<td>Married (b)</td>
<td>.815</td>
<td>.388</td>
<td>.049***</td>
<td>.097***</td>
<td>-.003</td>
<td>.074***</td>
<td>.071***</td>
<td>-.098***</td>
<td>-.151***</td>
<td>.151***</td>
<td>.061***</td>
<td>-.088***</td>
<td>-.134***</td>
</tr>
<tr>
<td>Divorced (c)</td>
<td>.046</td>
<td>.209</td>
<td>-.019</td>
<td>-.076***</td>
<td>.002</td>
<td>.040***</td>
<td>-.074***</td>
<td>-.021</td>
<td>.003</td>
<td>.029**</td>
<td>-.017</td>
<td>-.024**</td>
<td>.120***</td>
</tr>
<tr>
<td>Widow</td>
<td>.060</td>
<td>.237</td>
<td>.039***</td>
<td>-.078***</td>
<td>-.007</td>
<td>.059***</td>
<td>-.134***</td>
<td>-.107***</td>
<td>-.156***</td>
<td>-.096***</td>
<td>.072***</td>
<td>.264***</td>
<td>.106***</td>
</tr>
<tr>
<td>RUN (e)</td>
<td>.772</td>
<td>.420</td>
<td>.226***</td>
<td>.018</td>
<td>.030**</td>
<td>.466***</td>
<td>-.084***</td>
<td>.006</td>
<td>.181***</td>
<td>-.047***</td>
<td>.140***</td>
<td>.138***</td>
<td>-.061***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divorced</td>
<td>-.450***</td>
<td></td>
</tr>
<tr>
<td>Widow</td>
<td>-.522***</td>
<td>-.043***</td>
</tr>
<tr>
<td>PRN</td>
<td>-.018</td>
<td>.051***</td>
</tr>
</tbody>
</table>

Notes. Reduced sample of N = 6534 (age>=18 & chwog size >= 6 households) id used for analysis. (a) RES = relative economic status, (b) Married=married + living together, (c) Divorced=divorced + separated, (d) Education=group mean centered, and (e) RUN=Rural and urban neighbourhoods i.e., level 2 variable. *** = correlation is significant at the 0.01 level, ** = 0.05 level.
5.5 Data analysis approach and results

5.5.1 Data analysis approach

All missing data in the dataset were treated with multiple imputation method (Stata version, 13) and no cases in the dataset were deleted. The multiple imputation process was explained in chapter 3. Missing cases and the imputation methods were explained in Chapter 3, section 3.4.2. The analysis used a reduced sample of 8422 in BLSS and 6534 in GNHS as indicated in Tables 5-1(a), 5-1(b), 5-2 and 5-3.

The main purpose of this chapter is to examine the influence of social status, and the place where people live in determining individual-level social capital. The analytical approach for such study involved multilevel analysis, i.e., at the individual and the context level influence necessitates multilevel model. This approach examined the association between four dimensions of individual-level social capital (level 1) and two categories of determinants, individual-level social status at level 1 and the context-level, rural and urban neighbourhoods at level 2. In a hierarchical data structure where individuals are grouped in neighbourhoods these higher level variables can influence the outcome at the individual level. Ignoring the effects of the higher level units may result in incorrect estimation of associations within the model. Therefore, multilevel models were fitted for the analysis of the relationship between social capital and the determinants.

A multilevel linear regression model was employed for the analysis. Three multilevel models were estimated for each dependent variable (the four dimensions of social capital). Model 1: a null or empty model, it was a two-level model with only a constant term in the fixed and the random parts. The empty model was the first step in multilevel modelling and it was fitted to examine whether multilevel modelling was needed. It was particularly useful for calculating the intraclass correlation coefficient (ICC). The ICC measures the proportion of
unexplained variance in the dependent variable that is accounted for by groups, in this study it was the neighbourhood.

*Model 2:* examined the relationship between individual-level social capital and the social status indicators represented with socio-demographic variables. This examined the effect of the ‘who the actors are’ factor on social capital.

*Model 3:* examined the influence of the place represented by the rural and urban neighbourhood variables. This examined the effect of ‘where people live’ after accounting for socio-demographic variables. The rural/urban neighbourhood variables were level 2 variables in the analysis.

Additionally, all regressions controlled for number of households in neighbourhoods, as the density of dwellings in a neighbourhood was likely to influence the level of social capital.

In the following sections, the results of three models described above are presented using the BLSS data first. The same analysis for the GNH data is then reported in the next section.

**5.5.2 Result: BLSS**

*Model 1: predicting ICC for each element of social capital*

Model 1 in Table 5.2 presents the ICC for the dependent variables social trust, social network, sociability, and civic activity. ICC indicated that neighbourhoods accounted for 25% of the unexplained variance in individual-level social trust, 15% in social network, 19% sociability, and 21% in civic activity. These reflect substantial portions of unexplained variance due to neighbourhood effects. The p-value of the likelihood ratio test of the model for all dependent variables was <0.01, suggesting that there was significant group level variance and warranting multilevel analysis.
## Table 5-2: Multilevel Regression Result for Four Dimensions of Social Capital (BLSS)

<table>
<thead>
<tr>
<th>Fixed effects</th>
<th>Model 1 Trust</th>
<th>Model 2 Trust</th>
<th>Model 3 Trust</th>
<th>Model 1 Network</th>
<th>Model 2 Network</th>
<th>Model 3 Network</th>
<th>Model 1 Sociability</th>
<th>Model 2 Sociability</th>
<th>Model 3 Sociability</th>
<th>Model 1 Civic activity</th>
<th>Model 2 Civic activity</th>
<th>Model 3 Civic activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES(a)</td>
<td>.005</td>
<td>.013</td>
<td>.084***</td>
<td>.095***</td>
<td></td>
<td></td>
<td>.121***</td>
<td>.125***</td>
<td>.020</td>
<td>.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education(b)</td>
<td>-0.006***</td>
<td>-0.007***</td>
<td>-0.007***</td>
<td>-0.006***</td>
<td></td>
<td></td>
<td>-0.011***</td>
<td>-0.010***</td>
<td>.007***</td>
<td>.007***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (31–45) (c)</td>
<td>0.096***</td>
<td>0.090***</td>
<td>0.063***</td>
<td>0.055***</td>
<td></td>
<td></td>
<td>-0.007</td>
<td>-0.010</td>
<td>.077***</td>
<td>.074***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (46–60)</td>
<td>0.127***</td>
<td>0.112***</td>
<td>0.114***</td>
<td>0.094***</td>
<td></td>
<td></td>
<td>0.016</td>
<td>0.008</td>
<td>.103***</td>
<td>.094***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (60+)</td>
<td>0.115***</td>
<td>0.091***</td>
<td>0.034</td>
<td>0.003</td>
<td></td>
<td></td>
<td>-0.047</td>
<td>-0.059</td>
<td>0.069**</td>
<td>0.055</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-0.038**</td>
<td>-0.049***</td>
<td>-0.030</td>
<td>-0.042**</td>
<td></td>
<td></td>
<td>-0.004</td>
<td>-0.008</td>
<td>-0.008</td>
<td>-0.012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/living together (d)</td>
<td>-0.013</td>
<td>-0.019</td>
<td>0.006</td>
<td>-0.002</td>
<td></td>
<td></td>
<td>-0.025</td>
<td>-0.027</td>
<td>-0.046</td>
<td>-0.050</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced/separated</td>
<td>0.019</td>
<td>0.018</td>
<td>-0.009</td>
<td>-0.012</td>
<td></td>
<td></td>
<td>-0.081</td>
<td>-0.082</td>
<td>-0.034</td>
<td>-0.035</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widow</td>
<td>-0.011</td>
<td>-0.017</td>
<td>-0.017</td>
<td>-0.028</td>
<td></td>
<td></td>
<td>-0.007</td>
<td>-0.011</td>
<td>-0.116***</td>
<td>-0.121***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural/urban neighbourhood</td>
<td>0.211***</td>
<td>0.197***</td>
<td>0.197***</td>
<td></td>
<td></td>
<td></td>
<td>0.095***</td>
<td>0.113***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chuwog size</td>
<td>-0.008***</td>
<td>-0.004***</td>
<td>-0.004***</td>
<td>-0.001</td>
<td></td>
<td></td>
<td>-0.002</td>
<td>-0.001</td>
<td>0.004***</td>
<td>0.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.066***</td>
<td>0.086</td>
<td>0.098***</td>
<td>0.026**</td>
<td>-0.218***</td>
<td>-0.387***</td>
<td>0.009</td>
<td>-0.270***</td>
<td>-0.362***</td>
<td>0.121**</td>
<td>0.016</td>
<td>-0.083</td>
</tr>
</tbody>
</table>

### Random effects

<table>
<thead>
<tr>
<th></th>
<th>Model 1 Trust</th>
<th>Model 2 Trust</th>
<th>Model 3 Trust</th>
<th>Model 1 Network</th>
<th>Model 2 Network</th>
<th>Model 3 Network</th>
<th>Model 1 Sociability</th>
<th>Model 2 Sociability</th>
<th>Model 3 Sociability</th>
<th>Model 1 Civic activity</th>
<th>Model 2 Civic activity</th>
<th>Model 3 Civic activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within group var(d) (Level1)</td>
<td>0.097</td>
<td>0.084</td>
<td>0.075</td>
<td>0.068</td>
<td>0.067</td>
<td>0.059</td>
<td>0.128</td>
<td>0.135</td>
<td>0.134</td>
<td>0.121</td>
<td>0.119</td>
<td>0.117</td>
</tr>
<tr>
<td>Between group var (Level 2)</td>
<td>0.292</td>
<td>0.289</td>
<td>0.289</td>
<td>0.374</td>
<td>0.367</td>
<td>0.367</td>
<td>0.543</td>
<td>0.530</td>
<td>0.530</td>
<td>0.457</td>
<td>0.455</td>
<td>0.455</td>
</tr>
<tr>
<td>ICC</td>
<td>25.0</td>
<td>22.5</td>
<td>20.7</td>
<td>15.4</td>
<td>15.5</td>
<td>13.9</td>
<td>19.1</td>
<td>20.3</td>
<td>20.9</td>
<td>20.7</td>
<td>20.7</td>
<td>20.4</td>
</tr>
<tr>
<td>LR test (e)</td>
<td>1466.27</td>
<td>1085.21</td>
<td>942.57</td>
<td>524.89</td>
<td>509.44</td>
<td>414.59</td>
<td>664.97</td>
<td>701.53</td>
<td>690.71</td>
<td>869.70</td>
<td>824.37</td>
<td>803.27</td>
</tr>
<tr>
<td>P-value</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>

Notes: Reduced sample of N = 8422 (controlling for age>=18 & neighbourhood size >=6) is used for analysis. Number of chuwogs 697, minimum number of households in a chuwog 6 and maximum 112. Unstandardized coefficients are displayed in the table. ***=p<0.01, **=p<0.05 (a) RES= relative economic status, (b) Education=group mean centered, c) Age= dummies with age group (18-30) as reference group, (d) Marital status with single as reference group. The regression in Model2 and Model 3 controlled for number of households in each chuwog.
Model 2: Socio-demographic variables predicting social capital

Model 2 in Table 5.3 presents the results of the analysis of the association between socio-demographic variables and the four elements of social capital. The relative economic status was positively associated with two dimensions of social capital: social networks and sociability and was statistically highly significant. Thus, the result partially supports the hypothesis on the association between relative economic status and dimensions of social capital.

Education was negatively associated with social trust. As it is a group mean centered variable, the coefficient is interpreted that an extra year of education (above the group average) leads to decrease in social trust. This was an unexpected relationship. On the other hand, education was positively associated with the other three elements: social networks, sociability, and civic activity. The relationship was predicted with high statistical significance. The result of the association between education and social trust does not support the hypothesis, while the findings on the remaining three dimensions of social capital support the hypothesis on the association between education and dimensions of social capital.

To test the life cycle effect\(^3\) of age on social capital, this study used different age groups, 31-45, 46-60 and 60+, where the reference age group was 18-30. Coefficients showed different age groups were positively associated with social trust, with a peak for those aged 46-60, suggesting an inverse u-shape effect. The coefficients were statistically highly significant. The association between age and social network and civic activity also suggests a curvilinear relationship. The

\(^3\) Curvilinear effect of age was tested using age and age squared variables and the test confirmed the curvilinear relationship, but the coefficient was near zero. They were statistically highly significant. Therefore, age groups were used to see the effect. The test was also conducted using a different age group as the reference group and an inverse u-shape is clearly seen in the case of trust, and there is weak evidence of it in the other dimensions of social capital.
coefficients of age groups showed that social network increased with age then declined sharply and became insignificant for the age group 60+ compared to the reference age group. For civic activity, coefficients of three age groups increased and then declined for the oldest age group compared to the reference age group. Figure 5-1 shows the plots of age predicting three dimensions of social capital: social trust, social networks, and civic engagement.

When using a different reference age group to confirm the evidence of an inverse u-shape relationship, weak evidence of an inverse u-shape was seen in the case of social networks, social trust, and civic activity. Thus, there is weak evidence to support the hypothesis on the age effect.

Females were likely to trust others less than males, and also less likely to engage in social networks than males. Thus, this supports the hypothesis that females report lower levels of social capital than males. Marital status was not statistically significant.

**Model 3: The place, rural/urban neighbourhoods predicting social capital**

Model 3 in Table 5.2 presents the influence of living in a rural or urban area on four elements of social capital, controlling for all individual social status indicators.
The coefficient of the rural/urban neighbourhood was positively associated with all elements of social capital. The relationship was statistically highly significant and suggested that social capital was higher in rural than in urban areas. This suggests that place has important influence in the accumulation of social capital in Bhutan. The result supports the hypothesis that individuals living in rural areas have significantly higher social capital than those living in urban areas.

### 5.5.3 Result: GNHS

For comparison, and to test the robustness in the findings, the GNHS data 2010 were also analysed. A multilevel modelling was employed as in the analysis of BLSS. The following sections present the results of three models using GNH data.

**Model 1: predicting ICC for each element of social capital**

Model 1 in Table 5.3 presents the ICC for the dependent variables social trust, social network, sociability, and civic activity. The ICC indicates that neighbourhoods accounted for 8.2% of the variance in individual-level social trust, 5.5% in individual-level social network, 4.3% in individual-level sociability, and 30.4% in individual-level civic activity. There was a reasonable amount of variance due to neighbourhood effects, although it varied according to the dimensions of social capital. For civic activity, the ICC value was 29%, which is a high value and justifies for the multilevel model. The p-value of the likelihood ratio test of the model for all dependent variables was <0.01, suggesting that there is significant group level variance and warranting multilevel analysis.

**Model 2: Socio-demographic variables predicting social capital**

Model 2 in Table 5.3 presents the result of the analysis of association between socio-demographic variables and the four elements of social capital. The
relative economic status was positively associated with social trust, social networks, and sociability. The coefficients were statistically highly significant. The finding on social trust differed from the BLSS. The results support the hypothesis on the association between relative economic status and the dimensions of social capital.

Education was negatively associated with social trust and civic activity. The coefficient was interpreted as an extra year of education (above the group average) leading to a decrease in social trust and in civic activity. This was an unexpected relationship and the result of trust is consistent with the BLSS and suggests robustness, while the negative relationship between education and civic activity was inconsistent with the BLSS. The level of education was not a significant predictor for social network and sociability, which varies from the BLSS. The results do not support the hypothesis on the association between education and the dimensions of social capital.

To test the life cycle effect of age on social capital, this study used age groups, 31-45, 46-60, and 60+, where the reference age group was 18-30. Coefficients showed different age groups were positively associated with social trust, with a peak for those aged 46-60, suggesting an inverse u-shape effect. The relationship was predicted with high statistical significance. The association between age and civic activity also suggests a curvilinear relationship. The coefficients of the age groups showed that engagement in civic activity increased with age, with a peak for those aged 46-60, then declined and was insignificant for the age group 60+ compared to the reference age group. For sociability, the coefficient for the older age group was negative compared to the reference age group, and the negative coefficient increased with age, which suggests that sociability declines significantly with age. The curvilinear relationship between age and social trust and civic activity was similar to
the findings from BLSS, while the findings differ on sociability and networks. The
effect of age on sociability was not significant in the BLSS, while the effect of age
on networks was not highly significant in the GNHS. Figure 5-2 shows the plots of
age predicting three dimensions of social capital: social trust, social interactions, and
civic engagement.

![Figure 5-2: Age Predicting Social Capital (GNHS)](image)

When using a different reference age group to confirm the inverse u-shape
effect in the case of social trust, the evidence was weak. The result showed that the
relationship between age and social capital was not exactly linear, but there was only
weak evidence of an inverse u-shape relationship. Thus, the result does not fully
support the hypothesis.

Females were likely to trust others less than males, and also less likely to
engage in social networks and in civic activity than males. This finding is similar to
the BLSS, particularly on social trust. The result supports the hypothesis that females
are likely to report a lower level of social capital than males.

Divorced individuals were less likely to have a bigger network of friends than
singles. Marital status did not seem to have any influence on the level of trust and
sociability, while individuals with other marital statuses were significantly more
likely to engage in civic activity than singles. The findings on marital status differed
from the BLSS.
Table 5-3 Multilevel Regression Result for Four Dimensions of Social Capital (GNHS)

<table>
<thead>
<tr>
<th>Fixed effects</th>
<th>Model 1 Trust</th>
<th>Model 2 Trust</th>
<th>Model 3 Trust</th>
<th>Model 1 Network</th>
<th>Model 2 Network</th>
<th>Model 3 Network</th>
<th>Model 1 Sociability</th>
<th>Model 2 Sociability</th>
<th>Model 3 Sociability</th>
<th>Model 1 Civic activity</th>
<th>Model 2 Civic activity</th>
<th>Model 3 Civic activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES(a)</td>
<td>.043***</td>
<td>.049***</td>
<td></td>
<td>.262***</td>
<td>.263***</td>
<td></td>
<td>.094***</td>
<td>.096***</td>
<td></td>
<td>.021</td>
<td>.023</td>
<td></td>
</tr>
<tr>
<td>Education (b)</td>
<td>-.018***</td>
<td>-.019***</td>
<td></td>
<td>-.001</td>
<td>-.002</td>
<td></td>
<td>.004</td>
<td>.003</td>
<td></td>
<td>-.024***</td>
<td>-.025***</td>
<td></td>
</tr>
<tr>
<td>Age (31-45) (c)</td>
<td>.160**</td>
<td>.140***</td>
<td></td>
<td>.023</td>
<td>.020</td>
<td></td>
<td>-.057***</td>
<td>-.061***</td>
<td>-.145**</td>
<td>.136***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (46-60)</td>
<td>.270***</td>
<td>.235***</td>
<td></td>
<td>.055**</td>
<td>.049</td>
<td></td>
<td>-.090***</td>
<td>-.101***</td>
<td></td>
<td>.230***</td>
<td>.213***</td>
<td></td>
</tr>
<tr>
<td>Age (60+)</td>
<td>.266***</td>
<td>.211***</td>
<td></td>
<td>.021</td>
<td>.013</td>
<td></td>
<td>-.149***</td>
<td>-.163***</td>
<td></td>
<td>.043</td>
<td>.017</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.138***</td>
<td>-.138***</td>
<td></td>
<td>-.116***</td>
<td>-.116***</td>
<td></td>
<td>.017</td>
<td>.018</td>
<td></td>
<td>-.098***</td>
<td>-.095***</td>
<td></td>
</tr>
<tr>
<td>Married/living together (d)</td>
<td>.035</td>
<td>.029</td>
<td></td>
<td>.074**</td>
<td>.072**</td>
<td></td>
<td>.055</td>
<td>.052</td>
<td></td>
<td>.187***</td>
<td>.185***</td>
<td></td>
</tr>
<tr>
<td>Divorced/ separated</td>
<td>.016</td>
<td>-.018</td>
<td></td>
<td>-.123**</td>
<td>-.128**</td>
<td></td>
<td>.061</td>
<td>.052</td>
<td></td>
<td>.280***</td>
<td>.256***</td>
<td></td>
</tr>
<tr>
<td>Widow</td>
<td>.048</td>
<td>.030</td>
<td></td>
<td>-.083</td>
<td>-.086</td>
<td></td>
<td>.098**</td>
<td>.093**</td>
<td></td>
<td>.218***</td>
<td>.204***</td>
<td></td>
</tr>
<tr>
<td>Rural/urban neighbourhood</td>
<td></td>
<td></td>
<td></td>
<td>.354***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.716***</td>
</tr>
<tr>
<td>Chiwog size</td>
<td>-.008***</td>
<td>-.002</td>
<td></td>
<td>-.003</td>
<td>-.002</td>
<td></td>
<td>-.001</td>
<td>.000</td>
<td></td>
<td>-.022***</td>
<td>-.009***</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>.013</td>
<td>-.129**</td>
<td>-.466***</td>
<td>.033</td>
<td>-.712***</td>
<td>-.760***</td>
<td>-.006</td>
<td>-.260***</td>
<td>-.343***</td>
<td>-.035**</td>
<td>-.024</td>
<td>-.743***</td>
</tr>
</tbody>
</table>

Random effects

<table>
<thead>
<tr>
<th>Within group var (level 1)</th>
<th>.047</th>
<th>.032</th>
<th>.014</th>
<th>.032</th>
<th>.025</th>
<th>.025</th>
<th>.019</th>
<th>.020</th>
<th>.019</th>
<th>.142</th>
<th>.112</th>
<th>.039</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between group var(level 2)</td>
<td>.533</td>
<td>.513</td>
<td>.513</td>
<td>.547</td>
<td>.515</td>
<td>.515</td>
<td>.417</td>
<td>.410</td>
<td>.410</td>
<td>.326</td>
<td>.273</td>
<td>.279</td>
</tr>
<tr>
<td>ICC</td>
<td>8.2</td>
<td>6.0</td>
<td>2.6</td>
<td>5.5</td>
<td>4.7</td>
<td>4.6</td>
<td>4.3</td>
<td>4.7</td>
<td>4.4</td>
<td>3.0</td>
<td>2.73</td>
<td>299.27</td>
</tr>
<tr>
<td>LR test</td>
<td>166.63</td>
<td>90.34</td>
<td>20.73</td>
<td>82.13</td>
<td>63.59</td>
<td>61.61</td>
<td>48.49</td>
<td>54.53</td>
<td>51.63</td>
<td>1495.72</td>
<td>1080.29</td>
<td>299.27</td>
</tr>
<tr>
<td>P value</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

Notes: A reduced sample of N= 6534 (controlling for age>=18 & neighbourhood size >=6) is used for analysis. Number of chiwogs 607, minimum number of households in a chiwog 6 and maximum 65. Unstandardized coefficients are displayed in the table. ***=p< 0.01, **=p< 0.05 (a) RES= relative economic status, (b) Education=group mean centered, c) Age= dummies with age group (18-30) as reference group, (d) marital status with single as reference group. The regression controlled for number of households in each chiwog.
Model 3: Neighbourhood characteristics predicting social capital

Model 3 in Table 5.3 presents the influence of place, living in rural or urban areas, on four elements of social capital controlling for all individual socio-demographic variables.

The coefficient of the proportion of rural neighbourhoods was positively associated with all dimensions of social capital. The relationship was statistically highly significant, except for social network, and suggest that social capital is higher in rural than in urban areas. This result supports the hypothesis that individuals living in rural areas have significantly higher social capital than those living in urban areas. The findings here confirm those from the BLSS, suggesting that place has an important influence on the accumulation of social capital, and people in rural areas in Bhutan have significantly high levels of all dimensions of social capital compared to their counterparts in urban areas.

5.6 Discussion and conclusion

This chapter aimed to address two pertinent research questions: “How much of the variation in individual social capital is due to individual differences (level 1) and the context effect (level 2).”, and “Is social status a significant level 1 and are rural and urban neighbourhoods significant level 2 predictors of social capital?” The context used in the current study is the neighbourhoods (chiwogs) in Bhutan. The study examined the individual and context effects on level of social capital of individuals and investigated the determinants of social capital at individual level. The findings are discussed in the following sections.
5.6.1 Individual or context effect

The findings from both data sets show that significant variation in the dimensions of social capital is due to the context level effect. The ICC for four dimensions of social capital ranges between 15-22% in the BLSS and between 4-30% in the GNHS as in Table 5.4.

Table 5.4: Intraclass Correlation for four Dimensions of Social Capital

<table>
<thead>
<tr>
<th></th>
<th>Social Trust</th>
<th>Network</th>
<th>Sociability</th>
<th>Civic activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLSS</td>
<td>25</td>
<td>15.4</td>
<td>19.1</td>
<td>20.9</td>
</tr>
<tr>
<td>GNHS</td>
<td>8.2</td>
<td>5.5</td>
<td>4.3</td>
<td>30.4</td>
</tr>
</tbody>
</table>

The ICC for four dimensions of social capital based on both data sets indicates that a significant variation in the dimensions of social capital is due to the context level effect. The coefficient indicates the level of variation in social capital attributed to the context effect. For example, in case of social trust in BLSS, the ICC indicates 25% of the variation in trust is due to differences in the neighbourhoods and the remaining portion is due to the individual differences. This shows that level of social capital of individuals in Bhutan varies between different chiwogs or neighbourhoods. The ICC is quite large in the case of the BLSS compared to the GNHS. Variations in the ICC between the two data sets is possibly due to differences in the questions used by two surveys. The context effects found in the current study are comparable to other similar studies, e.g., Lindstrom, Merlo and Ostergren (2002), reported 6.3% (in the null model) of variance in social participation that was explained by the area of one’s residence. Subramanian et al. (2003) reported 21% variation across Chicago neighbourhoods in the US in reporting mistrust. Halman and Luijkx (2006) examined social capital across countries and reported variance as high as 77% in interpersonal trust across European countries. That study used the individual country as the context,
which differs from the current study. The findings in the current study suggest that the context plays a significant role in the accumulation of social capital at the individual level.

**5.6.2 Social status as a determinant**

The study examined the influence of the social status of individuals in determining the level of their social capital. It found indicators of social status; the relative economic status of households, age, education, and gender were significant determinants of different dimensions of individual-level social capital. The positive association between the relative economic status and social capital, especially in social networks and social interactions in case of the BLSS, and in social trust, social networks and social interactions in the GNHS suggests that individuals who report their households as comparatively rich are likely to have higher social capital than poorer households. These in general suggest a particular type of effect: those relatively less well-off interact less frequently, or with few other people in their community. Therefore, they have more limited social networks.

These findings are consistent with the evidence from previous studies, mainly based in Western countries (Delhey & Newton, 2003; Freitag, 2003; Putnam, 1995, 2000; Van Oorschot et al., 2006), who argued that the rich are able to trust others more than the poor. The rich are also likely to be better-connected and participate more in civic activities than the poor (Putnam, 1995, 2000). A possible explanation can be that individuals with high income or economic status have the ability to invest in social capital and accumulate more of it, which was referred to as the ‘capital accumulation effect’ by Van Oorschot et al. (2006) in his study in Europe. The finding in the current study seems to confirm this assertion. Individuals who are economically well off are likely to have a larger network of friends who are willing
to provide them support in need than others, because they have the ability to reciprocate the benefits received. They are also more likely to engage more in socializing with others, as they can afford to and with their higher ability to undertake risk, they are likely to trust others than people with a low economic status. This evidence shows that social status is an important determinant of social capital in Bhutan.

Education is also a key indicator of social status (Helliwell & Putnam, 2007; Hollingshead, 2011; Putnam, 1995, 2000). The higher the level of education, the higher the level of social status, because education empowers people with social skills and knowledge, which form the main basis for everyday social interactions and participation in the community activities (Brehm & Rahn, 1997; Freitag, 2003; Soroka et al., 2003). The findings from the current study indicate that people with an extra year of education from the average years of education of neighbourhoods were likely to have higher levels of three dimensions of social capital: social network, sociability and civic activity. However, the effect was not found in the case of social trust. Positive effects of education on the network of friends, sociability, and likelihood of engaging in civic activities were expected relationships and consistent with previous studies.

However, the findings from both data sets confirmed that more years of education associated with a low level of trust in others, which was an unexpected relationship. This negative association between people’s education level and trust seems to disconnect from the idea that people with a higher level of social status possess a higher level of social capital. It is also contrary to the theory that education transmits moral values and increases acceptance of otherness, which enables accumulation of social capital (Alesina & La Ferrara, 2002; Freitag, 2003;
Montgomery, 1997). A possible explanation for this negative influence of education on trust in Bhutan is the low level of education in the general population. According to Helliwell and Putnam (2007), higher average education attainment in a society can create a climate of trust that is self-reinforcing. However, in places where there is a low level of education on an average, additional education may not associate with a higher level of trust, because of the low trustworthiness of other less-educated people. This demonstrates a homogeneity effect, where people tend to distrust others who are not similar to themselves. Heterogeneity in the population has a negative influence on social trust (Putnam, 2007).

An explanation of the negative effect of education on social trust was also suggested by Kaasa and Parts (2008), who attributed the negative relationship to education fostering individualistic and competitive attitudes in Europe. This could be a possible explanation in Bhutan, in the sense of the country being a small scale economy with limited opportunities, which may encourage a sense of competition among educated people. For this reason, people may perceive others as less trustworthy. However, the positive relationship between level of education and other dimensions of social capital observed in the findings may not align well with this explanation. Future studies may test this possible explanation.

A similar negative relationship between the education level of people and social trust was also seen in a Vietnam study (Tan & Tambyah, 2011), but no explanation was provided by the authors. Vietnam is a developing country, where the average education level is low compared to developed countries and the effect of this could be an explanation for the relationship between the level of trust and education level of people. The homogeneity effect of people’s tendency to distrust dissimilar
others is a possible explanation of the negative association between education and social trust in Bhutan.

The analysis of GNH data also suggests a negative effect of education on one more element of social capital, engagement in civic activity. The indicator items used for civic activity for GNH data differed from BLSS in the sense that GNH data had more items included in civic activity, which were participation in local festivals, public meetings, and local elections. Educated people mostly live and work in city centres, where these measures of civic activity would be largely irrelevant. It is mostly people in villages who take part in these activities and they are either without or have limited education. This explains the negative relationship between the level of education of people and participation in civic activity.

The findings on the influence of the level of education of people on their perception of trust suggests the complex ways in which education might shape people’s level of trust. This shows that the association between social status and social capital is not always linear. The relationship can also be influenced by a number of other factors, which are not always observed, and it is difficult to control for all unobserved factors in a study. However, this unexpected finding does not mean that social status is less important as a determinant of the social capital of individuals.

The age of individuals captures the pattern of social status in their life cycle and can have an important influence on the level of social capital of people. For example, Putnam (2000) argued that social capital changes due to life cycle patterns in social behaviour. This social behaviour is typically caused by one of the three factors: the demands of family, the declining energy from adolescence to old age, and the shape of the career. These changes in social behaviour reflect changes in
one’s social status. The argument is that age capturing the life cycle pattern in social status is likely to have a non-linear effect on individuals’ social capital. The findings from the BLSS suggest a non-linear age effect on three dimensions of social capital: social trust, network, and civic activity; and on two dimensions: social trust and civic activity in the GNHS. Social trust seems to peak at age 46-60 and then declines with age and a similar pattern is observed for engagement in civic activity, but the extent of social networks increases and becomes not significant for the older age group compared to the reference age group (18-30) and a similar pattern is seen in civic activity in the GNHS.

The findings of this study suggest a non-linear effect of age on the accumulation of social capital, but only weak evidence of an inverse u-shape relationship between age and social trust, civic activities, and social networks was observed. The inverse u-shape relationship between group membership and age was previously shown by Glaeser et al. (2002) in US and Christoforou (2011) in southern European countries. Similar relationships between age and civic participation have also been observed in less developed European countries by Fidrmuc and Gëruxhani (2005). Evidence of a non-linear effect of age on social capital dimensions reflects the life-cycle pattern of social status, although the inverse u-shape relationship is not clearly established in this study. It indicates a possibility that older people starts to lose their social connections.

Gender is an important indicator of social status, as women are generally associated with having lower social status than men. The findings in the current study suggest that females are significantly worse off than men in two elements: social trust and networks according to analysis of the BLSS and with three elements: social trust, network, and civic activity according to the GNHS. These findings
suggest that women are less likely to trust others and more likely to have fewer networks of friends who are willing to help them in need. They are also less likely to engage in civic activity than men in the case of the GNH data. This highly significant result, especially in the case of the GNH data, which suggests that women do have lower social capital than men. In Bhutan, women are associated with lower social status than men, it is expected that women will have lower social capital. It is likely that the level of trust in others and to develop larger networks are influence by their social status. As discussed in chapter 2, the types of ties women developed are likely to be less influential in terms of gaining information about job openings, business opportunities and for professional achievements compared to men’s. This in turn reflects their status in the social structure. Thus, the finding further strengthens the evidence that social capital depends on the social status of individuals.

The findings from the current study indicate the importance of social status in determining the level of the social capital of individuals. The evidence of the influence of social status on the individual level of social capital is clearly observed in terms of the role of economic status, age, and gender. These findings confirm the assertions of the key scholars (particularly Bourdieu, 1986; Coleman, 1988; Putnam 1995, 2000) that social status is an important predictor of social capital. Those individuals with high social status are likely to possess a high level of social capital. The evidence becomes less clear, particularly with mixed findings in the case of education having a negative influence on social trust and the results also suggest that the role of the indicator of social status differs for different dimensions. The relationship between education and social trust in particular shows some complexity, but reflects the role of social status. Thus, the findings show that the social status of individuals has a crucial role in determining the level of individual social capital.
5.6.3 Context as a determinant

The current study also examined whether the context variable (level 2), living in rural and urban neighbourhoods, had a significant influence in determining the individual level of social capital. The motivation was to examine how neighbourhood level characteristics influence individual levels of social capital. The two key scholars, Coleman (1988) and Putnam (1995, 2000) argued that living in rural or urban areas is likely to make a difference to an individual’s level of social capital.

Emerging differences between rural and urban areas is one of the important concerns in Bhutan and understanding the difference in social life between two neighbourhoods can play important role. Rural neighbourhoods in Bhutan are mostly small in size and people living in them are more interdependent and highly connected, as they share common features such as local customs and norms of their communities. They may have a stronger sense of community identity and cooperation than those living in urban areas, as suggested by Coleman (1988) and Putnam (1995, 2000). On the other hand, people living in urban areas are more varied. The population is composed of people who have migrated from different parts of the country, they are more diverse in characteristics compared to people living in rural Bhutan. This diversity may hinder living in the community as in rural Bhutan, particularly in big urban cities. Thus, people living in urban areas are likely to have a lower sense of community identity. The way of life in these two different neighbourhoods is likely to influence the level of social capital of people. Therefore, the rural and urban neighbourhoods in Bhutan become a relevant context (level 2) variable to examine.

The finding of the current study suggest that people living in rural areas have significantly higher levels of social capital than those living in urban areas. Highly
significant results of the analyses of both data sets confirms that the place where people live is an important determinant of social capital in Bhutan. The rural and urban neighbourhood variable is a significant context-level predictor of individual level social capital in Bhutan.

### 5.6.4 Limitations and future studies

This study has several limitations. First, limitations in the data were explained in Chapter 4 and the analyses were restricted given these shortcomings. Second, the study is cross-sectional. Although this is suitable for identifying associations between variables and for comparative studies, this research design has a limitation in differentiating cause and effect from simple association (Mann, 2003). Therefore, the interpretation of the results of this study is limited to correlation and not causation. Third, although various social status indicators were in the analysis, it is still possible that unmeasured variables may confound the results. Lastly, given the data limitations, no level 2 explanatory variables other than rural and urban neighbourhoods could be included in the analysis, which would otherwise improve the model. Given there is substantial level 2 variance in social capital, future work should identify variables that account for this variability. The explanatory power of the set of social status indicators considered here as determinants of social capital is limited and does not capture some important indicators. The occupation of individuals is an important indicator of social status, but due to the lack of a comprehensive list of occupation groups in the BLSS, analysis could not use this indicator.

Future research with more appropriate measures of social status indicators would improve the explanatory power. Future work could focus on developing a social status index appropriate for Bhutan and similar developing countries. Further
research to establish a clear causal path using longitudinal studies, as well as complementing qualitative studies is recommended.

In conclusion, both social status indicators and the place where people live have an important influence on social capital formation in Bhutan, specifically robust evidence for the influence of place was observed. Although the evidence of the social status in determining social capital seems weak compared to place, in general it does suggest that higher social status associates with a higher level of social capital. This finding suggests that determinants of social capital operate as theoretical and empirical studies suggest. The current study shows that theories conceptualized in the context of developed countries also appear to explain social capital accumulation in a developing country such as Bhutan. However, there was one important difference. Education was negatively associated with social trust in Bhutan, which is unlike many other countries. The education level of people is changing rapidly and future research is expected to highlight this difference.

An important additional finding regarding the dimensions of social capital is that the influence of different determinants was not the same for all dimensions, which means that the dimensions of social capital function differently in Bhutan. Different dimensions of social capital do not reinforce each other, contrary to what Putnam (2000) argued. This may be partly due to the limitations in the data. Future work needs focusing on developing appropriate measures of social capital in the context of Bhutan. Measures capturing insights into differences between rural or urban settings and further investigation into interplay of gender role and effect of level of education are recommended to enrich the research on social capital.

The contribution to the theory and the policy implications of the findings of this study are presented in Chapter 7.
Chapter 6: Relationship between Social Capital and Social Outcomes

6.1 Introduction

This chapter investigates the relationship between social capital and social outcomes in Bhutan. Prior research (mostly from developed countries) has shown that social capital plays an important role in various social outcomes, including lower crime rates, improved child welfare, better educational performance, improved public health, effective governance, reduced political corruption and tax evasion, as well as improved economic performance (Knack & Keefer, 1997; Putnam, 2000; Woolcock, 2001). Evidence from developing countries is limited, though extant studies show a positive relationship between social capital and social outcomes, particularly happiness and self-rated health (Calvo et al., 2012; Han et al., 2012; Tokuda et al., 2010; Yip et al., 2007).

However, more evidence particularly focusing on developing countries is necessary to understand how different dimensions of social capital operate to influence subjective wellbeing in these societies. Studies have shown that there are important differences in the effects of social capital on subjective wellbeing in high and low income countries (Bjørnskov, 2003, 2006; Calvo et al., 2012). Given the prevalence of collective cultures in developing nations, and also due to the limited social welfare systems in these societies, social connectedness is expected to play a more important role than in developed and rich countries. However, the influence of social capital on social outcomes has not been fully explored and is still debated in developing country contexts.
Empirical studies investigate the relationship between social capital and social outcomes, mainly at two levels, the individual and contextual levels. Contextual level social capital represents social capital at the country, region, community, or neighbourhood level; while individual level social capital represents the self-reported level of social capital held by individuals within their communities (Kawachi, Kim, & Subramanian, 2004). Studies focusing on either the contextual or individual level effects suffer limitations, as they fail to capture the possible effects of both together, especially given that there may be a cross-level interaction effect of the two levels (Kawachi et al., 2004; Poortinga, 2006; Subramanian et al., 2002).

Researchers have employed a multilevel framework of analysis to examine the relationship between social capital and outcomes in more recent studies. These multilevel studies aimed to account for both individual and contextual level effects in examining the influence of different dimensions of social capital on outcomes. Few studies have examined the relationship between health status and subjective well-being using multilevel studies (Helliwell & Putnam, 2004; Poortinga, 2006; Tokuda et al., 2010; Han et al., 2013a; Han et al., 2013b; Yip et al., 2007).

In addition, some of these studies have also examined the cross-level interactions between the two levels, i.e., the effects of contextual-level social capital on individual-level social capital in influencing the level of outcomes. Evidence of the cross-level interaction effect of social capital at different levels is not entirely clear, particularly in subjective wellbeing studies in the developing countries. The evidence for the relationships has varied, as the studies looked at different aspects, which are not easily comparable. A significant cross-level interaction effect of individual and contextual-level social capital on self-rated health was reported by Subramanian et al. (2002) in the US, Poortinga (2006) in Europe, and Han et al.,
(2012) in South Korea. Similarly, Elgar et al. (2011) reported a significant cross-level effect on subjective wellbeing, while other studies such as Tokuda et al. (2010) and Han et al. (2013b) tested for the cross-level interaction effect and did not find significant effects.

The main purpose of this current study was to examine the relationship between social capital and social outcomes. To conduct a comprehensive examination of the relationship the effect of social capital at the individual, the contextual, and the cross-level interactions were tested. In addition, this study also explored the influence of indicators of social status, including economic status, age, education, gender, and marital status on social outcomes. The research questions this chapter addresses are: a) What is the relationship between individual-level social capital, happiness and health in Bhutan? and b) Does neighbourhood-level social capital have a direct influence on these outcomes, or does it interact with individual-level social capital in determining these outcomes?

This research makes an important contribution to the literature on social capital. It provides a more robust test of the influence of social capital on social outcomes by employing a multilevel model, which allows partitioning of variance attributed to the context and individual level differences. Second, it seeks to extend the knowledge regarding the influence of social capital in a developing country.

This chapter is organized as follows: Sections 6.2 and 6.3 present the theoretical background and hypotheses on relationship between social capital and social outcomes, Section 6.4 outlines the data and measurement, Section 6.5 discusses the results from two sets of data, and Section 6.6 provides the discussion and conclusion.
6.2 Theoretical background: The relationship between happiness and social capital, and hypotheses

As discussed in Chapter 2, self-rated happiness is a part of the subjective wellbeing concept. Self-rated happiness reports people’s feelings at a given time, which results in a measure of an experienced effect of happiness (Kahneman et al., 2006). Self-rated happiness is one aspect of subjective wellbeing, which relates to the presence of positive feelings, such as feeling happiness and joy, or a sense of vitality and energy according to Stiglitz, Sen and Fitoussi (2009). Happiness is an aspect of subjective wellbeing like life satisfaction. Although some authors have distinguished the terms happiness and life satisfaction (Gundelach & Kreiner, 2004; Han et al., 2013a), other researchers have used the terms interchangeably (e.g., Bjørnskov, 2003; Leung et al., 2011; Matsushima & Matsunaga, 2015). Veenhoven (1991) claimed that life satisfaction is the individuals’ judgement about the overall quality of their life as a whole, that is how well they like the life they lead, and it is synonymous to happiness.

Research suggests that social capital and subjective well-being are correlated. Putnam (2000) argued that happiness is best predicted by the breadth and depth of one’s social connections (Helliwell & Putnam, 2004; Putnam, 2000). People who have close friends, friendly neighbours, supportive co-workers, and good relationships with family members or partners are less likely to experience sadness, loneliness, and low self-esteem (Helliwell & Putnam, 2004). Having somebody to call on in the event of an emergency and reporting a high level of social trust is associated with better life evaluation and experiencing positive emotions across nations (Calvo et al., 2012; Diener, Harter & Arora, 2010; Tay & Diener, 2011).
Past studies have also shown that social trust and social support are associated with subjective wellbeing globally and that the correlation is greater in higher income countries than otherwise (Bjørnskov, 2003, 2006; Calvo et al., 2012; Helliwell, Huang, & Harris, 2009; Helliwell & Wang, 2011). Bjørnskov (2003) argued that although social capital influences happiness, the mechanism may differ between the developing world and the prosperous nations. He argued that policies directed to generating social capital seem to be the most promising avenues for raising happiness of most rich and stable western societies, while policies directed at increasing happiness in developing countries still need to be focused on income generation and stabilization (Bjørnskov, 2003).

The above evidence and arguments suggest that social trust and social connectedness play important roles in enhancing happiness in general, but to a lesser degree in the case of low income countries. This evidence of relationships makes one question whether social capital is important at all for developing countries to give priority to over other predictors of well-beings. However, available studies examining the relationship between social capital and happiness in developing countries also suggested a positive association between social capital and happiness (Han, et al., 2013a; Tokuda et al., 2010; Yip et al., 2007). Given that social capital is a multi-dimensional construct, it is difficult to anticipate a global pattern of relationship between subjective wellbeing and indicators of social capital. For example, Calvo et al. (2012) presented evidence that the relationship between various proxy measures of social capital and subjective wellbeing differed in the case of low-income countries from high and middle income countries. The difference in the finding between low and high income countries may suggest the role of social and
economic contexts in these countries that shape the pattern of social capital, and motivate the need to investigate the operation of social capital in different countries.

The current study investigates a developing country that has received little attention in terms of social capital. L. Dorji et al. (2013) examined the relationship between social capital and happiness and reported that social trust is an important determinant of happiness using logistic regression on the same data set used in this study. However, the study differs in many aspects, starting with the coding of dependent variables, soundness of the dimensions of social capital used, and most importantly, the robustness of the methodology. The current study covers additional dimensions of social capital, as it is unclear if, and how, these dimensions variably associate with happiness.

This chapter tests a set of hypotheses about the relationship between social capital and social outcomes in Bhutan. The study uses multilevel regression analysis to investigate the relationship between social capital and happiness. The model allows an examination of the relationship accounting for individual and contextual-level, as well as the cross-level interaction effect. The following sections present the hypotheses tested.

6.2.1 Individual level social capital and happiness

A high level of social trust and social support at the individual level are associates of happiness around the world (Calvo et al., 2012; Helliwell & Putnam, 2004). Social capital acts as a conduit of psychosocial processes, including the development of social support, mutual respect, self-esteem, and moral influence (Beaudoin, 2009; Kawachi & Berkman, 2000) leading to an increase in wellbeing of individuals. Further, a higher level of social connections facilitates the flow of information (Kim & Kawachi, 2006), which provides individuals with knowledge to
help them make informed decisions in their life. This would enhance their wellbeing. In addition, Meier and Stutzer (2008) argued that prosocial behaviour, such as volunteering and helping others, is the way to higher individual wellbeing. Empirical evidence from different parts of Asia (Han et al., 2013a, b; Tokuda et al., 2010; Yip et al., 2008) has shown varying associations between subjective well-being and social capital. Based on the above arguments, the current study examines the relationship in Bhutan, a different country context. The study tests the following hypothesis.

_Hypothesis 7:_ The four dimensions of individual level social capital (trust, networks, interaction, civic activity) are positively associated with individual level happiness.

### 6.2.2 Neighbourhood level social capital and happiness

According to Helliwell and Putnam (2004) social capital has externalities, it has important values, not only to those who possess them, but also has effects on bystanders. For instance, a dense social network in a neighbourhood, such as barbecues or neighbourhood associations can deter crimes, benefiting even those who do not join the barbecues or belong to the associations. This argument suggests social capital benefits reach beyond the individuals who possess it. Social context, the place where people live, plays an important role in determining behaviour, and the level of social capital in the neighbourhood where an individual lives is important in determining his/her happiness. An individual living in a place where there is a high level of social capital may be happier than someone living in a place where social connectedness is limited. This is because high norms of reciprocity and trust associated with social networks provide a crucial mechanism through which social capital influences the wellbeing of individuals. Tay and Diener (2011) argued that a person’s subjective wellbeing might depend not only on his or her personal
circumstances, but also on the lives of other people in that society and the general circumstances of the society. Based on these arguments the level of social capital in a society is expected to influence the subjective wellbeing of the individuals living in it.

Empirical studies, mostly based in developed countries, have found that people who live in countries with a high level of social capital are more likely to express a high level of subjective well-being (Bjørnskov, 2003; Gundelach & Kreiner, 2004; Ram, 2010). Studies using a multilevel model (both cross country and a single country studies) have suggested positive associations between context-level social capital and people’s subjective wellbeing (Han et al., 2013; Helliwell & Putnam, 2004; Tokuda et al., 2010; Yip et al. 2007).

However, the evidence of association is greater and more consistent for context-level social trust, but not for other elements of social capital. Based on the above arguments and evidence from past, the current study tests whether a similar relationship exists in Bhutan, therefore, it tests the following hypothesis.

*Hypothesis 8*: The four dimensions of aggregate social capital (trust, network, interaction, civic activity) at the neighbourhood level are positively associated with individual level happiness.

### 6.2.3 Cross-level interactions

Both individual-level and context-level social capital can have either a direct or moderation influence on outcomes. The context-level of social capital can moderate the relationship between the individual-level and the outcome. For example, in the current study context-level trust in the neighbourhood could moderate the relationship between individual-level trust and happiness. This moderating effect
shows up as a statistical interaction between explanatory variables from different levels in a multilevel model. Some researchers, in an effort to establish the true contextual effect of social capital on outcomes, have investigated the cross-level interactions, particularly in health studies.

Multilevel studies examining cross level effects on happiness have not been consistent. Elgar et al. (2011) found significant cross-level interactions, while Han et al. (2013b) and Tokuda et al. (2010) did not find a cross-level interaction effect. However, the current study anticipates a positive interaction effect between individual and context-level social capital on individual-level happiness and tests the following hypothesis.

**Hypothesis 9**: Neighbourhood-level social capital is expected to moderate individual-level social relationships, such that higher levels of trust and social connectedness in a neighbourhood is expected to enhance the effect of the social capital of individuals on self-reported happiness.

In addition, this study examines the effect of social status indicators (relative economic status, age, education, gender, and marital status) on happiness.

### 6.3 Theoretical background: Relationship between health and social capital, and hypotheses

A social environment with a high level of social connectedness is widely acknowledged as having remarkable health benefits (Kawachi et al., 1999; Putnam, 2000). According to Putnam (2000) people who are well integrated in their community are less likely to experience colds, suffer heart attacks, strokes, cancers, depression, or premature death (p.326). Living in areas with a high social trust is associated with better self-rated health (Kawachi et al., 1999). As discussed earlier in Chapter 2, Section 2.5.2, Putnam (2000) argued that social capital generates
significant health benefits in multiple ways: first, social networks provide a safety net and also tangible assistance, such as money, recuperating care, and transportation, which reduces both psychic and physical stress; second, it reinforces healthy norms by discouraging people from engaging in other health damaging behaviour; lastly, social capital serves as a “physiological triggering mechanism”, it stimulates people’s immune system to fight against disease and buffer stress (Putnam, 2000 p.327). In addition, Putnam (2000) also highlighted the importance of community-level social capital. He argued that socially cohesive communities are best able to organize politically to ensure first-rate medical services. These arguments suggest that social capital at both the individual and aggregate-level have an important influence on health.

Empirical research suggests that a high level of social capital, strong social ties, and social support are associated with better health (Berkman & Glass, 2000; Cohen & Janicki-Deverts, 2009; Kumar et al., 2012). Social connectedness in the form of family, friends, neighbours, and community involvement has a positive effect on health status in the US and Canada (Helliwell & Putnam, 2004). A high level of trust, trustful friendship networks, active social participation, and religious involvement associated significantly with self-rated health status in Finland (Hyyppä and Mäki 2003), and higher individual-level trust associated positively with functional health and longevity in the US (Barefoot et al., 1998). In addition, Kawachi, Kennedy and Glass (1999) argued that people living in areas with a low level of social trust are likely to report poor health in the US.

Evidence from developing countries is not always consistent and suggests that the strength of the relationship varies depending on the indicators used and the country under study (Kumar et al., 2012). In addition, studies in Asia (both cross-
country and individual country settings) (Ichida et al., 2009; Han et al., 2012; Miller, Lam, Scheffler, Rosenberg, & Rupp, 2006; Yamaoka, 2008; Yip et al., 2007) suggested varying associations between social capital and health outcomes. However, De Silva et al. (2007) based on the cross-country study in developing countries, suggested that the association of social trust and mental health has a more universal effect, while other elements of social capital, such as group membership, citizenship activity, and social support have context specific effects.

Cultural differences in social behaviour can influence the association between social capital and health. Social capital is strongly linked to human relationships in communities or society, and the pattern of social behaviour differs from one culture to another and from individual to individual (Ichida et al., 2009; Kumar et al., 2012). The effect of social capital on health can vary among culture and countries. In any effort to establish a universal relationship between social capital and health it is important to first investigate whether the relationship exists at the country level (Ichida et al., 2009). The current study investigates a country in Asia where such study has not been undertaken and the hypotheses tested are presented in the next sections.

6.3.1 Individual level social capital and self-rated health

The level of social capital possessed by individuals plays an important role in people’s health as discussed in Section 6.3. Scholars have argued that social connectedness generates important health benefits as mentioned earlier (Putnam 2000), in addition (Beaudoin, 2009; Kawachi & Berkman, 2000) argued that social support, mutual respect, self-esteem, moral influence, and diffusion of health information could generate health and wellbeing benefits for individuals. Based on these common beliefs, several studies have investigated the association between
individual-level social capital and self-rated health. Both individual level and multilevel studies have shown evidence of a positive association between individual-level social capital and self-rated health.

In Asia, the association between individual-level social capital and self-rated health status was examined by Yamaoka (2008) in East Asian countries, Yip et al. (2007) in rural China, and Han et al. (2012) in South Korea. These studies found positive associations between different indicators of social capital with self-rated health status, with the exception of Yip et al. (2007) who failed to find an association between organizational membership and health outcomes.

The current study tests the relationship in the context of Bhutan. Social trust, social connections, and engaging in civic activities, such as volunteering and helping others, are important cultural values in this country. However, whether these values associate with self-rated health is not known. Based on the arguments that social capital has important health benefits and the evidence of relationships from other countries, the following hypothesized relationship is tested in Bhutan.

**Hypothesis 10**: The four dimensions of individual level social capital (trust, network, interaction, civic activity) are positively associated with self-rated health status.

### 6.3.2 Neighbourhood level social capital and self-rated health status

The level of social capital of the community or societal level exerts an important influence on the health of individuals living in it. According to Putnam (2000) a socially cohesive community has an advantage, as people can organize themselves to influence health policy. A generally cohesive community has strong norms and provides social support that could lead to significant health benefits. Several country level studies have documented positive relationships between social
capital and health outcomes in developed countries (Kawachi et al., 1997; Kawachi, Kennedy, & Glass, 1999; Putnam, 2000; Veenstra, 2002). On the other hand, Subramanian et al. (2002) failed to find the effect of community social trust on health while controlling for individual trust perceptions. Similarly, Poortinga (2006) found no significant correlation between aggregate social trust and civic participation and self-rated health status when individual differences in socio-demographics were adjusted. However, living in a high trust community seems to improve health according to Helliwell and Putnam (2004).

The relationship between neighbourhood level social capital and health outcomes was examined in Japan by Fujisawa, Hamano and Takegawa (2009), in Indonesia (Miller et al., 2006), and in urban China by Sun, Rehnberg and Meng (2009). Evidence showed a positive association between different measures of community level social capital and perception of health in Japan and Indonesia but not in urban China. This lack of relationship between neighbourhood social capital and health is mainly due to declining social connectedness among urban residents in China. Additional evidence is based on multilevel settings and these studies examined the influence of aggregate-level social capital variables on individual-level health outcome. In rural China, Yip et al., (2007) found a positive association of village level social trust with both self-rated general health and psychological health, while village level organizational membership was not associated with any health outcomes. On the other hand, in South Korea, Han et al. (2012) did not find evidence of an association between social capital and self-rated health at the administrative area level. The evidence varies and it seems that the relationships differ depending on the country and level of analysis, including measures of both dependent and independent variables.
Based on the above arguments and evidence from other countries, this thesis investigates the relationship between neighbourhood level social capital and the self-rated health in Bhutan in the current study and tests the following hypothesis.

*Hypothesis 11:* The four dimensions of neighbourhood-level social capital are positively associated with self-rated health status.

### 6.3.3 Cross-level interactions

Individual and aggregate level social capital could have either a direct or a moderated influence on health outcomes. The cross-level interaction can test for the moderating effect of neighbourhood level social capital on individual level social capital in determining the health outcome. Significant cross-level interaction effects between individual and context-level social capital that influence health status have been reported by Elgar et al. (2011) in a global cross-county study, Han et al. (2012) in South Korea, Poortinga (2006) in a cross-country study in Europe, and Subramanian (2002) in the US. The cross-level interaction effect suggests that the effect of individual-level social capital on self-rated health status is enhanced by living in a community or country with a high level of social capital.

The current study tests the relationship in Bhutan. It is hypothesized that there is a positive interaction effect of individual and neighbourhood level social capital on self-rated health status, as it is expected that socially connected neighbourhoods increase the strength of the influence of individual-level social relationships in determining individual health status. Thus, the cross level effect between the two levels of social capital are tested.

*Hypothesis 12:* Neighbourhood-level social capital is expected to moderate the individual-level social relationships, such that higher levels of trust and social
connectedness in a neighbourhood are expected to enhance the effect of social capital of individuals on self-rated health status.

Further, this study examines the effect of social status indicators (relative economic status, age, education, gender, and marital status) on self-rated health.

6.4 Data, measurement and analytical strategy

Data used for the analysis were the BLSS, 2012 and GNH survey 2010, explained in detail in Chapter 3.

6.4.1 Measures: The dependent variables

The dependent variables were self-reported happiness and health status based on the information in the two data sets.

**Happiness:** In the case of BLSS 2012, information was asked of household heads based on the following question: ‘In general, how happy do you consider yourself to be?’ The survey rated the answer on a 5-point scale ranging from 1) very happy, 2) moderately happy, 3) neither happy nor unhappy, 4) moderately unhappy, and 5) very unhappy. In order to arrange the scale from low to high, the variable was re-coded by reversing the order. In the GNH survey, the individual respondents were asked to rank their happiness on the scale of zero-10, zero stands for ‘not a very happy person’ and 10 ‘very happy person’. These variables were treated as continuous variables.

**Self-rated health:** The self-rated health status was based on the information available in the GNH survey based on the following question ‘In general, would you say your health is’ and the responses recorded on a 5 point-scale ordered as 5) excellent, 4) good, 3) fair, 2) poor, and 1) very poor. This variable was treated as a
continuous variable. The relevant information was not available in the BLSS, therefore the analysis excludes this data set.

6.4.2 Measures: Explanatory variables

Individual-level variables

The four dimensions of social capital elements: social trust, networks, sociability, and civic activities at the individual-level were the main independent variables. These were explained in Chapter 4.

Indicators of social status, socio-demographic variables (age, relative economic status, education, gender, marital status) were the explanatory variables used to examine their influence on two social outcomes, in addition to four dimensions of individual-level social capital. These variables are the same as in Chapter 5.

Neighbourhood-level variables

Neighbourhood-level variables were represented by aggregating the individual-level social capital to the neighbourhood level by taking the mean of the individual-level variables. The four neighbourhood-level social capital variables were aggregate social trust, network, sociability, and civic activity at the neighbourhood level. In addition, rural and urban neighbourhood was also used as the (level 2) explanatory variable.

The description of all variables: mean, standard deviation, and correlation for the two data sets are presented in Table 6.1(a) & 6.1(b)
Table 6-1a) Mean, Standard Deviation, and Correlation of Variables (BLSS)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Happiness</td>
<td>4.15</td>
<td>.759</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Social trust</td>
<td>-.003</td>
<td>.627</td>
<td>.072***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Social network</td>
<td>.001</td>
<td>.659</td>
<td>.118***</td>
<td>.237***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sociability</td>
<td>.000</td>
<td>.807</td>
<td>.066***</td>
<td>-.017</td>
<td>.123***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Civic activity</td>
<td>.002</td>
<td>.753</td>
<td>.000</td>
<td>.002</td>
<td>.064***</td>
<td>.117***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Age</td>
<td>.013</td>
<td>12.6</td>
<td>-.012</td>
<td>.054***</td>
<td>.006</td>
<td>-.026**</td>
<td>-.013</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Relative economic status</td>
<td>2.88</td>
<td>.645</td>
<td>.297***</td>
<td>-.080***</td>
<td>.053***</td>
<td>.070***</td>
<td>.002</td>
<td>-.015</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Education</td>
<td>-.001</td>
<td>4.89</td>
<td>.106***</td>
<td>-.064***</td>
<td>.060***</td>
<td>.089***</td>
<td>.045***</td>
<td>-.328***</td>
<td>.209***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Gender</td>
<td>.268</td>
<td>.443</td>
<td>-.054***</td>
<td>-.034***</td>
<td>-.025**</td>
<td>.010</td>
<td>.021**</td>
<td>-.033***</td>
<td>-.055***</td>
<td>-.135***</td>
<td></td>
</tr>
<tr>
<td>10. Single</td>
<td>.066</td>
<td>.249</td>
<td>.026**</td>
<td>-.060***</td>
<td>-.007</td>
<td>.026**</td>
<td>-.003</td>
<td>-.212***</td>
<td>.054***</td>
<td>.152***</td>
<td>.056***</td>
</tr>
<tr>
<td>11. Married/living together</td>
<td>.818</td>
<td>.386</td>
<td>.040***</td>
<td>.008</td>
<td>.019</td>
<td>-.005</td>
<td>-.002</td>
<td>-.032***</td>
<td>.030***</td>
<td>.018</td>
<td>-.320***</td>
</tr>
<tr>
<td>12. Divorced/separated</td>
<td>.044</td>
<td>.205</td>
<td>-.054***</td>
<td>-.005</td>
<td>-.017</td>
<td>-.017</td>
<td>.003</td>
<td>-.012</td>
<td>-.013</td>
<td>-.077***</td>
<td>.237***</td>
</tr>
<tr>
<td>13. Widow</td>
<td>.071</td>
<td>.258</td>
<td>-.055***</td>
<td>.050***</td>
<td>-.008</td>
<td>-.004</td>
<td>.003</td>
<td>.262***</td>
<td>-.087***</td>
<td>-.112***</td>
<td>.236***</td>
</tr>
<tr>
<td>14. Neighbourhood trust</td>
<td>-.003</td>
<td>.354</td>
<td>.022**</td>
<td>.565***</td>
<td>.159***</td>
<td>-.062***</td>
<td>-.018</td>
<td>0.00</td>
<td>-.147***</td>
<td>.000</td>
<td>-.056***</td>
</tr>
<tr>
<td>15. Neighbourhood network</td>
<td>.001</td>
<td>.304</td>
<td>.030***</td>
<td>.195***</td>
<td>.462***</td>
<td>.126***</td>
<td>.026**</td>
<td>0.00</td>
<td>-.069***</td>
<td>.000</td>
<td>.007</td>
</tr>
<tr>
<td>16. Neighbourhood sociability</td>
<td>.000</td>
<td>.394</td>
<td>-.050***</td>
<td>-.072***</td>
<td>.119***</td>
<td>.488***</td>
<td>.091***</td>
<td>0.00</td>
<td>-.066***</td>
<td>.000</td>
<td>.065***</td>
</tr>
<tr>
<td>17. Neighbourhood civic activity</td>
<td>.001</td>
<td>.383</td>
<td>-.032**</td>
<td>-.020</td>
<td>.023**</td>
<td>.086***</td>
<td>.510***</td>
<td>0.00</td>
<td>-.047***</td>
<td>.000</td>
<td>.098***</td>
</tr>
<tr>
<td>18. Neighbourhood rural/urban</td>
<td>.479</td>
<td>.500</td>
<td>-.055***</td>
<td>.241***</td>
<td>.139***</td>
<td>.040***</td>
<td>.097***</td>
<td>0.00</td>
<td>-.272***</td>
<td>.000</td>
<td>.169***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Single</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Married/living together</td>
<td>-.565***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Divorced/separated</td>
<td>-.057***</td>
<td>-.456***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Widow</td>
<td>-.074***</td>
<td>-.588***</td>
<td>-.060***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Neighbourhood trust</td>
<td>-.074***</td>
<td>.008</td>
<td>-.027***</td>
<td>.081***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Neighbourhood network</td>
<td>.004</td>
<td>-.013</td>
<td>.013</td>
<td>.025**</td>
<td>.345***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Neighbourhood sociability</td>
<td>.018</td>
<td>-.028***</td>
<td>.013</td>
<td>.015</td>
<td>-.026***</td>
<td>.258***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Neighbourhood civic activity</td>
<td>-.024***</td>
<td>-.039***</td>
<td>.015</td>
<td>.071***</td>
<td>-.036***</td>
<td>.050***</td>
<td>.178***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Neighbourhood rural/urban</td>
<td>-.102***</td>
<td>-.042</td>
<td>-.015</td>
<td>.173***</td>
<td>.428***</td>
<td>.301***</td>
<td>.081***</td>
<td>.191***</td>
<td></td>
</tr>
</tbody>
</table>

Reduced sample of N=8422 (age>=18 & size of the neighbourhood (chisog)=6 households) is used for analysis. (a) Age=group mean centered, (b) Education=group mean centered, *** = correlation is significant at the 0.01 level, ** = 0.05 level
### Table 6-1b) Mean, Standard Deviations, and Correlation of Variables (GNHS)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Happiness</td>
<td>6.05</td>
<td>1.59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Health status</td>
<td></td>
<td></td>
<td>3.83</td>
<td>.864</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Social trust</td>
<td></td>
<td></td>
<td>-.004</td>
<td>.763</td>
<td>.068**</td>
<td>.006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Social network</td>
<td></td>
<td></td>
<td>.004</td>
<td>.761</td>
<td>.236**</td>
<td>.181***</td>
<td>.111***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Sociability</td>
<td></td>
<td></td>
<td>-.006</td>
<td>.660</td>
<td>.037***</td>
<td>.056***</td>
<td>.015</td>
<td>.057***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Civic activity</td>
<td></td>
<td></td>
<td>-.014</td>
<td>.692</td>
<td>-.045***</td>
<td>-.004</td>
<td>.191***</td>
<td>.070***</td>
<td>.062***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Age (a)</td>
<td></td>
<td></td>
<td>.416</td>
<td>13.4</td>
<td>-.020</td>
<td>-.207***</td>
<td>.134***</td>
<td>.009</td>
<td>-.081***</td>
<td>.103***</td>
<td></td>
</tr>
<tr>
<td>8. Relative economic status</td>
<td>2.818</td>
<td>.610</td>
<td>.280***</td>
<td>.172***</td>
<td>-.006</td>
<td>.224***</td>
<td>.089***</td>
<td>-.063***</td>
<td>-.095***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Education (b)</td>
<td></td>
<td></td>
<td>-.041</td>
<td>3.83</td>
<td>.137***</td>
<td>.102***</td>
<td>-.112***</td>
<td>.040***</td>
<td>.048***</td>
<td>-.165***</td>
<td>-.333***</td>
</tr>
<tr>
<td>10. Gender</td>
<td></td>
<td></td>
<td>.515</td>
<td>.500</td>
<td>-.093***</td>
<td>-.107***</td>
<td>-.116***</td>
<td>-.110***</td>
<td>.017</td>
<td>-.091***</td>
<td>-.171***</td>
</tr>
<tr>
<td>11. Single</td>
<td></td>
<td></td>
<td>.082</td>
<td>.274</td>
<td>.033***</td>
<td>.055***</td>
<td>-.092***</td>
<td>-.014</td>
<td>.012</td>
<td>-.187***</td>
<td>-.269***</td>
</tr>
<tr>
<td>12. Married/living together</td>
<td>.815</td>
<td>.388</td>
<td>.068***</td>
<td>.053***</td>
<td>.049**</td>
<td>.097***</td>
<td>-.003</td>
<td>.074***</td>
<td>.054***</td>
<td>.071***</td>
<td>-.098***</td>
</tr>
<tr>
<td>13. Divorced/separated</td>
<td>.046</td>
<td>.209</td>
<td>-.063***</td>
<td>-.013</td>
<td>-.019</td>
<td>-.076***</td>
<td>.002</td>
<td>.040***</td>
<td>-.037***</td>
<td>-.074***</td>
<td>-.021</td>
</tr>
<tr>
<td>14. Widow</td>
<td></td>
<td></td>
<td>.060</td>
<td>.237</td>
<td>-.094***</td>
<td>-.143***</td>
<td>.039***</td>
<td>-.078***</td>
<td>-.007</td>
<td>.059***</td>
<td>-.259***</td>
</tr>
<tr>
<td>15. Neighbourhood trust</td>
<td>.006</td>
<td>.314</td>
<td>-.055***</td>
<td>-.066***</td>
<td>.407***</td>
<td>.071***</td>
<td>.011</td>
<td>.382***</td>
<td>-.010</td>
<td>-.064***</td>
<td>.006</td>
</tr>
<tr>
<td>16. Neighbourhood network</td>
<td>.003</td>
<td>.286</td>
<td>.126***</td>
<td>.067***</td>
<td>.075***</td>
<td>.377***</td>
<td>-.037***</td>
<td>.088***</td>
<td>-.006</td>
<td>.119***</td>
<td>.003</td>
</tr>
<tr>
<td>17. Neighbourhood sociability</td>
<td>-.007</td>
<td>.236</td>
<td>-.029***</td>
<td>.008</td>
<td>.013</td>
<td>-.045***</td>
<td>.360***</td>
<td>.009</td>
<td>.007</td>
<td>-.000</td>
<td>-.003</td>
</tr>
<tr>
<td>18. Neighbourhood civic activity</td>
<td>-.027</td>
<td>.430</td>
<td>-.076***</td>
<td>-.092***</td>
<td>.250**</td>
<td>.055***</td>
<td>.003</td>
<td>.616***</td>
<td>-.011</td>
<td>-.088***</td>
<td>.008</td>
</tr>
<tr>
<td>19. Neighbourhood rural/urban</td>
<td>.772</td>
<td>.419</td>
<td>-.083***</td>
<td>-.089***</td>
<td>.226***</td>
<td>.018</td>
<td>.030**</td>
<td>.466***</td>
<td>-.004</td>
<td>-.084***</td>
<td>.006</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Single</td>
<td>.006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Married/living together</td>
<td>-.134***</td>
<td>-.620***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Divorced/separated</td>
<td>.129***</td>
<td>-.055***</td>
<td>-.450***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Widow</td>
<td>.106***</td>
<td>-.066***</td>
<td>-.523***</td>
<td>-.043***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Neighbourhood trust</td>
<td>-.108***</td>
<td>-.089***</td>
<td>.041***</td>
<td>-.007</td>
<td>.038***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Neighbourhood network</td>
<td>-.075***</td>
<td>.006</td>
<td>.051***</td>
<td>-.039***</td>
<td>-.056***</td>
<td>.182***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Neighbourhood sociability</td>
<td>.015</td>
<td>-.001</td>
<td>-.033***</td>
<td>.011</td>
<td>.042***</td>
<td>.030***</td>
<td>-.105***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Neighbourhood civic activity</td>
<td>-.087***</td>
<td>-.105***</td>
<td>.019</td>
<td>.028***</td>
<td>.067***</td>
<td>.624***</td>
<td>.142***</td>
<td>.009</td>
<td></td>
</tr>
<tr>
<td>19. Neighbourhood rural/urban</td>
<td>-.061***</td>
<td>-.087***</td>
<td>-.018</td>
<td>.051***</td>
<td>.084***</td>
<td>.558***</td>
<td>.041***</td>
<td>.081***</td>
<td>.755***</td>
</tr>
</tbody>
</table>

Reduced sample of N=6534 (age>=18 & size of the neighbourhood (chivog) >=6 households) is used for analysis. (a) Age=group mean centered, (b) Education=group mean centered. *** = correlation is significant at the 0.01 level, ** = 0.05 level.
6.5 Data analysis approach and results

6.5.1 Data analysis approach

As in the previous chapter, this chapter employs multilevel modelling to investigate the relationship between social capital and two social outcomes, self-rated happiness and health status. In this chapter, five different models of multilevel analysis are used, as explained below:

*Model 1:* As explained in Chapter 5, the empty model enables estimation of the intraclass correlation coefficient (ICC), which measures the proportion of variance in the dependent variable explained by level-2 variables.

*Model 2:* This model includes all individual-level social capital variables and socio-demographic variables as in the fixed part. This model assessed the effect of individual-level social capital on the self-rated happiness and health while it accounted for social status indicators.

*Model 3:* This model is same as Model 2 with the addition of neighbourhood-level social capital variables. This model assessed the effect of neighbourhood social capital on self-rated happiness and health while accounting for individual-level social capital and social status indicators.

*Model 4:* This model is same as Model 3, with the addition of rural/urban neighbourhoods to control for the effect of the difference between the rural and urban residences of respondents.

*Model 5:* This model is same as Model 4, with the addition of cross-level interaction. The cross-level interaction effect of two sets of predictors on self-rated happiness and health
was considered. This model examined whether neighbourhood-level social capital enhanced individual-level social capital in determining two social outcomes.

All missing data were treated with multiple imputation method (Stata version, 13) and the details are explained in Chapter 3 section 3.4.2. The sample consisted of people as young as 15 years, the analysis considered a sub-sample comprising of individuals who were 18 years and above (adult years) to have a meaningful sample responding to the question on social capital. In addition, there were some small neighbourhoods comprising of only one or two households, and these small neighbourhoods were excluded from the analysis in order to focus on a meaningful sample for the operation of social capital. The analysis considered neighbourhoods with six or more households.

In the following sections, results of the five models described above are presented using BLSS data first for self-rated happiness. As the outcome variable representing happiness in the BLSS dataset is ordinal, a mixed effect ordered logit model was estimated for a robustness tests. The result did not differ substantively from the multilevel linear model. The same analysis for the GNH data is then reported in the following section. Self-rated health status was examined using only GNH data for the reason explained above. Mixed effect ordered logit model was estimated for the two outcomes from the GNH data as well, the results remained the same even with this model.

6.5.2 Result: Self-rated happiness, BLSS

Model1: ICC for self-rated happiness

Table 6.2 presents two groups of analyses, the first group of analysis is for the BLSS data. In the first model (empty model) for dependent variables of self-rated happiness, ICC indicates that neighbourhoods accounted for 12% of the variability in self-rated happiness.
The p-value of likelihood ratio test in the model suggests a significant group level variance: multilevel modelling was thus warranted.

**Model 2: Individual-level social capital variables predicting happiness**

Model 2 in the first group of analysis in Table 6.2 presents the result of analysis of the association between individual-level social capital and self-rated happiness accounting for social status indicators. Three of the four dimensions of social capital: social trust, networks, and sociability were positively associated with happiness. This result was obtained after accounting for the influence of social status indicators. Among these indicators, relative economic status and education were positively associated with happiness and statistically highly significant, particularly relative economic status. Relative economic status had the largest coefficient and standard error was not large, which indicates a significant effect size. For marital status, individuals who were divorced, separated, and widowed reported less happiness compared to those who were single. Three of the individual-level social capital dimensions: social trust, social network, and civic activity had a significant positive effect on the happiness of people, which supports Hypothesis 7 on individual-level social capital.

**Model 3: Neighbourhood-level social capital predicting happiness**

Model 3 in the first group of analysis in Table 6.2 presents the analysis of association between neighbourhood-level social capital and self-rated happiness accounting for individual-level social capital and social status indicators. The coefficients of neighbourhood-level trust and networks were not significant, while neighbourhood-level sociability was statistically highly significant with a negative association. Civic activity suggested a positive effect on happiness but was only weakly significant. The findings from this model do not support the hypothesis on neighbourhood-level social capital.

The effect of rural and urban neighbourhood in addition to other explanatory variables in Model 3 is accounted for separately in *Model 4*. The results remained the same as in Model
3 and rural/urban neighbourhoods was statistically nonsignificant; however, this variable became highly significant when relative economic status was excluded from the model. This may suggest that it is the difference in the relative economic status between rural and urban neighbourhoods, rather than location that matters for the happiness of people.

**Model 5: Cross-level interaction effect on happiness**

Model 5 in the first group of analysis in Table 6-2 presents the cross-level interaction effect of four elements of social capital on happiness. An interaction effect shows that the regression coefficient of one variable depends on the values of the other variables. For example, the effect of individual-level trust on happiness depends on the level of trust at the neighbourhood-level. The coefficients of two interaction terms; social trust and social networks were positive and significant, and the result partially supports the hypothesis on the cross-level interaction effect.

**Cross-level interaction effect of social trust**

The coefficient of the cross-level interaction of social trust was positive ($\beta=.132$, $p=.002$) suggesting that neighbourhood-level trust strengthens the effect of individual-level trust on the happiness of individuals. This indicates that people with higher levels of trust living in neighbourhoods that exhibit higher levels of trust experience a higher level of happiness compared to those living in areas with a lower level of trust. Therefore, happiness is not just associated with how much social trust an individual has, but is also influenced by how much social trust exists in their neighbourhood.
Table 6-2 Multilevel Regression Result for Dependent Variable Happiness (BLSS+GNHS)

<table>
<thead>
<tr>
<th>Fixed effects</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual level (L1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social trust</td>
<td>.096***</td>
<td>.087***</td>
<td>.087***</td>
<td>.108***</td>
<td>.142***</td>
<td>.203***</td>
<td>.203***</td>
<td>.209***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social network</td>
<td>.090***</td>
<td>.092***</td>
<td>.092***</td>
<td>.086***</td>
<td>.350***</td>
<td>.323***</td>
<td>.324***</td>
<td>.319***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sociability</td>
<td>.046***</td>
<td>.064***</td>
<td>.064***</td>
<td>.065***</td>
<td>.027</td>
<td>.035</td>
<td>.035</td>
<td>.035</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civic activity</td>
<td>-.005</td>
<td>-.005</td>
<td>-.005</td>
<td>-.001</td>
<td>-.077***</td>
<td>.033</td>
<td>.034</td>
<td>.022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (a)</td>
<td>.001</td>
<td>.001</td>
<td>.001</td>
<td>.001</td>
<td>.004**</td>
<td>.002</td>
<td>.002</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative economic status</td>
<td>.318***</td>
<td>.313***</td>
<td>.313***</td>
<td>.314***</td>
<td>.547***</td>
<td>.523***</td>
<td>.523***</td>
<td>.521***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>.006***</td>
<td>.006***</td>
<td>.006***</td>
<td>.006***</td>
<td>.038***</td>
<td>.043***</td>
<td>.043***</td>
<td>.043***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.018</td>
<td>-.014</td>
<td>-.014</td>
<td>-.014</td>
<td>-.091**</td>
<td>-.099***</td>
<td>-.099***</td>
<td>-.102***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/living together (b)</td>
<td>-.003</td>
<td>-.005</td>
<td>-.005</td>
<td>-.009</td>
<td>.004</td>
<td>.026</td>
<td>.025</td>
<td>.022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced/ separated</td>
<td>-1.174***</td>
<td>-1.174***</td>
<td>-1.174***</td>
<td>-1.175***</td>
<td>-2.42***</td>
<td>-2.21***</td>
<td>-2.14***</td>
<td>-2.20***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widow</td>
<td>-.099***</td>
<td>-.103***</td>
<td>-.103***</td>
<td>-.106***</td>
<td>-.313***</td>
<td>-.253***</td>
<td>-.248***</td>
<td>-.250***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggregate level: Neighbourhood (L2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighbourhood trust</td>
<td>.019</td>
<td>.018</td>
<td>.000</td>
<td>-.395***</td>
<td>-.368***</td>
<td>-.375***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighbourhood network</td>
<td>.025</td>
<td>.025</td>
<td>.017</td>
<td>.278***</td>
<td>.263***</td>
<td>.262***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighbourhood sociability</td>
<td>-.156***</td>
<td>-.156***</td>
<td>-.153***</td>
<td>-.106</td>
<td>-.090</td>
<td>-.133</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighbourhood civic activity</td>
<td>.008</td>
<td>.008</td>
<td>.018</td>
<td>-.223***</td>
<td>-.132</td>
<td>-.115</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighbourhood rural/urban</td>
<td>.001</td>
<td>.013</td>
<td>.013</td>
<td>.141</td>
<td>-.149**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction L1*L2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social trust * neighbourhood trust</td>
<td>.132***</td>
<td>.130***</td>
<td>.130***</td>
<td>.001</td>
<td>.224**</td>
<td>.224**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network*neighbourhood network</td>
<td>.025</td>
<td>.025</td>
<td>.017</td>
<td>.278***</td>
<td>.263***</td>
<td>.262***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sociability*neighbourhood sociability</td>
<td>-.156***</td>
<td>-.153***</td>
<td>-.153***</td>
<td>-.106</td>
<td>-.090</td>
<td>-.133</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civic activity * neighbourhood civic Constant</td>
<td>.414***</td>
<td>3.26***</td>
<td>3.27***</td>
<td>3.27***</td>
<td>3.27***</td>
<td>6.04***</td>
<td>4.58***</td>
<td>4.62***</td>
<td>4.74***</td>
<td>4.78***</td>
</tr>
<tr>
<td>Random effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within group var (level 1)</td>
<td>.071</td>
<td>.060</td>
<td>.057</td>
<td>.057</td>
<td>.056</td>
<td>.103</td>
<td>.064</td>
<td>.044</td>
<td>.045</td>
<td>.043</td>
</tr>
<tr>
<td>Between group var (level 2)</td>
<td>.514</td>
<td>.461</td>
<td>.461</td>
<td>.461</td>
<td>.460</td>
<td>2.44</td>
<td>2.15</td>
<td>2.15</td>
<td>2.14</td>
<td>2.14</td>
</tr>
<tr>
<td>ICC</td>
<td>12.1</td>
<td>11.5</td>
<td>11.0</td>
<td>11.0</td>
<td>10.8</td>
<td>4.1</td>
<td>2.9</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>LR test</td>
<td>318.72</td>
<td>270.43</td>
<td>264.17</td>
<td>264.18</td>
<td>253.95</td>
<td>48.78</td>
<td>24.20</td>
<td>13.39</td>
<td>14.24</td>
<td>13.40</td>
</tr>
<tr>
<td>P value</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
</tr>
</tbody>
</table>

Notes: Reduced sample of N= 8422 for the BLSS and 6534 for the GNH data sets (age>=18 & chiwog size>=6) is used for analyses. Unstandardized coefficients are displayed in the table. ***=p<0.01, **=p<0.05. (a) Age and education are group mean centered, (b) marital status with single as reference group, (c) neighbourhood social capital are aggregated taking the mean of individual social capital at neighbourhood level.
Figure 6-1 shows the cross-level interaction effect of social trust on happiness. The graph with individual-level social trust represented on the x-axis and predicted individual wellbeing on the y-axis. Lines on the graph represent neighbourhood-level trust. A positive trend of two lines representing low (darker line) and high (broken line) neighbourhood-levels of trust. Low and high level of trust is represented with one standard deviation below and above the mean. The test of the simple slope confirms the significance of the slope of individual social trust effect in both low ($\beta=.06$, $t=3.5$, $p=.00$) and high ($\beta=.16$, $t=5.9$, $p=.00$) neighbourhood-level trust. A steeper positive line shows that for individuals with a high level of trust, living in a neighbourhood with high social trust highly enhances their level of happiness. Similarly, for individuals with a low level of trust, living in a high trust neighbourhood also increases their happiness. The positive line is less steep compared to the other group. This clearly indicates the positive effect of neighbourhood trust on individual-level of trust in influencing their happiness.

![Cross-level interaction (L1*L2) effect of social trust on Happiness](image)

Figure 6-1: Interaction of Social Trust Predicting Happiness
Cross-level interaction effect of social networks

A positive coefficient ($\beta=.130, p=.001$) of the cross-level interaction of social networks suggests that the neighbourhood-level network strengthens the effect of the individual-level network on individuals’ happiness. This shows that people who have a larger circle of friends (who are willing to help them in times of need) living in a neighbourhood that engages in higher levels of helping others, personally experience a higher level of networks. This leads to a higher level of happiness than in areas where there is a lower level of helping others. This result again suggests that happiness is not just about how large an individual’s circle of friends is, but is also influenced by whether neighbourhoods have more friendly and helpful people.

The cross-level interaction is plotted in Figure 6-2. The graph represents individual-level social networks on the x-axis and predicted individual wellbeing on the y-axis. Two lines indicate low and high levels of neighbourhood-level social networks. They are both positive, as in the case of social trust. This indicates that the neighbourhood level of social network enhances individual-level networks in influencing their happiness. Again the line is more flat for the individuals with a low-level (darker line) of networks than those with a high level (broken line) of networks. The simple slope test confirms the significance of the slope of the individual social network effect in both low ($\beta=.05, t=2.5, p=0.01$) and high ($\beta=.13, t=7.3, p=.00$) neighbourhood-level social networks. Positive cross-level interaction effects of social trust and networks supports the hypothesis on cross-level interaction effect.
6.5.3 Result: Self-rated happiness, GNH

For a comparison in findings, the GNH survey 2010 was also analysed. The analysis employed multilevel modelling as in case of the BLSS data for consistency. The results of the five models using GNH data are presented in the following sections.

**Model 1: Predicting ICC for self-rated happiness**

The second group of analysis in Table 6.2 presents the results of the GNH data. The ICC for self-rated happiness indicates that neighbourhoods accounted for 4% of the variability. The p-value of likelihood ratio test suggests significant group level variance, and multilevel model was warranted.

**Model 2: Individual-level social capital variables predicting happiness**
Model 2 in the second analysis in Table 6.2 presents the result of the association between individual-level social capital and self-rated happiness, accounting for socio-demographic variables. Two dimensions of social capital: social trust and social networks were significant and positively associated with happiness, while civic activity had a negative association. Of the social status indicators, age, relative economic status, and education were positively associated with happiness, while gender and individuals who were divorced, separated, and widowed were negatively associated. These results for social trust, social networks, and the social status variables with the exception of gender and age, were consistent with the results seen in the BLSS data. With two social capital dimensions: social trust and social networks having positive association with happiness, this partially supports the hypothesis on individual-level social capital.

Model 3: Neighbourhood-level social capital predicting happiness

Model 3 in the second analysis in Table 6.2 presents the results for including neighbourhood-level social capital, accounting for individual-level social capital and social status variables. The coefficients of neighbourhood-level trust and civic activity were statistically highly significant and negative. On the other hand, neighbourhood-level social network was positively associated with happiness, while neighbourhood-level sociability was not significant. A significant positive association of neighbourhood-level social network with happiness supports the hypothesis, while the negative association for social trust and civic activity at the neighbourhood level does not.

In Model 4, the relationship between happiness and social capital was tested using rural and urban neighbourhoods as an explanatory variable to other variables in
Model 3. The result remained the same as in Model 3. The rural/urban neighbourhood variable was not statistically significant.

**Model 5: Cross-level interaction effect on happiness**

Model 5 in the second group of analysis in Table 6-2 presents the cross-level interaction effects of four elements of social capital on happiness. Most of the cross-level interactions were not significant, except for neighbourhood-level sociability, which suggests a negative interaction. The result of the cross-level interaction does not support the hypothesis on the cross-level interaction effect.

**Cross-level interaction effect of sociability**

The coefficient of the cross-level interaction of sociability was negative ($\beta=-.11, p=0.05$) and this suggests that the neighbourhood-level sociability does not strengthen the effect of individual-level sociability on happiness.

The cross-level interaction is plotted in Figure 6-3. The graph represents individual-level social interactions on the x-axis and predicted individual wellbeing on the y-axis. Lines on the graph represent neighbourhood-level social interactions. A positive trend of a darker line represents low neighbourhood-level social capital, while a broken line representing high neighbourhood-level social interaction is nearly flat, with a slight negative slope. Low and high levels of social interactions are represented with one standard deviation below and above the mean. The simple slope test confirms that the slope of the individual social interaction effect was significant only in neighbourhoods with low ($\beta=.09, t=2.2, p=.02$) social interactions. This indicates that an individual’s level of socializing has a positive association with happiness in low socializing neighbourhoods, but has no association with happiness in high socializing neighbourhoods.
6.5.4 Result: Self-rated health status

The relationship between self-rated health status and social capital was examined using the GNH data. The analysis employed multilevel modelling as for the other dependent variables. The results of five models for health status are presented in the following.

**Model 1: predicting ICC for self-rated health status**

The result is presented in Table 6.3. The ICC in the first model (empty model) indicates that neighbourhoods accounted for 5.5% of the variability in the self-rated health status. The likelihood ratio test for the model suggests significant group-level variance, thus the multilevel model was warranted.
Table 6-3 Multilevel Regression Output of Self-rated Health Status and Social Capital

<table>
<thead>
<tr>
<th>DV: Self-rated health status</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social trust</td>
<td>.021</td>
<td>.052***</td>
<td>.044***</td>
<td>.052***</td>
<td></td>
</tr>
<tr>
<td>Social network</td>
<td>.160***</td>
<td>.161***</td>
<td>.167***</td>
<td>.161***</td>
<td></td>
</tr>
<tr>
<td>Sociability</td>
<td>.027</td>
<td>.015</td>
<td>.005</td>
<td>.014</td>
<td></td>
</tr>
<tr>
<td>Civic activity</td>
<td>.048***</td>
<td>.134***</td>
<td>.130***</td>
<td>.136***</td>
<td></td>
</tr>
<tr>
<td>Age (a)</td>
<td>-0.014***</td>
<td>-0.015***</td>
<td>-0.015***</td>
<td>-0.015***</td>
<td></td>
</tr>
<tr>
<td>Relative economic status</td>
<td>.141***</td>
<td>.128***</td>
<td>.125***</td>
<td>.128***</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>-0.003</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-2.222***</td>
<td>-2.266***</td>
<td>-2.344***</td>
<td>-2.255***</td>
<td></td>
</tr>
<tr>
<td>Married/living together (b)</td>
<td>.008</td>
<td>.021</td>
<td>.014</td>
<td>.021</td>
<td></td>
</tr>
<tr>
<td>Widower</td>
<td>-.158***</td>
<td>.126**</td>
<td>-.126**</td>
<td>-.125**</td>
<td></td>
</tr>
<tr>
<td>Aggregate level: Neighbourhood (c)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighbourhood trust</td>
<td></td>
<td>-.150***</td>
<td>-.085</td>
<td>-.150***</td>
<td></td>
</tr>
<tr>
<td>Neighbourhood network</td>
<td></td>
<td>.026</td>
<td>.012</td>
<td>.025</td>
<td></td>
</tr>
<tr>
<td>Neighbourhood sociability</td>
<td></td>
<td>.070</td>
<td>.069</td>
<td>.070</td>
<td></td>
</tr>
<tr>
<td>Neighbourhood civic activity</td>
<td></td>
<td>-.290***</td>
<td>-.272***</td>
<td>-.295***</td>
<td></td>
</tr>
<tr>
<td>Neighbourhood rural/urban</td>
<td></td>
<td>-.069</td>
<td>-.057</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction L1*L2</td>
<td></td>
<td>-.009</td>
<td>-.002</td>
<td>-0.039</td>
<td></td>
</tr>
<tr>
<td>Social trust * neighbourhood trust</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network*neighbourhood network</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sociability*neighbourhood sociability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civic activity * neighbourhood civic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>3.83***</td>
<td>3.55***</td>
<td>3.59***</td>
<td>3.657***</td>
<td>3.57***</td>
</tr>
</tbody>
</table>

**Random effects**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Within group var (level1)</td>
<td>.041</td>
<td>.049</td>
<td>.036</td>
<td>.035</td>
<td>.036</td>
</tr>
<tr>
<td>Between group var (level 2)</td>
<td>.705</td>
<td>.619</td>
<td>.622</td>
<td>.622</td>
<td>.616</td>
</tr>
<tr>
<td>ICC</td>
<td>5.5</td>
<td>7.4</td>
<td>5.5</td>
<td>5.4</td>
<td>5.5</td>
</tr>
<tr>
<td>LR test</td>
<td>78.83</td>
<td>114.81</td>
<td>75.61</td>
<td>72.22</td>
<td>72.98</td>
</tr>
<tr>
<td>P value</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
</tr>
</tbody>
</table>

Notes: Reduced sample of N= 6534 is used for analysis. Unstandardized coefficients are displayed in the table. ***=p< 0.01, **=p< 0.05. (a) Age and education are group mean centered, (b) marital status with single as reference group, (c) neighbourhood social capital are aggregated taking the mean of individual social capital at neighbourhood level.

**Model 2: Individual-level social capital variables predicting self-rated health status**

Model 2 in Table 6-3 presents the result of analysis of the association between individual-level social capital and self-rated health accounting for social status indicators. Social network and civic activity were significantly associated with self-rated health status. Of the socio-demographic variables, the relative economic status had a positive association with self-rated health, while age, gender, and being a widow had a negative effect on health status. This suggests that females are less healthy than men, and widows are less healthy compared to singles. Two dimensions
of social capital: social network and civic activities were positively associated with individual health status, partially supporting the hypothesis on the effect of individual level social capital on self-rated health status.

**Model 3: Neighbourhood-level social capital predicting self-rated health status**

Model 3 in Table 6.3 presents the analysis of the association between neighbourhood-level social capital and self-rated health status accounting for individual-level social capital and social status indicators. Neighbourhood-level social trust and civic activity were negatively associated with health. This result does not support the hypothesis. The influence of rural/urban neighbourhoods was tested separately in Model 4. The coefficients of individual-level variables changed when the rural and urban neighbourhood variable was included in the regression. A notable change was observed in the coefficient of the neighbourhood-level trust, which became insignificant from a highly significant negative relationship in Model 3. The coefficient of the rural/urban neighbourhood variable was not significant.

**Model 5: Cross-level interaction effect on self-rated health status**

Model 5 in Table 6.3 tested the cross-level interaction effect of four dimensions of social capital at the individual-level and neighbourhood-level on self-rated health status. However, no significant effect of cross-level interaction was found. The finding here does not support the hypothesis on the cross-level interaction effect of social capital on health.

**6.6 Discussion and conclusion**

The main purpose of this chapter was to address the research questions: “What is the relationship between individual-level social capital and happiness, and health in Bhutan?” And “Does neighbourhood-level social capital have a direct influence on these outcomes, or does it interact with individual-level social capital in determining
these outcomes?” The study examined the individual and context level effects on variation in the level of social outcomes and investigated the influence of social capital, including the individual level, the context level, and the cross-level interaction effect on two social outcomes, happiness and health status. The findings are discussed in the following sections.

**6.6.1 Individual or context effect**

The findings from both data sets show that significant variation in the level of happiness of people was due to the context level effect. The ICC for happiness based on the Model 1 in BLSS was 12% and in the GNHS was 4% and for the self-rated health status was 5.5%. These ICCs suggest significant variations in happiness and health status are attributed to the context-level considering the size of the country in the context. The variation in happiness attributed to the context effect was substantial in the case of the BLSS compared to the GNHS. The variations in the ICC between the two data sets is possibly due to the differences in the measures of happiness variables in the two surveys, as well as the differences in the composition of respondents, as mentioned in Chapter 3, Sections 3.2.3 and 3.3.3.

The context effect found in the current study, particularly the one based on the GNHS, is comparable to other similar studies, e.g., Yip et al. (2007) reported 3.7 percent of variance in life satisfaction as attributed to the village level in rural China. Han et al. (2013a &b) reported 3.3% of variance in happiness as attributed to the administrative area level in South Korea, and Han et al. (2012) reported 5% of variance in self-rated health status in South Korea. Elgar et al. (2011) reported high ICC of 17% of variance in life satisfaction of people as attributed to the country context in a cross country study. A high ICC based on the BLSS in the current study is comparable to the ICC reported by Elgar et al. (2011) in a cross country study.
This finding suggests that the context has a substantial role in explaining the variations in the level of happiness in Bhutan. The ICC reported in the current study based on both data sets is significant and suggests that the neighbourhoods in Bhutan vary substantially in terms of the self-rated happiness and health status of individuals. Thus, it suggests that context has a significant role in explaining the variance in people’s happiness and health status, in addition to the role of individual differences.

### 6.6.2 Self-rated happiness

The findings from examining individual-level social capital and self-rated happiness using the BLSS data indicate that three dimensions of social capital represented by social trust, networks, and sociability are positively associated with happiness. This suggests that individuals who report a higher level of trust have a greater number of friends whom they can rely on in times of need, and who engage in more socializing with neighbours and friends are likely to report a higher level of happiness than others. The positive association of social trust and networks with happiness was also confirmed with analysis of the GNHS data. These findings on social trust, networks, and sociability are consistent with the researcher’s expectation and also with studies elsewhere. Previous studies also found that individual level social trust and connectedness was highly associated with subjective wellbeing (Calvo et al., 2012; Elgar et al., 2011; Han et al., 2013 a &b; Helliwell & Putnam, 2004; Tokuda et al., 2010; Yip et al., 2007). The findings suggest that the association between social capital and happiness depends on the dimension investigated, which has also been the case with other studies.

The analysis of neighbourhood-level social capital variables suggests inconsistent findings between the two data sets. The analysis of the BLSS data
indicates a significant unexpected negative association between neighbourhood-level sociability and happiness. In addition, the analysis of the GNH data indicates a negative influence of neighbourhood-level trust and civic activity, while showing a positive influence of neighbourhood social network on happiness. The findings from the two data sets on neighbourhood-level social networks and sociability have similar signs and differ in significance levels. This inconsistency in findings from two data sets is probably due to the aggregated measures of individual responses to measure the level of neighbourhood social capital. The differences between neighbourhoods could be confounded by the characteristics of residents that constitute neighbourhoods, a potential problem of the approach of aggregating individual responses to measures of neighbourhood-level social capital (Subramanian et al., 2003). This confounding issue may possibly be interfering with observing the consistent direct effect of context-level social capital. Nevertheless, this is the approach commonly used to measure neighbourhood social capital in other studies. Moreover, as the data was generated as individual responses, it offered greater analytical scope for understanding the social capital both at the individual and the neighbourhood level (Subramanian et al., 2003).

Therefore, further analysis of the context-level effect was conducted to examine the presence of the cross-level interaction effect between individual-level and context level social capital. The findings from the two data sets also differed in term of the cross-level effect on happiness. The BLSS data suggests that neighbourhood-level trust and networks strengthen individual-level trust and networks in influencing the happiness of people. This is an expected relationship, especially in Bhutan where interaction with people is comparatively high. The social relationships and level of trust within a neighbourhood can enhance individual-level
social capital, which is expected to positively influence people’s happiness. This also suggests that social connectedness in the neighbourhood and the level of trust of people are important for their happiness, and is consistent with claims from other studies that suggest a positive association of social connectedness and level of trust with happiness (Helliwell & Putnam, 2004; Putnam, 2000).

Analyses of the GNHS showed a negative effect of cross-level interaction of sociability on happiness. The plot of the effect in Figure 6-3 clearly indicates that individual social interactions were positively associated with happiness only in low socializing neighbourhoods. This means an individual’s level of socializing has a positive association with happiness in low socializing neighbourhoods but has no association with happiness in high socializing neighbourhoods. This findings of cross-level interaction suggests the presence of an indirect effect of neighbourhood-level social capital in terms of social trust and networks in the BLSS, and in social interactions in the GNHS on the happiness of people.

In addition to the main effect of social capital variables in influencing happiness, the relative economic status stands out as an important associate of happiness. This may suggest the importance of economic status in influencing the happiness of people in developing countries. This finding is in agreement with the claims that Bjørnskov (2003) made, that policies directed at increasing happiness and wellbeing in developing countries still need to be focused on income generation and raising economic status.

Education had a positive effect on happiness, which both data sets confirmed; and regarding marital status, divorced and widowed respondents were significantly less happy than singles. Females were less happy than men according to the GNHS data. These findings suggest that social status indicators have an important
association with the happiness of people in Bhutan. The finding on the rural/urban
neighbourhood variable in the GNHS data suggests that rural neighbourhoods are
less happy than urban neighbourhoods, which seemingly contradicts the finding that
people living in rural neighbourhoods have a higher level of social capital than those
in urban areas. However, this finding was observed only in one model and was not
highly significant.

6.6.3 Self-rated health status

Self-rated health status was examined only for the GNHS data. The findings on
individual level social capital and self-rated health status suggest that people with a
larger circle of friends who can be relied on in times of need and those who engage
in civic activities are likely to report better health status than others. This finding is
consistent with findings from other studies (Kumar et al., 2012; Sun et al., 2009; Yip
et al., 2007), that argued social connectedness and networks were important for
health. Social trust shows an interesting effect, as it becomes statistically significant
when neighbourhood social capital is accounted for, which suggest that both
individual and neighbourhood-level trust are important for health status.

However, neighbourhood-level social trust and civic activity showed negative
effects on health status, contradicting the findings of individual-level social capital.
This could possibly be an effect of the confounding issue of representing
neighbourhood-level social capital with aggregated individual responses. The
differences between neighbourhoods could be confounded by the characteristics of
residents that constitute the neighbourhoods.

The findings on the cross-level interaction effect of individual and
neighbourhood-level social capital suggest that there was no cross-level interaction
effect between the two-levels of social capital on health status. This indicates only individual-level social capital seems to have an effect on self-rated health status.

Furthermore, analyses suggest that the relative economic status has an important influence on health status. A consistent finding from both data sets suggests that it is an important factor that needs to be considered in Bhutan. Females were significantly less healthy than men and with regard to marital status, widowed respondents were less healthy than singles. As people age they are less likely to be healthy than the young. The findings suggest that social status indicators such as relative economic status of people, gender, age and marital status have a meaningful association with the health status of people. The finding with regard to gender seems to resonate the differences between social ties of men and women as discussed in chapter 2 p.32 and in chapter 5 p.144.

6.6.4 Limitations and future studies

The results should be considered in light of the potential limitations of this study. First, it is cross-sectional data and the analysis is subject to reverse causality, for example, whether the lack of social capital causes lower happiness or less happy people to have low social capital cannot be established. The interpretation of the result is limited to correlation rather than causation. Longitudinal studies are required to establish these causal relationships. Second, in regards to the quality of the data, although it is based on a large population sample, correlation among the variables is limited, which results in arbitrary findings. Improved data gathering instruments in the future may eliminate these problems. Third, both dependent variables were measured using a single item question. Better instruments capturing the complexity of subjective wellbeing are suggested for the future research. Finally, although a number of explanatory variables were used apart from social capital at the individual
levels of analysis, there was an only one neighbourhood-level variable that could be
used in the analyses, therefore the possibility of unmeasured variables confounding
the results cannot be ruled out. An additional limitation concerns the use of
neighbourhoods (*chiwog*) in the data, as the context within which social interaction
actually takes place, as it could be possible that *chiwogs* in the data may not correctly
represent the context level at which social capital operates in Bhutan. *Chiwog* is an
administrative boundary and it is likely that it may not correctly bound the operation
of social capital. It is possible that social capital operates within the subsections of
large *chiwogs*, or it may cross over some *chiwogs*. Future studies are recommended
to capture insights of the context and develop relevant context level variables to
represent the operation of social capital.

Despite these limitations, this study provides some valuable insights into the
complex associations between social capital and subjective wellbeing.

In conclusion, the multilevel model suggesting a significant portion of variance
is attributed to the context or level 2 variable i.e. the neighbourhood. This suggests
the importance of the context effect on the happiness and health status of people.

This study found that individual-level social capital was positively associated
with self-rated happiness. Social trust and networks were the most important
dimensions, as the relationship was confirmed using analysis of both data sets, both
had significant positive association with happiness. Individual-level social networks,
civic activities, and social trust were also important associates of health status.
Neighbourhood-level social capital appears to have a less consistent direct effect on
happiness, as well as on health status. This could possibly be due to the confounding
issues in aggregating individual responses as a measure of neighbourhood-level
social capital.
The significant positive cross-level interaction of social trust and networks in the BLSS suggests that neighbourhood-level social capital has a moderating influence on individual-level social capital in influencing the happiness of people. The cross-level interaction effect was also observed in terms of social interaction in the GNHS. The significant cross-level interaction effect suggests that neighbourhood-level social capital has a moderating effect on the association of individual-level social capital and the happiness level of people. However, such a moderating influence was not found on self-rated health status. The findings in this study may instigate further studies to confirm this relationship. The contribution and policy implications of the findings are explained in detail in Chapter 7.
Chapter 7: Discussion and Conclusion

This chapter presents the overall discussion of the main findings in Studies I, II, and III in this thesis. The theoretical and practical implications of the findings are presented first, followed by the limitations and direction for future studies.

7.1: Discussion

The main purpose of this research was to understand one of the key debates in the concept of social capital, i.e., whether social capital is an individual or group based phenomenon. To understand this debate, the current study focused on investigating two important phenomena, the antecedents and influence of social capital. Investigation of the origin of social capital in this study focused on the role of the social status of individuals and the characteristics of the place where people live, while the influence of social capital was examined with respect to two social outcomes, self-rated happiness and health status. In order to conduct the investigation, this thesis first identified the dimensions of social capital based on the construct as conceptualized by key scholars in the field, Putnam et al. (1993) and Putnam (2000). Therefore, this thesis comprised of three studies on social capital. The thesis used data based on Bhutan with an objective to enrich knowledge on social capital by examining it in a developing country context.

The three studies are presented in the conceptual framework developed for this research (see Figure 7-1). Specifically, this research aimed to address the following research questions: 1) What dimensions of social capital can be identified in Bhutan?, 2) How much of the variation in individual social capital is due to individual difference (level 1) and how much is due to the context effects (level 2)?, 3) Is social status a significant (level 1) predictor, and are rural/urban
neighbourhoods a significant (level 2) predictor, of social capital?, 4) What is the relationship between individual-level social capital, and happiness and health in Bhutan?, and 5) Does neighbourhood-level social capital have a direct influence on these outcomes, or does it interact with individual-level social capital in determining these outcomes? These questions were addressed through three empirical studies, as illustrated in Figure 7.1.

![Figure 7-1: Conceptual Framework](image-url)

An overview of the main findings from the three studies based on the two data sets are summarized in Table 7-1a, b & c.

**Table 7-1a) Overview of the Main Findings of Study II (BLSS)**

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Trust</th>
<th>Network</th>
<th>Sociability</th>
<th>Civic activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Economic Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>a-</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
</tr>
<tr>
<td>Age (31-45)</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
</tr>
<tr>
<td>Age (46-60)</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
</tr>
<tr>
<td>Age (60+)</td>
<td>a+</td>
<td></td>
<td>a+</td>
<td>a+</td>
</tr>
<tr>
<td>Gender</td>
<td>a-</td>
<td></td>
<td></td>
<td>a-</td>
</tr>
<tr>
<td>Widow</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural/urban neighbourhood</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
</tr>
</tbody>
</table>
Note: a+ for positive association, a- for negative association, age with age group 18-30 as reference group, and marital status with single as reference group. The table presents only those associations that are statistically significant (5% level) in Study II using the BLSS.

Table 7-1b) Overview of the Main Findings of Study II (GNHS)

<table>
<thead>
<tr>
<th></th>
<th>Trust</th>
<th>Network</th>
<th>Sociability</th>
<th>Civic activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Economic Status</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
</tr>
<tr>
<td>Education</td>
<td>a-</td>
<td></td>
<td></td>
<td>a-</td>
</tr>
<tr>
<td>Age (31-45)</td>
<td>a+</td>
<td>a-</td>
<td></td>
<td>a+</td>
</tr>
<tr>
<td>Age (46-60)</td>
<td>a+</td>
<td>a-</td>
<td></td>
<td>a+</td>
</tr>
<tr>
<td>Age (60+)</td>
<td>a+</td>
<td>a-</td>
<td></td>
<td>a-</td>
</tr>
<tr>
<td>Gender</td>
<td>a-</td>
<td>a-</td>
<td></td>
<td>a-</td>
</tr>
<tr>
<td>Married/living together</td>
<td></td>
<td>a+</td>
<td></td>
<td>a+</td>
</tr>
<tr>
<td>Divorced/separated</td>
<td>a-</td>
<td></td>
<td></td>
<td>a+</td>
</tr>
<tr>
<td>Widow</td>
<td></td>
<td></td>
<td></td>
<td>a+</td>
</tr>
<tr>
<td>Rural/urban neighbourhood</td>
<td>a+</td>
<td></td>
<td></td>
<td>a+</td>
</tr>
</tbody>
</table>

Note: a+ for positive association, a- for negative association, age with age group 18-30 as reference group, and marital status with single as reference group. The table presents only those associations that are statistically significant (5% level) in Study II using the GNHS.

Table 7-1c) Overview of the Main Findings of Study III (BLSS+GNHS)

<table>
<thead>
<tr>
<th></th>
<th>Happiness (BLSS)</th>
<th>Happiness (GNH)</th>
<th>Health (GNH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual-level (L1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social trust</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
</tr>
<tr>
<td>Social network</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
</tr>
<tr>
<td>Sociability</td>
<td>a+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civic activity</td>
<td></td>
<td>a+</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>a-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative economic status</td>
<td>a+</td>
<td>a+</td>
<td>a+</td>
</tr>
<tr>
<td>Education</td>
<td>a+</td>
<td>a+</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>a-</td>
<td>a-</td>
<td></td>
</tr>
<tr>
<td>Divorced/separated</td>
<td>a-</td>
<td>a-</td>
<td></td>
</tr>
<tr>
<td>Widow</td>
<td>a-</td>
<td>a-</td>
<td>a-</td>
</tr>
<tr>
<td>Neighbourhood-level (L2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social trust</td>
<td>a-</td>
<td>a-</td>
<td></td>
</tr>
<tr>
<td>Social network</td>
<td>a+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sociability</td>
<td>a-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civic activity</td>
<td></td>
<td>a-</td>
<td></td>
</tr>
<tr>
<td>Rural/urban neighbourhood</td>
<td>a-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction L1*L2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social trust*neighbourhood</td>
<td>a+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network*neighbourhood network</td>
<td></td>
<td>a+</td>
<td></td>
</tr>
<tr>
<td>Sociability*neighbourhood sociability</td>
<td></td>
<td>a-</td>
<td></td>
</tr>
</tbody>
</table>

Note: a+ for positive association, a- for negative association. Marital status with single as reference group. The table presents only those associations that are statistically significant (5% level) in Study III using both BLSS and GNHS.
7.2 Dimensions of social capital

Study I found four distinct dimensions of social capital: social trust, network, sociability, and civic activity on the basis of exploratory factor analysis. From the measures of social capital in the data, several indicators were chosen based on Putnam’s perspective of social capital constructs. These indicators loaded onto four factors, providing support for the view that social capital is a multidimensional construct.

According to Putnam et al. (1993) and Putnam (2000) different dimensions of social capital, trust, norms, and networks are mutually reinforcing, with each one complementing the other. Putnam (2000) demonstrated that these dimensions are highly inter-correlated and can be summed to a single index in the case of the US. However, the indicators of social capital in the data in the current study loaded onto four dimensions, suggesting some difference from Putnam (2000). The four dimensions of social capital demonstrated generally weak correlations, indicating that the construction of a single composite was not empirically defensible.

An additional dimension emerged from the indicators of social interactions, which suggests that social interactions capture a distinct concept, separate from social networks. This finding is different from Putnam’s single index measure of social capital. The current study suggests that social capital should be represented as multidimensional aspects as it is theorized. The findings in general echo those of Beugelsdijk et al. (2004), Bjornskov (2006), Kaasa and Parts, (2008), Knack and Keeper (1997), and Van Oorschot et al. (2006). These studies argued the need to represent all dimensions separately in order to understand the antecedents of each
element of social capital and the influence on social outcomes. They argued that summing up the measures of the dimensions of social capital in one index makes it difficult to understand the dynamics that underpin the operation of each element that comprises social capital.

The findings in this study contribute to the existing knowledge on dimensions of social capital. They suggest that indicators of social capital are not always highly correlated and the argument of it being a multidimensional construct is reasonable in the developing country context, as suggested by Grootaert et al. (2003) and Narayan and Cassidy (2001). The findings also have practical implications, as they inform policy makers and other interested individuals about different dimensions of social capital that may need to be taken into account while framing policy for strengthening social capital. Recognizing the dimensions of social capital at play in society is important for developing countries as they strive to balance economic and social development, it is particularly important for Bhutan with a national priority of promoting Gross National Happiness. Strengthening and preserving community vitality is an important component of a national policy in achieving Gross National Happiness. Identification of various dimensions of social capital operating in the country and understanding their importance is expected to better inform the policy makers, as well as the citizenries in strengthening community vitality. Social trust, social networks, and social interactions form an integral part of community vitality. Furthermore, the measures identified in this study are comparable to those in other countries, which facilitates comparison with a point of reference in similar countries.
7.3 Antecedents of social capital: Social status and the place where people live

Study II investigated the role of the social status of individuals and the place where people live as the antecedents of social capital. This study tested the important claims of the key scholars of social capital with regards to the antecedents of social capital. All of the key scholars, Bourdieu (1986), Coleman (1988), and Putnam (2000) claimed that ‘who the actors are’ is an important determinant of social capital, and argued that people with higher social status have high social capital, as they have access to more resources. Scholars, particularly Coleman (1988) and Putnam (1995, 2000), also claimed that the factor that determines social capital is ‘where actors are’, represented by place the person lives. Both argued that people in rural areas have higher social capital compared to those in urban areas, as they believed that people in rural areas have greater sense of community identity than those who live in urban areas.

Theoretical contribution

The findings from the analysis respond to the study’s research questions and help to clarify whether accumulation of social capital at an individual level is due to individual or group based phenomenon. The contribution of this research is in understanding the variation in social capital as a function of both individual-level factors, as well as neighbourhoods in which people live in a developing country context. Intraclass correlation based on the multilevel analysis suggested a significant amount of variation in social capital dimensions was due to the context, i.e., neighbourhood effects apart from individual differences. This implies that the accumulation of social capital is neither attributed fully to the individual, nor to the context effect, but rather is shaped with a joint influence of both. This finding
supports the arguments of key scholars of social capital Bourdieu (1977, 1986) and Coleman (1998, 1990) that social conceptions can be both individual and collective in nature as these elements are not clearly independent from each other as discussed in chapter 2. The findings of the current research add to the knowledge of social capital in a developing country context, where social capital plays an important role as the country endeavours towards achieving the balance between economic and social development.

The current study also provides the framework for investigating the antecedents of social capital. The findings on the role of the social status of individuals as individual factors and rural or urban neighbourhoods as the context variable based on the theoretical claims, demonstrated empirically that these factors are important antecedents of social capital. In addition, the current study focused on social status as an antecedent of social capital and integrated measures of social status as established by Hollingshead in 1957 to social capital studies. Hollingshead’s measure of social status used socio-demography as indicators of social status. Thus, this study provides the framework requiring the inclusion of both the individual level and neighbourhood level factors for investigating the accumulation of social capital by individuals in future research.

Furthermore, findings in the current study support the claims of the key scholars Bourdieu (1986), Coleman (1988), and Putnam (1995, 2000) that social status as an individual characteristic and the place where people live representing the context are important antecedents of social capital. Based on the findings, this research argues the need to develop clear theoretical motivation and necessary refinement to measure the social status variable and the relevant context suitable for the developing country context.
Practical implications

In addition to the theoretical implications, the findings have several significant policy implications for promoting social capital generation in enhancing community vitality, which aligns with the overarching policy objective of balancing economic and social development in Bhutan. The current research investigating antecedents of social capital has revealed substantive knowledge about the determinants of social capital for policy makers to focus on in encouraging enhancement of social connectedness in communities.

A significant finding of the context effect on social capital accumulation suggests that the context within which social interactions occur has a varying effect on social capital accumulation. Although Bhutan is a small country, given the geotopography of the mountainous country, localized social norms and customs can differ from one settlement to another. Therefore, any policy intervention aimed at promoting social capital needs to carefully consider the context and localize the interventions without necessarily disturbing the existing elements. Thus, policies founded on appropriate research of localities would go a long way towards strengthening and preserving the social connectedness in each community, as any intervention policy needs to deal with social norms and the behaviour of people.

The findings on indicators of social status of individuals as antecedents of social capital, the relative economic status, and gender indicate that the rich and males are likely to accumulate more social capital than the poor and females. Inequality cross economic status and gender is a characteristic of many poor countries. If social capital is to play an important role in the development of society, these disadvantaged groups need to be a focus of attention. This implies that improving the economic status of the poor and empowering women are important
ways to improve the social status of vulnerable groups to accumulate social capital as others do. Intervention policy needs to emphasize promoting economic status and empowering the poor and females. As farming is the main livelihood of people in Bhutan, especially for those who live in rural areas, government policy enabling agriculture activities in terms of enhancing the earning capacity of farmers is key to raising the economic status of people in rural areas. Policy regarding the promotion of economic activities and employment generation is key to raising the economic status of many, including the younger population. Education and skill development policy play an equally important role in creating skilled and enabled people to be productive and useful for the opportunities available in the economy. Empowering women through education and skill development is an important way to raise their social status and to break through the patriarchal system that undermines them.

The finding on the role of education on social trust indicates a higher level of education of people associated with a lower level of trust for others, which is an unexpected association and contradicts assertions about the role and values of education made by previous studies. An explanation of such an association is a homogeneity effect, where more educated people tend to distrust others with less-education (Helliwell & Putnam, 2007), which is often likely to occur in a place where there is a low level of education in general population. Another explanation is education fostering individualistic and competitive attitudes, as determined by Kaasa and Parts (2008) based on their study in Europe. These could be possible explanations for the negative association between the level of education and trust found in Bhutan. The homogeneity effect, if true, would be temporal and should ultimately disappear with the huge importance given to education, which has resulted in substantial increases in youth literacy rates. The country has focused on promoting
adult literacy by introducing non-formal education. Non-formal education centres are located in communities and engage in providing basic literacy to the adult population, who did not attend school or dropped out of school.

One additional important factor suspected as a possible explanation of the unexpected relationship between education level and trust, is the period (time issue) in which these data were gathered. Both surveys were conducted in the aftermath of the great change in the political system. Bhutan conducted the first democratic election in the year 2008, during which there were disruptions in social life, trust in people was questioned more than at any other time period, and educated people may have been more involved in the process than others. The data collected during such a time period may have captured the effect of the circumstances. However, future studies are recommended to test this, as well as the other explanations above.

The non-linear influence of age on social capital indicates that age captures the life cycle effect of social status. Putnam (2000) argued that the social status of individuals changes over their life time. Some of the important factors that determine changes in social status mentioned by Putnam (2000) are: demand of family, changes in one’s career, and the declining energy in old age. Although there is weak evidence for the case of inverse u-shape relationship between age and social trust as argued by Alisena and La Ferrara, (2002) and Glaeser et al., (2002) in the US, the findings in the current study show a non-linear effect of age on social capital dimensions. The evidence of a decline in trust, social networks, and engagement in civic activities in the older age group seems to suggest social activities in Bhutan are likely to exclude elderly people. This could be a reflection of the cultural norms, in that older people retire from social activities as they invest their time more in prayers and less on socializing. However, relevant policy interventions to keep the elderly and retirees
engaged and connected in society must be a priority for a country that aims to maximize its people’s wellbeing and welfare. There is a concern regarding elders being less cared for, as the tendency for the younger generation to migrate to urban centres increases, which may require appropriate policy interventions. As the number of retirees increases over the years, the need to keep them engaged in social activities would become a necessity, particularly in urban centres.

The significant positive association between living in rural neighbourhoods and social capital suggests differences in the level of social capital between rural and urban neighbourhoods. This finding is consistent with the observation made by Wangyal (2001), who expressed that the rise of urbanization leads to declining social norms and traditional values that cultivate interdependence and social connectedness. This has an important implication regarding social capital accumulation. A lower level of social capital in urban neighbourhoods suggests that social capital is endangered as urban areas expand. Policy interventions are necessary to reduce the difference between rural and urban areas. As people living in urban areas have limited social capital, an appropriate policy intervention to uplift social connectedness among people in urban neighbourhoods is necessary to reduce the differences between rural and urban areas.

7.4 Influence of social capital on self-rated happiness and health status

Study III of this thesis examined the relationship between social capital and two important social outcomes, self-rated happiness and health in Bhutan. Research across the world has suggested that various dimensions of social capital and subjective well-being are correlated (e.g., see Bjørnskov, 2003, 2006; Calvo et al., 2010; Diener et al., 2010; Helliwell & Putnam, 2004; Putnam, 2000; Tay & Diener, 2011). A high level of social connectedness is associated with remarkable health
benefits (Berkman & Glass, 2000; Cohen & Janicki-Deverts, 2009; Kawachi et al., 1999; Kumar et al., 2012; Hyyppä & Mäki, 2003). The current research investigated the influence of social capital by examining it at individual and context-levels to understand the influence of social capital on the two social outcomes.

**Theoretical contribution**

The findings of the current research answer the research questions and help to understand how social capital operates in influencing social outcomes in a developing country context. The contribution of this research lies in understanding the influence of both individual-level social capital, as well as neighbourhood-level social capital on social outcomes. In addition, intraclass correlation based on multilevel analysis suggests a significant amount of variation in social outcomes is due to the context, i.e., neighbourhood effects besides individual differences. This suggests that the context has an important influence in determining the level of social outcomes.

The findings of the current study enhance the knowledge on the influence of social capital in a developing country context. The significant positive findings on the cross-level interaction between individual and neighbourhood level social trust and social networks suggests the levels of social trust and social networks in the neighbourhoods positively enhance the individual level of social trust and networks in influencing the level of happiness of people. On the other hand, the cross-level interaction of social interaction suggests an interesting finding that an individual’s level of social interaction has a positive association with happiness in low socializing neighbourhoods, but has no association with happiness in high socializing neighbourhoods. This finding also substantiates the construct of social capital as a contextual variable. The findings in this study additionally argue for the need for a
clear theoretical motivation for the contextual social capital relevant for a developing country context, and also for the development of appropriate contextual social capital measures. The current study also draws on the potentiality of a multilevel framework method to analyze the influence of social capital on social outcomes.

**Practical implications**

The significant findings of both data sets confirming individual-level social trust and social network are associated with self-rated happiness imply that individual level social capital play important role in determining one’s happiness. The relationship between self-rated health and social capital in the GNH also suggest that individual-level social capital, particularly social trust, social network and civic activity, are positively associated with health status. This may suggest that policy focusing on encouraging social trust and connectedness among people would benefit in achieving higher level of happiness and improve health status of people. For Bhutan, this finding shows that investing in enhancing community vitality makes sense in promoting GNH. Community vitality is adopted as one of the domains for measuring GNH. The findings on the direct influence of neighbourhood social capital on outcome measures are inconsistent based on two data sets; however, the cross-level interaction effect suggests that there is the moderation effect of neighbourhood-level social capital on individual-level social capital in influencing the happiness of people. The findings suggest the role of the level of social capital of the context in enhancing the happiness of people. These findings imply that policy encouraging social connectedness needs to consider features of both the individual and the context.

In addition, the findings from both data sets clearly suggest that the relative economic status of individuals has a significant positive influence on happiness and
health status, which seems consistent with the argument by Bjørnskov (2003), who claimed that social capital is less important than income in enhancing happiness in developing countries. The importance of relative economic status may suggest that a policy focusing on income generation would be better than social capital in promoting the happiness levels of people. However, the study also has some interesting revelations about the association between social capital and happiness, the importance of which cannot be ruled out, though the associations were less consistent between the two data sets in terms of neighbourhood-level social capital. This finding implies that the policy focus on promoting happiness and the health status of people in Bhutan must include both social capital and complementing income generating means to balance both social and economic development. The policy on encouraging social capital becomes more important, particularly in this country, as it aligns with the policy of strengthening community vitality under the overarching policy goals of achieving Gross National Happiness.

7.5 Limitations and future research issues

This thesis is not without limitation, as discussed in previous chapters. First, due to the weak inter-correlation within the indicators of social capital, some important indicators dropped out of the analysis. The weak correlations could be due to a number of factors: the choice of survey questions, language used, and the quality of responses. This weak correlation was also seen in the indicators from the alternative data set that was the GNH survey. Another important limitation is the absence of adequate responses on group membership in the BLSS, a key element of social capital according to Putnam et al. (1993) and Putnam (2000) and which could not be included in the analysis. However, to counter this, more informal networks indicators were included.
The instrument used for the BLSS was developed by the World Bank and pretested in a number of developing nations. As the concept of social capital is very difficult to observe and quantify, it is highly dependent on the context. It would be difficult to capture the correct phenomenon without proper contextualization by tapping into local activities and practices in each country, which was not done very well in the BLSS. Some indicators did not fit well with the construct of social capital articulated by Putnam, for example, indicators of norms of reciprocity; thus, these could not be included in the analysis. Future surveys with proper contextualization of the questionnaires are recommended.

Second, both data sets used in the analysis were based on face to face interviews, and as such, the possibility of response bias, such as social desirability (Furnham, 1986) and other typical issues with self-reported questionnaires, cannot be ruled out. The interpretation of questions by the interviewer and respondents considering the various dialects used in the country are other issues that could bias the responses. Weak correlation found in the social capital indicators could be a consequence of this.

Finally, the hypothesized relationships in Study II and Study III in this thesis were tested using a cross-sectional survey. A potential limitation of the cross-sectional research design is that the analysis based on it is subject to the threat of reverse causality. Although the direction of causality between most variables seems theoretically logical, the reverse relationship, however, cannot be ruled out. Therefore, the interpretation of the results is limited to correlation rather than causality. A longitudinal study over a period is recommended, particularly to examine the trend in social capital. The analyses used a number of control variables,
but the influence of unmeasured variables cannot be ruled out. Limitations may also arise from the measures of the dependent variables used in the analyses.

Despite these limitations, this thesis provides valuable insights into the dimensions of social capital, the determinants, and the influence of social capital in Bhutan by answering the stated research questions.

Future studies are suggested to confirm the findings here. Studies particularly focusing on the role of social status in the accumulation of social capital are strongly recommended. Studies focusing on the importance of social capital in developing countries to compare the importance of social capital versus economic capital in enhancing happiness and self-rated health are strongly recommended. In addition, the findings in this research suggest that future studies should focus on selecting more realistic context factors to examine the influence of the social capital of the context. The neighbourhoods in the current study were represented by *chiwogs*, which is an administrative boundary, and may not necessarily capture the social activities and networks actually taking place.

**7.6 Conclusion**

This research aimed to provide further insight into understanding the concept of social capital, specifically focusing on a key debate regarding whether social capital is an individual or group phenomenon. The research was conducted through three studies. The first study confirmed that social capital is a multidimensional construct by constructing four dimensions of social capital: social trust, social networks, sociability, and civic activity based on Bhutanese data. The second study found that people in rural areas have a higher level of social capital than those in urban areas. This suggests that the place where people live is an important determinant of social capital and supports the claims made by the key scholars,
Coleman (1988) and Putnam (2000). Social status indicators (with some variation in education) showed weak evidence of their role in the accumulation of social capital compared to the context variable of rural and urban neighbourhoods, but in general confirmed the claims made by the key theorists of social capital: that the social status of actors is an important antecedent of social capital.

The third study found that individual-level social capital, social trust, and networks are significant factors in influencing the happiness of people; and social trust, social networks, and engaging in civic activities are for the self-rated health status. This study also provides an understanding of the complex association of social capital and happiness by examining cross-level interaction effects of individual-level and neighbourhood-level social capital. It shows that neighbourhood-level social capital has a moderating effect on individual-level social capital in influencing the happiness of people, particularly with the BLSS data. As explained above, the study found that the relative economic status stands out as a significant associate of the happiness and health status of the people of Bhutan.

Both studies (II & III) showed that the neighbourhood (level 2) has a substantial effect on the measures of outcomes variables (i.e., social capital and social outcomes) and suggest that context plays a very important role in Bhutan and analyses the need to account for the appropriate context variables.

These two studies demonstrated that the concept of social capital is shaped by both individual, as well as group phenomenon. First, investigation of the antecedents of social capital revealed that rural and urban neighbourhoods representing the context and the social status indicators are important antecedents of social capital accumulation by individuals. Second, examination of the influence of individual and context level social capital indicated an interesting pattern of influence, particularly
on the happiness of people. These findings demonstrate that the construct of social
capital is shaped by both individual and group phenomena.

These studies have also suggested important theoretical and methodological
contributions to social capital literature, and discussed some policy implications.
This thesis offers important insight into the understanding of social capital in Bhutan,
despite its limitations. It also provides direction for future research.

This chapter presented the overall discussion of the main findings in Studies I,
II, and III of this thesis. The theoretical and practical implications of the findings
were presented first, followed by the limitations and directions for future studies.


Bjørnskov, C. (2004). Social capital, political competition, and corruption. _Aarhus: Aarhus School of Business, Aarhus University._


NCWC, 2012. Study on Women’s political participation in 2011 Local Government election


