

**FACTORS ASSOCIATED WITH LIFE SATISFACTION IN
ASIA**

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FACTORS ASSOCIATED WITH LIFE SATISFACTION IN
ASIA

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ABSTRACT

Life satisfaction is a measure of well-being, and is defined by one's evaluation of life as a whole, rather than one's current feelings and emotions. It measures one's satisfaction with relations with others (especially with friends and family members) and with achieved goals, and feeling of self efficacy and being in control. The dominant concepts and theories of life satisfaction are Easterlin relative income theory, conceptual reference theory, hedonic adaptation theory and set point theory. These theories are built mostly from the European perspectives. This study set out to explore the correlates of life satisfaction from Asian perspectives and to have better understanding of the factors affecting life satisfaction in Asia. Life satisfaction is analysed by examining the mean values and distribution of the life satisfaction score, ranging from least satisfied to most satisfied. Life satisfaction mean was calculated from Asia Barometer surveys which cover 16 domains of life aspects. The results show that income is an important determinant after standard of living and the role of government to affect Asian's life satisfaction. Asians are facing issues related to government policies which affect their life satisfaction such as corruption, inequality and unstable political conditions. Thus good governance is crucial for improving life satisfaction in Asia. An analysis of data from 28 Asian countries shows life satisfaction in each country is influenced by the characteristics, cultures and beliefs. Government should have a wider perspective in policy making besides making economic growth as the country's objective or planning purpose. Policies should aim at improving the standard of living and governance. An improved life satisfaction would surely improve not only the well-being of people but also productivity and economic growth.

ABSTRAK

Kepuasan hidup merupakan ukuran tahap kepuasan keseluruhan dalam kehidupan seseorang individu, bukannya emosi atau perasaan individu. Ia mengukur kepuasan individu melalui hubungan dengan orang lain (terutamanya dengan kawan dan keluarga), pencapaian matlamat, keyakinan untuk berjaya dan sentiasa berada dalam kawalan. Teori dominan tentang kepuasan hidup telah dicadangkan dan ini termasuklah teori relatif pendapatan Easterlin, teori konseptual rujukan, teori adaptasi hedonic dan teori "set point". Teori-teori ini digunakan untuk mengkaji kepuasan hidup daripada perspektif Eropah. Kajian ini adalah untuk menerokai korelasi kepuasan hidup dari persepsi Asia dan membentangkan penerangan yang lebih terperinci tentang factor-faktor yang menentukan kepuasan hidup di Asia. Kepuasan hidup dianalisis dengan memeriksa nilai min dan pengagihan tahap kepuasan hidup yang bermula daripada skala sangat tidak puas terhadap hidup kepada sangat puas dengan hidup. Nilai kepuasan hidup dihitung dari kajian Barometer Asia yang meliputi 16 domain aspek kehidupan. Dapatan kajian menunjukkan bahawa pendapatan adalah penentu penting untuk mempengaruhi kepuasan hidup Asia selepas taraf hidup dan peranan kerajaan. Asia menghadapi isu-isu yang berkaitan dengan dasar-dasar kerajaan yang mempengaruhi kepuasan hidup mereka seperti rasuah, ketidakadilan dan keadaan politik yang tidak stabil. Oleh itu, tadbir urus kerajaan yang baik adalah penting untuk meningkatkan kepuasan hidup di Asia. Analisis data dari 28 negara Asia menunjukkan kepuasan hidup di setiap negara dipengaruhi oleh ciri-ciri, budaya dan kepercayaan masing-masing. Kerajaan sepatutnya mempunyai perspektif yang lebih luas dalam penggubalan dasar selain daripada menumbuhkan ekonomi seperti yang dinyatakan dalam objektif negara dan untuk tujuan perancangan. Polisi seharusnya menggalakkan peningkatan dalam taraf hidup dan peranan yang dimainkan oleh kerajaan. Peningkatan

dalam kepuasan hidup sudah pasti akan meningkatkan bukan sahaja kesejahteraan tetapi juga meningkatkan produktiviti dan pertumbuhan ekonomi pada masa depan.

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CHAPTER 1: INTRODUCTION

1.1 Background

Socio-economic development has brought about improved standard of living, but its impact on subjective well-being, happiness and life satisfaction is far from certain. The attainment of higher material and objective well-being has been accompanied by a rise in many social problems, such as stress, depression, mental illness, chronic diseases and erosion of inter-personal relationships. All these untoward consequences of development have affected people's subjective well-being.

While the primary goal of development policies of all government is to enhance the standard of living and quality of life of the citizens, development planning tends to be geared towards raising the educational and income levels, as well as improving the health status, rather than enhancing the subjective well-being, happiness or life satisfaction of individuals. Bhutan was the country to adopt the gross national happiness (GNH) in place of GDP as a measure of progress since 1971. This new indicator of measuring progress incorporates the spiritual, physical, social and environmental health of the citizens and natural environment.

The idea is now attracting a lot of interest in many parts of the world that are beset collapsing financial system, gross inequality and environmental degradation. In July 2011, the UN General Assembly passed a resolution in inviting member countries to measure the happiness of their people and to use happiness index to help guide public policies. Since 2012, the World Happiness Report has been updated annually, to rank

156 countries by their happiness levels. The UN has designated March 20 as the World Happiness Day. The growing recognition of the importance of life satisfaction as an integral part of socio-economic development has resulted in the proliferation of research on subjective well-being.

Studies have shown that while gain in income has a strong positive effect on happiness in low income countries, this does not always hold true in high income countries (Graham, 2012). The World Happiness Report (2012) indicated that citizens in the wealthiest nations/territories in Asia such as Japan, Hong Kong and Korea were less happy than those from lower income countries such as Philippines, Indonesia and Vietnam. An increase in income may not have much effect on the life satisfaction of individuals in high-income countries, but it has a huge positive effect in low income countries.

With socio-economic development and higher standard of living, the hierarchy of needs has increased from basic needs (food, shelter and clothes) to a much higher level of needs. In Maslow's¹ hierarchy theory, the needs of individuals progress from lower level of physiological needs to higher level which requires safety, love and belonging, self-esteem and self-actualization. Thus, it appears that life satisfaction increases when the needs are met and decreases when needs are not met. As such, it is important to study the correlates of life satisfaction. When the important correlates of life satisfaction are identified and dealt with appropriately, life satisfaction can then be improved.

¹Breathing, food, water, sex, sleep, homeostasis, excretion, Security of: body, employment, resources, morality, the family, health, property, Friendship, family, sexual intimacy, Self-esteem, confidence, achievement, respect of others, respect by others, Morality, creativity, spontaneity, problem solving, lack of prejudice, acceptance of facts.

Although many studies on happiness and life satisfaction have been undertaken, most of the studies were conducted in the West. There is still a dearth of research on happiness in Asia. Hence, this study is undertaken to fill the lacuna of such research in Asia. Moreover, there is a greater need to enhance the knowledge on the correlates of life satisfaction in Asia, as governments embark on development programs to improve the well-being of the citizens.

Some scholars argue out that "happiness" and "life satisfaction" are bandied about interchangeably (Frey, 2008; Veenhoven, 2007; Griffin, 2007), others hold that they are not the same, particularly as measured in surveys. "Happiness" tends to focus on how people feel and is experiential in nature, while "life satisfaction" captures people's evaluative assessment of their lives as a whole (McFarlin, 2008; Brülde, 2007; Diener and Diener 2009; Stevenson and Wolfers 2008). A better definition of well-being will be the combination of happiness and life satisfaction that produces "subjective well-being". According to Wills (2009), subjective well-being covers both affective and cognitive components. The affective part is better measured by indicator of happiness, as it deals with emotion and feelings. On the other hand, life satisfaction as measured by various life domains (satisfaction on job, neighbours, environment and others) is a better indicator of the cognitive aspect.

In this thesis, life satisfaction instead of happiness is used as a measure of subjective well-being, because it is a more rational evaluation of the cognitive part, and it is deemed to be more stable than the affective part, as measured by happiness (Duncan, 2010). The unavailability of data on happiness in the 2010 HDR precludes the construction of a combined variable.

1.2 Evolution of the Development of Well-being Index

Bhutan was the first country that used Gross National Happiness (GNH) in place of the conventional GNP in public policy making and in measuring progress in 1972. Subsequently, more attention has been given to the happiness of people rather than the wealth of the nation and the Gross Domestic Product (GDP). Gross National Happiness (GNH) index was created to measure the happiness of its peoples. The GNH index includes: sustainable socio-economic development, preservation of culture, protection of natural environment, and good governance.

Bhutan has shown the rest of the world a new perspective on how to measure a country's well-being and this has led to a greater global awareness of the importance of subjective well-being includes life satisfaction or happiness in measuring progress. Studies on well-being, which include happiness or life satisfaction, have also started to gain the attention of researchers from various fields, and thus, many methods on the measurement of life satisfaction or happiness have proliferated. The evolution of the various measurements of happiness is summarized in Figure 1.1. Therefore, happiness or life satisfaction must be brought into the discussion.

Traditional methods of assessing the development of a country take into consideration economic growth, unemployment and inflation. In contemporary world, however, economic growth, and a decrease in unemployment and inflation may not accurately reflect the well-being of a nation. Thus, measurements of subjective well-being which takes into account welfare in terms of equality, the environment, safety and protection, and life satisfaction are adopted as a new way to measure a country's progress. The

development of various indexes fulfils this new paradigm and reflects the perspective on what people regard as development and welfare.

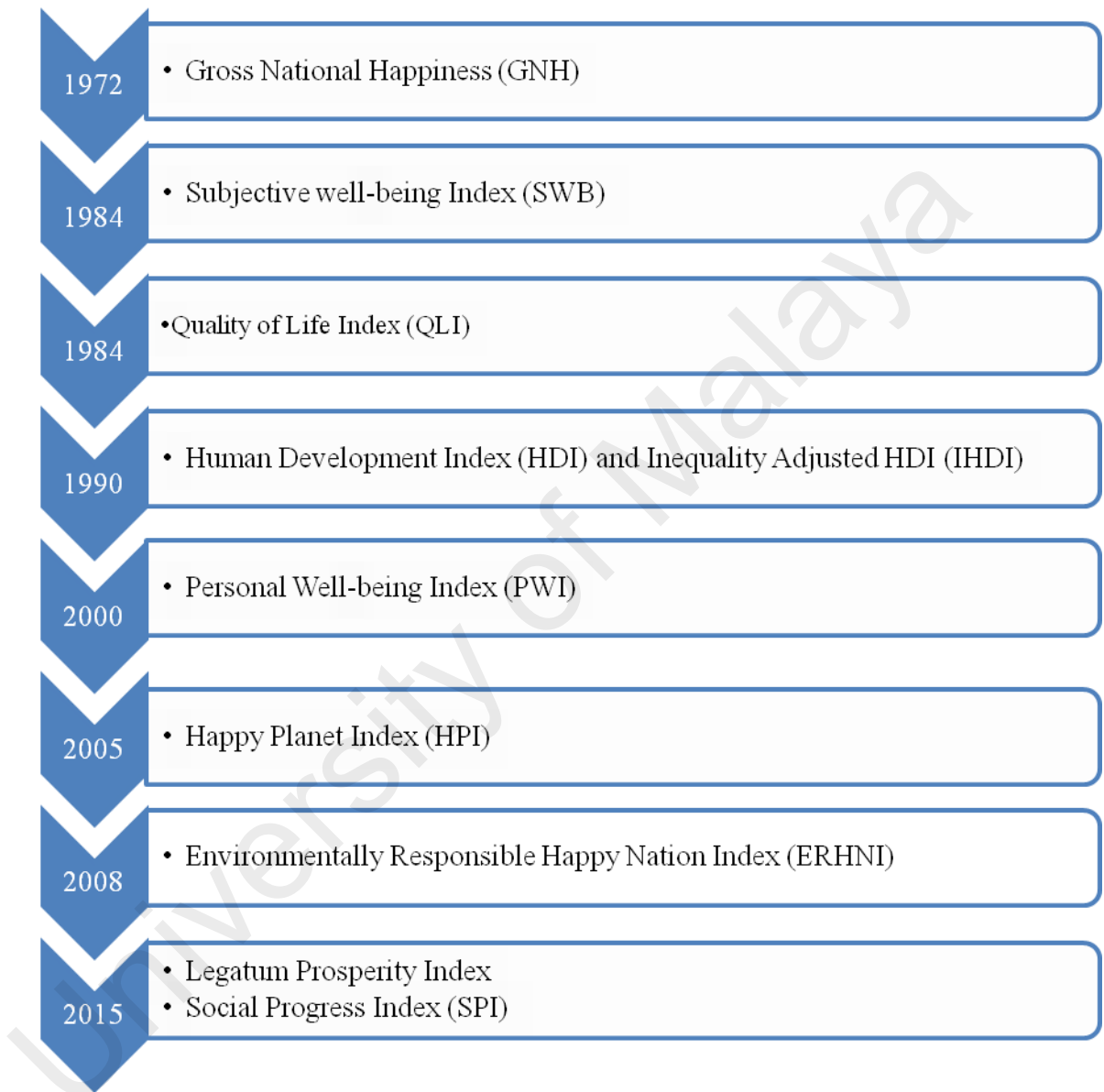


Figure 1.1: Evolution of well-being index

1.2.1 Gross National Happiness (GNH)

The Gross National Happiness (GNH) index was introduced by Bhutan in 1972, and has been used for policy-making ever since. This measure takes into consideration sustainable socio-economic development, the preservation of culture, the protection of the natural environment, and good governance. The government of Bhutan has prioritized GNH over GDP. The idea of GNH has gained interest worldwide, and it is an important area of research (Burns, 2011).

1.2.2 Subjective Well-being Index (SWB)

Wilson's (1967) research found that the "young, healthy, well-educated, well-paid, extroverted, optimistic, worry-free, religious, married person with high self-esteem, job morale, modest aspirations, of either sex and of a wide range of intelligence" (Wilson, correlates of Avowed Happiness, pg. 294) tend to be happier than their counterparts (Diener, 1999). However, the SWB has evolved and is now known to cover both cognitive and affective aspects in life evaluation (Diener, Lucas & Oishi, 2002). Cognitive aspect is represented by rational evaluation of life satisfaction which covers domains of life such as job, health, marriage, friendship, household income and many more. Affective aspect is represented by the happiness, an affective evaluation of a person on his or her current emotional state (Pavot and Diener, 1993; Ott, 2013; Diener & Lucas, 2000; Duncan, 2010). Although there are differences in the subjective well-being term as compared to life satisfaction and happiness, some scholars argued that "happiness", "life satisfaction" and "subjective well-being can be used interchangeable (Frey, 2008; Veenhoven 2007; Griffin 2007).

1.2.3 Quality of Life Index (QOL)

The Quality of Life (QOL) Index was introduced in 1984. This index covers the domains of health (physical and psychological), socialisation, economics, and family. It was expanded in response to the changes that are taking place in contemporary world. (Economist Intelligence Unit in 2005).

The new components of QOL index include material well-being (income and distribution), working life (job security), gender equality, health, education, housing, climate and geography, family life, community life, political freedom and stability (Economist Intelligence Unit in 2005). A higher Quality of Life index indicates an increase in a population's well-being. However, a limitation of this index is that it neglects the psychological and emotional dimension of people; namely, happiness and life satisfaction.

1.2.4 Human Development Index (HDI) and Inequality Adjusted HDI (IHDI)

Since 1990, with the publication of the first Human Development Report by the United Nations, the Human Development Index (HDI) has been widely used as objective measure of well-being and level of development. The HDI includes health, education, and income components in the formation of its index. In a rapidly changing world, HDI is deemed inadequate as there are many factors affecting the well-being of the individuals, besides health, education and income. The need to take into consideration inequality and issues regarding poverty was addressed under the Inequality Adjusted Human Development Index (IHDI). With the changing climate, ecological degradation

and global warming, new perspectives are needed to effectively address human development.

1.2.5 Personal Well-being Index (PWI)

The Personal Well-being Index (PWI) was developed by Cummins (2000) under the Theory of Subjective Well-being Homeostasis. Personal well-being is measured using psychological factors that take into consideration the personality of a person. PWI as an indicator of well-being takes into account seven life domains, including standard of living, personal health, achievement in life, personal relationships, personal safety, community-connectedness, and future security (Smyth, Nielsen et al. 2010).

1.2.6 Happy Planet Index (HPI)

The Happy Planet Index was introduced by the New Economics Foundation (NEF) in July 2006. The HPI measures the well-being of citizens of a country, taking into consideration sustainability, the environment, and life satisfaction (Marks et. al. (2006). HPI is the “ratio of the average HLY (Happy Life Years) and the per capita ecological footprint of the country concerned” (Ng, 2008). HPI focuses on the Ecological Footprint which is an unsolved and debated issue. The criticism of the HPI is that it focuses too much on ecology and ignores other important factors. Besides that, HPI normalised the index to the range of 0 to 1 and it caused misleading conclusion. For example, a person with low happiness index and long life span is no different than the person with high happiness index and short life span (Ng, 2008).

1.2.7 Environmentally Responsible Happy Nation Index (ERHNI)

ERHNI was modified from the revised HLY with added per capital external costs (PCEC). ERHNI was calculated to reflect the positive and negative values. Given happy index with the range of 0 to 10, a person who scores more than 5 will have a positive value and on the other hand, a person who scores less than the neutral 5 will have a negative value. The index is then converted to the scale of 0 to 1 and times the life span. PCEC was estimated from air pollution and other global environmental disruption (Ng, 2008, Chen et al, 2016).

1.2.8 Legatum Prosperity Index

The Legatum Prosperity Index measures the well-being and income of a society, and explores the factors that might affect its happiness. The Legatum Prosperity Index was introduced by the Legatum Institute and research has been done on more than 110 countries. The index is based on 89 variables and those variables are divided into the following categories using equal weights: economy, entrepreneurship and opportunity, governance, education, health, safety and security, personal freedom and social capital (Legatum Institute, 2011). The top five countries in the Legatum Prosperity Index are: Norway, Denmark, Australia, New Zealand and Sweden.

The Legatum Prosperity Index covers a wide range of factors that affect the well-being of a nation, as well as its income and economy. The sources of this index have been gathered from world values surveys, the WTO (World Trade Organisation), the World Bank, and United Nations Human Development. Apart from the HDI (Human

Development Index), the Legatum Prosperity Index covers more aspects of well-being than any other index

1.2.9 Social Progress Index (SPI)

The Social Progress Index (SPI) was published by the non-profit organisation Social Progress Imperative. It includes a more thorough research in producing an index to measure the well-being of a society (Stiglitz, Sen & Fitoussi, 2009). The SPI covers three aspects of well-being: basic human needs, foundation of well-being and opportunity. Basic human needs include: nutrition and basic medical care, water and sanitation, and shelter and personal safety. The foundation of well-being covers: access to basic knowledge, access to information and communication, health and wellness, and environmental quality. Opportunity includes: personal rights, personal freedom and choice, tolerance and inclusion, and access to advanced education. The SPI covers a wider and more comprehensive range of societal issues than previous well-being indexes².

1.3 Problem Statement

Indicator of economic growth using GDP per capita is inadequate in measuring the well-being of its people. Higher economic growth (GDP) does not necessarily result in better subjective well-being, happiness or life satisfaction. Inequality in income distribution may exist, as may crime and corruption, all of which will lead to lowering the happiness level. The need to look into the new measurements of well-being has increased over the years. This can be seen in the development of happiness indexes, a

² More information for Social Progress Index can be found in <http://www.socialprogressimperative.org/global-index/>.

greater awareness of subjective well-being, and the increased attention given to Gross National Happiness. That development includes subjective well-being and happiness has been widely recognised and adopted by western countries. However, this is not the same in non-western countries. Therefore, there is a need to examine factors relating to well-being, particularly within Asia.

1.4 Importance of study

Concomitant to modernisation and economic development, individuals, families and societies are striving to satisfy all sorts of needs over and above subsistence-level living, and to enhance their quality of life and happiness. Many factors affect happiness or the lack thereof. As it should be the aim of all governments to improve the quality of life and life satisfaction of their citizens, it is important to ascertain the differentials and correlates of well-being and happiness at the individual and societal levels so that appropriate policies and programs can be formulated and implemented. The theory of development has included the social well-being of a nation, taking into consideration factors such as education, health, poverty and income inequality, and not merely based on GDP alone. This research is important in finding the correlates for life satisfaction in people in Asian countries. In addition, most of the studies on happiness and economics were focused on western countries, especially the United States of America and countries in Europe. A few researches were also conducted in East Asian countries.

1.5 Research Questions

The study aims to answer the following research questions:

- a) What are the differentials of life satisfaction in Asia?
- b) What are the correlates of life satisfaction in Asia?
- c) Which of the correlates have a stronger effect on or contribute most to life satisfaction in the different regions (East Asia, South Asia, Central and West Asia, Southeast Asia)?
- d) Are there any differences on the effects of correlates when the life satisfaction is distributed into five quantiles of distribution (q10, q25, q50, q75, q90), where quantile of least satisfied with life refers to q10 and most satisfied refers to q90?
- e) Which of the correlates have a stronger effect on or contribute most to life satisfaction distribution for the countries with very high and high HDI level and countries with low and medium HDI level?
- f) What is the relationship between HDI (Human Development Index) and life satisfaction?
- g) To what extent does the HDI affect life satisfaction in Asia? What are the reasons for higher or lower than expected life satisfaction, given the level of HDI?

1.6 Research Objectives

The studies on subjective well-being are concentrated on the West, and there is a dearth of such study in Asia. Hence, thus this study aimed to study the well-being from Asia perspective. The analysis on the correlates that affect life satisfaction is conducted between four Asia regions (East Asia, South Asia, Southeast Asia and Central and West

Asia). The same analysis is applied to the individual countries at different regions in Asia.

Besides that, the effects of correlates on life satisfaction may be different on people who are more satisfied with life as compare to those who are less satisfied with life. The life satisfaction is distributed into five quantiles: q10, q25, q50, q75 and q90 where q10 represent the least satisfied group and q90 the most satisfied group. The distribution analysis is later compared among the countries with very high and high HDI to countries with low and medium HDI to identify the correlates that affect Asia peoples' life satisfaction. The objective of comparison is to study if the correlates are different from the past studies. So that appropriate policies are to be adopted for more efficient and effective resource allocation to achieve maximum well-being for the people.

Since development plays an important role to affect the life satisfaction, the third objective is to explore the relationship between life satisfaction and the HDI and how does it affect life satisfaction in Asia. A scatter plot is produced to measure the relationship of life satisfaction and HDI and this would provide a better picture of where Asia stands as compare to the world. Other than that, the prominent Asia countries which fall far from the estimated life satisfaction given the HDI are also analysed. This would provide extra information in order to have a better understanding on other correlates the life satisfaction of Asia people.

1.7 Significance of study

Economic growth, or other indicators, is not sufficient to measure the well-being of a nation. Along with the changing trends in the world, the research on happiness economics has mushroomed over the last few years. However, happiness may not be everything a person achieves; rather it may provide a platform to have a better understanding of what people need and care about, and seek to work hard to improve on that. The ability to determine the components of life satisfaction enables the policy maker to adopt the appropriate policies to serve the welfare of the people and thus increase the happiness of the country.

The study will enable us to understand more clearly the factors that affect a person's life satisfaction. More social aspects will be included to create a broader measurement of well-being. A wrong or ineffective policy is a waste of resources and does not help in improving life satisfaction in Asia. The study looks deeper into what constitutes life satisfaction for people, rather than depending solely on economic growth. The study will analyse what contributes to the increment of the well-being of people (in different regions) and will enable policy makers to adopt policies that will lead to improvement in this well-being. Additionally, the study on the distribution of life satisfaction will enable policy makers to effectively identify the source of well-being among the five quantile groups. Malaysia is committed to improving the quality of life of its people, as demonstrated by the publication of the Quality of Life report by the Economic Planning Unit (EPU). Hence, this study will complement and supplement previous studies, and make cross-country comparisons.

1.8 Theoretical and Conceptual Framework

There are many theories on well-being. The most notable theories on well-being include Easterlin paradox (Easterlin, 1974), Hedonic treadmill and Set point theory (Diener, Locas & Scollon, 2006), Authentic happiness theory (Seligman, 2002), Conceptual-referent-theory (Rojas, 2007), Aspiration theory, Relative income theory, Reference group theory and Relative utility hypothesis (Clark, Frijters & Shields, 2008; Oshio, Nozaki, & Kobayashi, 2011; Clark and Oswald, 1996; Stevenson and Wolfers, 2008; Ball and Chernova, 2008; Helliwell, Layard and Sachs, 2011; Duc, 2012). These theories postulate different effects of the correlates on life satisfaction, happiness or well-being. Among the correlates, income has been deemed to be the most important influence on life satisfaction. The stereotype impression is that having more money makes a person happy. With such mind set, individuals will strive to earn more money. However, does money makes one happy? While some past studies found positive relation between income and happiness or life satisfaction (Frey and Sturzer, 2000a; Ball and Chernova, 2008; Tsou and Liu, 2001), there are theories that provide different perspectives on how income affect happiness or life satisfaction.

According to Easterlin Paradox, rich people tend to be happier than poor people within a society, but beyond certain threshold level of income, the aggregate happiness of rich people increases at a diminishing rate. Hence it is named as “paradox”. This may be due to the relative income effect. When individuals start compare with others, absolute income has lesser impact on life satisfaction. If the increment of income is equally distributed, increase in income will not have the positive effect on life satisfaction on those with higher income. It may even bring negative effect when the individuals feel that others have fared relatively better than themselves. It is common for one to

compares with peers who are better off or situations which are better than the existing conditions and this may result in a drop in life satisfaction, if others are deemed to be relatively better off. In addition to that (Clark, Frijters and Shields, 2008) explained that as people get richer beyond the “subsistence level”, friends and family life are the main factors to affect their well-being.

Set point theory postulates that over time, events causing pain or happiness to an individual will always fall back to the original level. Therefore, an incident of happiness such as increase in income may bring higher satisfaction or happiness initially but time will depress the happiness level and eventually bring it back to the original level. The same applies to the incident causing great pain such as loss of loved ones or being diagnosed with a terminal illness.

Every individual's background, culture and social values, past experience can have different effects on happiness or life satisfaction, as posited by Conceptual-reference theory. According to Authentic happiness theory, an incident can affect individuals differently. The levels of happiness or satisfaction are also affected by emotions, inner strength and a feeling of gratitude which suggested from all of these theories, along with a review of past studies provide the conceptual framework for the study on the correlates of life satisfaction.

The correlates of life satisfaction in this study are adopted from various past researches. These are separated into demographic variables which include: gender, age and marital status; socio-economic variables which include education, income, employment, the role of government and standard of living, inflation and others which cover health, social relationships, and the environment. Besides that, a regression between HDI and

life satisfaction is conducted and countries which were not explained by HDI (the paradoxes) were analysed. Additional to this, personal dimensions of well-being and elements of happiness are also examined for their effects on life satisfaction.

The conceptual framework for this thesis is presented in Figure 1.2, with past studies of correlates shown on the left side of the figure. These correlates affect life satisfaction in general, and on average and by distribution which is measured in quantile regression. All of these regressions are then regrouped to four regions: East Asia, South Asia, Central and West Asia and Southeast Asia. The correlates effect are also analysed on each individual country. Lastly, the study looks into the relationship between HDI and life satisfaction and also to identify where Asia lies under this relation. HDI and paradoxes (countries which HDI failed to explain its impact on life satisfaction) are shown at the right bottom corner of the figure.

1.9 Research Hypothesis

The following hypotheses to be tested are as follows:

Hypothesis 1: There are significant relationships between the following demographic variables, socio-economic variables and life satisfaction:

- a) Good governance is positively correlated with life satisfaction.
- b) Standard of living and life satisfaction are positively correlated.
- c) Income is positively correlated with life satisfaction.
- d) Married people are more satisfied with life than singles but singles are more satisfied with life than widower or divorcee.
- e) Education has positive effect on life satisfaction.
- f) Being employed has a positive effect on life satisfaction.

- g) People become more satisfied with age.
- h) Males are more likely to report higher life satisfaction than female.
- i) Health has a positive effect on life satisfaction.

Hypothesis 2: The effects of independent variables (role of government, standard of living, employment status, marital status, education, income, age and gender) vary according to the levels of life satisfaction.

Hypothesis 3: People from higher HDI tend to be more satisfied with their life than those from lower HDI countries.

1.10 Scope of the Study

Subjective well-being is a broad concept and involves the cognitive aspect of life satisfaction, the affective aspect of happiness, and a combination of these two aspects. The study of well-being here is limited to well-being within the life satisfaction context. In addition, the study is only focused on a region within Asia where 28 countries are available from the Asia Barometer. Furthermore, the correlates of life satisfaction are also restricted to the selected correlates which are justified from previous literature.

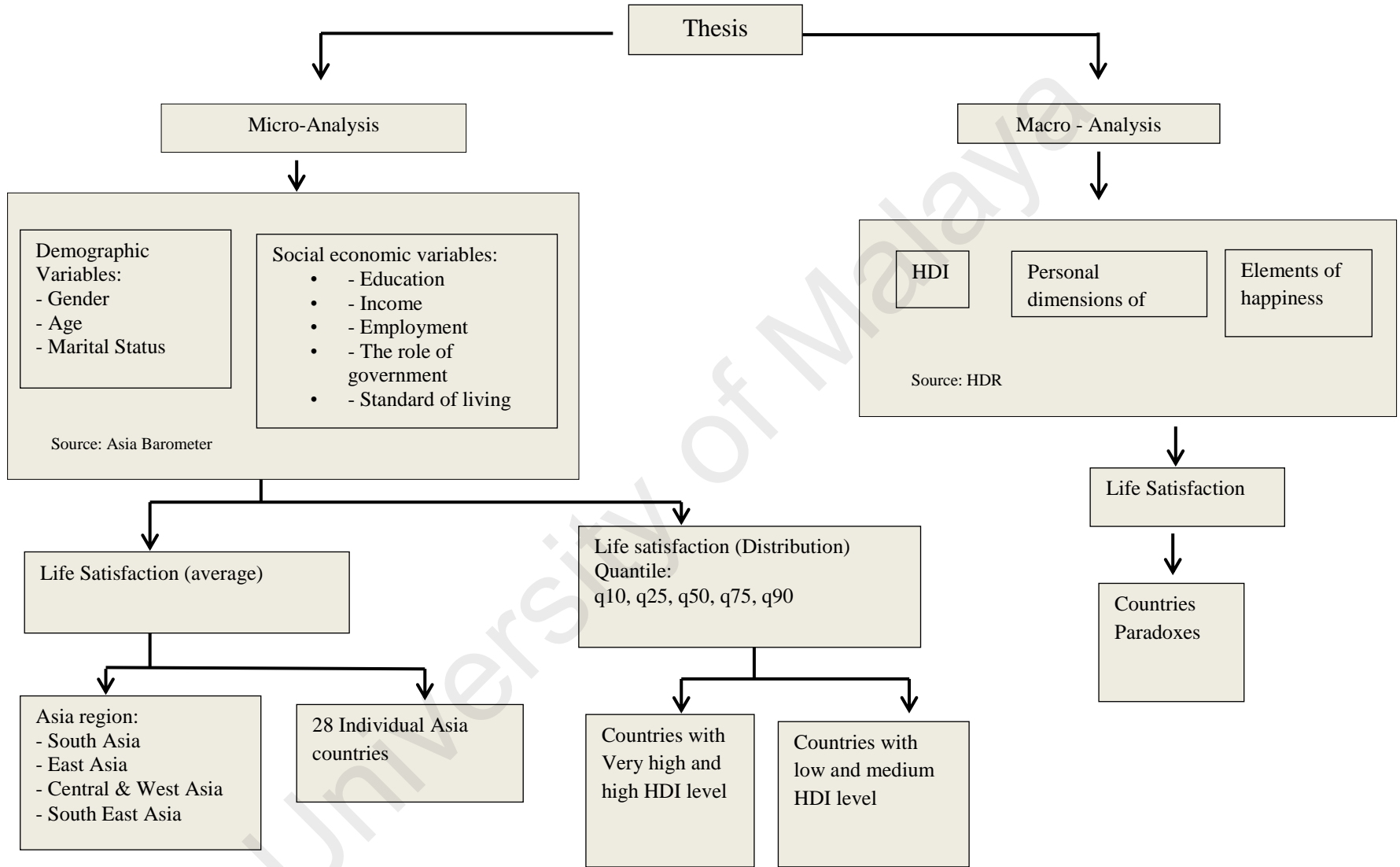


Figure 1.2: Conceptual Framework for Correlates in Asia

1.11 Organisation of the Thesis

The thesis is organised into seven chapters. Chapter 1 contains the introduction of the study which covers background, chronology of well-being index, problem statement, importance of study, research questions, research objectives, significant of study, theoretical framework, conceptual framework, research hypothesis and scope of study.

Chapter 2 is the literature review. The importance of well-being study is review at the beginning of the chapter, this is followed by the definition of well-being keywords such as Eudaimonia and hedonia. Various conceptual definitions of subjective well-being, life satisfaction and happiness are differentiated and clearly identified. Other than that, this chapter also reviews the various methodology adopted by past studies on the study of well-being. The study of various factors that affect well-being are included in the chapter and their effects on well-being are analysed according to each determinant. The literature also covers the distribution of happiness or life satisfaction, the past studies on the relation between development and well-being, and the causality between the variables. The chapter ends with the summary on the literature review.

Chapter 3 explains the methodology adopted to achieve the objectives of this paper. It explains the sources of data and justifies the selection of the data. Besides that, this chapter also justify the definition on the dependent variable that is life satisfaction and why it is chosen instead of other well-being variables. This chapter continues with the computation of life satisfaction mean, computation and grouping of correlates of life satisfaction. The

selection of suitable linear regression and quantile regression are adopted and various diagnostic checking is suggested in this chapter.

Chapter 4 is the analysis on the factors of life satisfaction in four Asian regions: East Asia, South Asia, Central and West Asia and Southeast Asia. The importance of the factors is reported in this chapter.

Chapter 5 is the analysis on the distribution of life satisfaction using quantile regression. This chapter enables the analysis on life satisfaction distributed from the least satisfied group to most satisfied group.

Chapter 6 study the regression between life satisfaction and HDI around the world. Asia countries are identified from the regression to where Asia lies as compare to other countries around the world. In addition to that, countries in Asia which does not comply to the regression line (the paradoxes) are also analysed to provide better understand to what makes Asia people happy or satisfied with life.

Chapter 7 concludes the study with the summary of the study, identifying the correlates that affect Asia's life satisfaction, propose policy recommendations and the limitation of the study.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The general definition of well-being refers to the welfare or wellness of people. It can be related to subjective well-being, life satisfaction or happiness and these concepts have been widely used interchangeably. Section 2.2 deals with the conceptual definition of the various well-beings such as life satisfaction, happiness and subjective well-being, followed by section 2.3 on the explanation of theories that are related to life satisfaction, happiness and subjective well-being. The examination on the importance to study subjective well-being (SWB), life satisfaction and happiness is presented in section 2.4 and methodologies adopted by the past researches are reviewed at section 2.5.

Section 2.6 focuses on analysing the correlates of life satisfaction, happiness and subjective well-being. Causality study between the variables is explored in section 2.7. In view of the different distribution of life satisfaction, section 2.8 reviewed the study on the life satisfaction when they are distributed from most satisfied (happy) to least satisfied (unhappy) group. Section 2.9 completes the chapter with concluding remarks.

2.2 Conceptual Definition

“Eudaimonia”, as termed coined by Aristotle and referred to life satisfaction or a positive emotional condition (Haybron, 2005) was widely adopted by many philosophers when referring to happiness in the context of well-being. Different people have different definitions of happiness. Although the term “Hedonic” also being adopted to measure well-being, hedonic pay more attention on happiness.

According to Deci and Ryan (2008), the hedonic approach (which focuses on happiness), has been the standard social science model by Tooby and Cosmides (1992). It emphasizes on human nature where human nature tends to be “empty and thus malleable”, rendering them to follow social and cultural expectations and norms. The “hedonism” theory also postulates that happiness is a matter of raw subjective feeling. A happy life maximizes feeling of pleasure and minimizes pain (Peterson, Park and Seligman, 2005). In addition, Ng (2013) argues that people tend to be neutral in their happiness rating, such that the “net happiness” is zero.

Thus, the eudaimonic approach (which focuses on life satisfaction) uncovers and apprehends the content attributable to human nature while the hedonic approach refers to happiness. However, some philosophers prefer to use happiness in their understanding of “Eudaimonia” by Aristotle (Haybron, 2005).

Veenhoven (2003) found positive relation between hedonism and happiness in most cases. Happiness is correlated with moral acceptance of pleasure and active leisure. According to Ng (2008), happiness of a person should not be at the cost of others, else the term of 'happy' will be a bias, individualistic, inconsiderate and self-centred motive. For example, a thief may be "happy" after robbing a person because the thief now can enjoy and consume pleasures with the money, but the victim will be very unhappy.

The term subjective well-being is also frequently used to measure the general well-being. Wills (2009) explains that: "Subjective well-being explores the evaluations, both positive and negative, of how people experience their lives". Subjective well-being is differentiated by two components: affective and cognitive. Happiness is used to represent the affective evaluation of a person and life satisfaction is adopted to represent the rational evaluation (the cognitive part) of the person (Pavot and Diener, 1993; Ott, 2013; Diener, Oishi & Lucas, 2003; Duncan, 2010, Van Hoorn, Mabsout & Sent, 2010).

This finding is consistent with "Eudaimonia", which relates to life satisfaction, and "hedonia", represented by happiness (Deci and Ryan, 2008). Furthermore, subjective well-being can also be used as a proxy to measure utility (Frey & Stutzer, 2002a). Among the terms, happiness and life satisfaction are commonly used measures of subjective well-being. Some scholars argue out that "happiness" and "life satisfaction" are bandied about interchangeably (Frey, 2008; Veenhoven, 2007; Griffin, 2007), others hold that they are not the same, particularly as measured in surveys (Haller and Hadler, 2006).

However, Dolan, Layard & Metcalfe (2011) differentiate life satisfaction and Eudaimonia. While Life satisfaction is referred as evaluation measure, where it covers various domains such as personal relationship, physical health, mental well-being, work situation, financial situation, living area and time to do things of preference; “Eudemonic” is referred to as the measure of “worthwhileness” of thing in life. For example: “overall, how worthwhile are the things that you do in your life”.

Causal relationship between happiness and life satisfaction in most situations is detected but the direction of the causation is inconclusive. The one way direction in which happiness is affected by “subjective well-being, life satisfaction and the absence of depression or anxiety” is found in the findings by Argyle (2001). Besides that, there are also two factors affecting well-being, namely “absolute subjective well-being” and “relative subjective well-being”. “Absolute subjective well-being” is done by evaluating a person’s living conditions and “relative subjective well-being” is done by comparing one person’s living conditions with another’s (Pokimica, Addai et al., 2012).

While happiness is subjected to emotions and feelings such as joy, life satisfaction focuses on the satisfaction based on various life events and circumstances. With regard to the cognitive component of subjective well-being, life satisfaction is a measure of one’s evaluation of his or her life where the individual is required to rate the satisfaction subjectively on a given scale. It is considered as a rational evaluation of one’s well-being, as measured by various life domains (satisfaction on job, neighbours, environment and others), or in other words, “a cognitive evaluation of the conditions of one’s life” (Deci and Ryan, 2008) which captures people's evaluative assessment of their lives as a whole,

including material and social aspirations and achievements (Haller and Hadler, 2006; McFarlin 2008; Brülde 2007; Diener and Diener, 2009; Stevenson and Wolfers, 2008).

Life satisfaction is also “a subjective proxy measure of quality of life that complements more objective indicators” (The Conference Board of Canada). Life satisfaction has been used in many studies to measure the quality of life, to monitor social progress, to evaluate policy, and to act as an identification of conditions for a good life (Veenhoven, 1996). Put simply, life satisfaction measures how people evaluate their life as a whole rather than their current feelings (OECD, n.d).

On the other hand, happiness is the affective part in subjective well-being. Happiness is more related to moods and emotional matters (Haybron, 2005). It is the positive and good feelings of an individual experience that overtake any negative feelings. These good feelings emerge from the enjoyment of life and the feeling of hope that this pleasure can be sustained (Cummins, 2012; Layard, 2005; Myers, 2004; Duncan, 2010, Veenhoven, 2010). Happiness also focuses on how people feel and is experiential in nature. In contrast, life satisfaction involves evaluative assessment of a person’s life as a whole, and it can be the outcome of positive experiences of close personal relationships and hence it tends to focus on how people feel and is experiential in nature. Furthermore, there is a prerequisite for happiness and it is the absence of depression or anxiety (McFarlin, 2008; Brülde 2007; Diener and Diener, 2009; Stevenson and Wolfers, 2008).

There are two types of happiness: affective happiness and evaluative happiness, according to Helliwell, Layard and Sachs (2011). Affective happiness refers to the happiness gained from social activities, interaction with people or involvement in a social group for example family members, friends, neighbours and colleagues. Evaluative happiness indicates happiness gained from the social status of a person within the society. Apart from this, there is another type of happiness known as objective happiness (Kahneman, 1999). Objective happiness is also defined as the average utility over time and it can be considered as an experienced utility (Alexandrova, 2005). Objective happiness is measured through brainwaves and other medical approaches, and it is more of a scientific study rather than social science study. Objective happiness is commonly used to measure the welfare of an individual because it captures both mood and enjoyment experienced by an individual.

In a nutshell, all these indicators are subjective concepts. Happiness happens at the present moment and it concerns more on self-interest rather than any morality effect (moral consequence) or externalities effect on others, be it positive or negative, as such it does not last long and has only a short term effect. On the other hand, subjective well-being is a long term happiness, with morality perspective (Ng, 2013). Life satisfaction which is another forms of well-being (Diener, Kahneman & Helliwell, 2010) refers to an individual's overall satisfaction in life in various aspects such as job, family, social life and more. Hence, an individual may not be happy but satisfied with his or her life overall.

2.3 Theories Related to Life Satisfaction, Happiness and Well-being

2.3.1 Easterlin Paradox

Easterlin posited that life satisfaction would increase when income increases, but will decline once it reaches a certain point. A quadratic relationship is found between happiness and income (Roca, 2011). It is found that richer people are happier than poorer people, but only up to a certain point of income. Relative income affects their life satisfaction far more than absolute income. A comparison of income caused the person to be relatively better-off or worse-off. But in a normal case, comparison brings worse-off effect as individuals tend to compare themselves with peers who are better than them. It is not common for individual to compare themselves with peers who are worse than them. Thus relative income will only bring dissatisfaction to life.

Besides that, when an increase in income covers all basic needs, the effect on life satisfaction of any further increment in income diminishes. Thus, “Money does not buy happiness” and this explains that economic growth does not lead to more life-satisfaction, nor does happiness has close linkage with economic development at a higher level. Instead, friends and a good family life are the important causes to a person’s life satisfaction (Clarks, Frijters and Shileds, 2008).

There is also an element of diminishing marginal utility that needs to be considered. Uneven distribution of income also causes this paradox. If the increment in income is not evenly distributed, where the rich become richer and poor become poorer, happiness will

not increase even when the national income increases. Apart from income factor, other social factors such as social trust, confidence in governance, as well as security will also affect happiness levels (Helliwell, Layard and Sachs, 2011).

2.3.2 Hedonic Treadmill /Hedonic Adaptation/ Set Point Theory

According to the hedonic treadmill theory, people will resume to a stabilised level of happiness, no matter how positive or negative the changes they experienced in their lives. Although positive shocks such as winning the lottery in life will elevate the happiness level and negative shocks such as met with an accident will reduce it, people tend to have the ability to adapt to different happiness level in various circumstances.

This theory also depicts that one's happiness level will fall stagnant and remain stagnant in long run. This happens when one's income increases, the rise of expectations and desires will eventually neutralise the happiness level and bring them back to the 'original' state or "hedonic neutrality" (Diener, Lucas & Scollon, 2006). This is consistent with "set point theory", which indicates that each individual will revert to the initial happiness level regardless of incidents. However, Set point theory added that the return to set point is depend on the individual's "personality traits and other stable genetic factors" (Headey, Schupp et al., 2008) as well as the adaptation level of the individual. The power to adapt to changes allows the individual to revert back to the set point.

However, the set point theory is criticized by Diener et al. (2006). They argued that set point is not neutral and each individual has his or her own set point and it is differentiated

by the individual's temperament. Besides that, each individual has not only one set point but multiple happiness set points which are affected by various components of well-being such as emotional, mental, social and physical. More importantly, the set point will change according to different circumstances. People will change over time with age, their interaction with friends, religious practiced, and will be influenced by the media and different circumstances of life events. In addition to that, individual's adaptability is different and this will also have effect on the set point for the individual. Set point level can move up or down mainly based on their adaptation level.

2.3.3 Aspiration Theory/ Relative Income Theory/ Reference Group Theory/ Relative Utility Hypothesis

The above mentioned theories are theories which make comparative or relative to a certain reference group (Clark, Frijters & Shields, 2008; Oshio, Nozaki, & Kobayashi, 2011; Clark and Oswald, 1996; Stevenson and Wolfers, 2008; Ball and Chernova, 2008; Helliwell, Layard and Sachs, 2011; Duc, 2012). These theories indicate that happiness is achieved by comparing oneself to other people. Unlike in absolute comparison, as long as the income meets one's basic needs, an increment in income will have no effect on satisfaction or happiness (Veenhoven, 1991). These theories supported that relative comparison rather than absolute levels of income matter more to happiness (Easterlin, 1995; Pittau, Zeli & Gelman, 2010; Kahneman, Krueger, Schkade et. al., 2006).

However, people tend to compare themselves with groups that are better off, and thus the reference group of comparison tends to come from the higher and advantaged groups. Comparison is rarely done with a less fortunate or disadvantaged groups. Therefore, dissatisfaction often emerges when comparison is made. However, the impact of satisfaction or happiness varies with different groups of reference. For example, relative comparison can be based on a person's expectations and his or her comparison with the reference group (Diener, Sandvik, Seidlitz et al., 1993; Easterlin, 1974).

Relative income theory in the utility function is useful and can be adopted in various economic studies such as consumption, wages, investment and others (Clark, Frijters & Shields, 2008). Hence, Yitzhaki index was created and adopted in order to measure relative income (Adjaye-Gbewonyo & Kawachi, 2012; Oshio, Nozaki & Kobayashi, 2011). Despite all of these theories, levels of satisfaction or happiness ultimately differ according to each individual and a fully satisfied individual is happier than one with unsatisfied desires, depicted in the aspiration explanation (Rojas, 2005). A person intrinsic values and personal beliefs also have significant strong effect on the relative income (Georgellis, Tsitsianis & Yin, 2009). This is explained by the Conceptual-Referent Theory (CRT) which states that the happiness of a person is determined by the person's background, especially his or her culture and social values. Different backgrounds, and culture and social values will affect the perception of happiness and thus creates heterogeneity with regard to the concept of happiness, as the concept can be referred to differently (Rojas, 2007).

2.3.4 Authentic Happiness Theory

The Authentic Happiness Theory (Seligman, 2002) emphasises on three elements: a pleasant life (pleasures), a good life (engagement) and a meaningful life. These three elements are linked to positive emotion, as one reminisces the past with gratitude and forgiveness, and looks forward to a pleasant life in the future.

The Authentic Happiness Theory (Seligman, 2002) was created under the science of positive psychology. This theory places specific emphasis on three elements: a pleasant life (pleasures), a good life (engagement) and a meaningful life. These three elements are linked to positive emotion, as one reminisces the past with gratitude and forgiveness, and looks forward to a pleasant life in the future.

The pleasant life is created by positive emotions; the good and happy life in which the individual will apply gratitude in every situation, and the meaningful life is where the individual will engage his or her inner strength to achieve things beyond his or her capability. When these three elements are combined, the person is deemed as living the “full” life (Seligman, Parks & Steen, 2004).

2.4 The Importance of Life Satisfaction, Happiness and Subjective Well-being

Norrish and Vella-Brodrick (2008) found that the study of happiness is worthy to be pursued scientifically. They disagree with the happiness set point theory, as well as the hedonic treadmill theory, which states that level of happiness is unable to be increased. They found that level of happiness can be increased and there are methods to increase level of happiness. From a holistic point of view, happiness is an important factor for well-being.

Happiness has everything to do with one's life. As Griffin (2007) states: "A central use of 'happiness,' to be happy is to be glad or satisfied or content, which suggests subjectivity, with having a good measure of what is important in life, which suggests objectivity".

Even though the study of happiness has increased in importance, Duncan (2010) in his study mentioned that more considerations need to be given before considering happiness maximisation as a country's goal, or adopting it in a nation's policy making. Shifting priority from growth to social values is a risky move for a country and it needs to be done with careful consideration.

It is the objectives of all governments improve the welfare and life satisfaction of people. Hence, happiness or life satisfaction plays an important role in moderating the political process where government will take into consideration of the decision effect on people's happiness and life satisfaction (Frey and Stutzer, 2010). This indicates that each individual need to be given the opportunity to voice his or her idea of what constitutes a good life. The

study of happiness is also important in that it develops indicators that represent different aspects of well-being in life.

2.5 Methodology Adopted by Past Researches

Research on life satisfaction and happiness has proliferated with the availability of data from many large scale surveys conducted globally. The major surveys include the World Value Surveys (WVS) conducted in over 80 countries, the Gallup World Poll (GWP) covering, over 160 countries, the 'barometer surveys' (Global, Europe, Latin America, Asia, Arab region and Africa), General Social Surveys covering 58 countries, the Latin America Public Opinion Project, United Kingdom General Health Questionnaire (GHQ), China Household Income Project and Living Standard Measurement Surveys (Takeuchi et al. 2015; Helliwell, Layard & Sachs, 2011). Life satisfaction measures are collected by all OECD countries (O'Donnell, Deaton, Durand et. al, 2014). Much of these researches have been done on both microeconomic and macroeconomic levels, and most of the approaches and measures were based on the results of the large-scale surveys across countries and over time.

In most of the research studies (Appleton & Song, 2008; Blanchflower & Oswald, 2004; Dolan, Peasgood & White, 2008; Peiro, 2006), average happiness, life satisfaction, or average subjective well-being is adopted. The most common question asked in most of the happiness research is: 'All things considered, how satisfied are you?' and the other questions were asked and answered on a scale of either 1-10 or 1-7. The question: 'How happy are you?' was also asked and with the given scale of 1-4. Among the studies, panel

data and the Ordinary Least Square estimation were regularly adopted. In some cases, ordered logit or probit equations were chosen in the analysis.

The uses of average happiness measurements have long been debated. The averaging out of happiness has neglected both the happiest (most satisfied with life) and the unhappiest person (least satisfied with life). The debate is now resolved with the introduction of quantile regression. Quantile regression is able to explain the happiness distribution, and tackles the underestimating or overestimating of happiness, as well as the problem of extremes (Binder & Coad, 2011).

2.6 Correlates of Life satisfaction, Happiness and Subjective Well-being

What makes a happy or satisfied person? There are many correlates for happiness, but it is partly caused by one's socio-demographic and economic circumstances. Socio-demographic factors, such as age, gender, marital status, and education level, and economic factors, such as income and unemployment, show a significant impact on the happiness levels of an individual.

2.6.1 Income

Generally a higher income has a positive effect and will result in higher levels of happiness, life satisfaction, or subjective well-being (Stevenson and Wolfers, 2008; Frijters, Haisken-DeNew and Shields 2004; Frijters, Geishecker, Haisken - DeNew et al. 2006; Selim, 2008; Georgellis, Tsitsianis and Yin, 2009; Schyns 2002; Lawless and Lucas, 2011; Diener and

Biswas-Diener, 2002; Deaton, 2008; Veenhoven and Ehrhardt, 1995; Frey and Stutzer, 2000a; Ball and Chernova, 2008; Appleton and Song, 2008; Clark and Oswald, 1994; Tsou and Liu, 2001, Selim, 2008). However, the effects of income vary as a result of relative economic comparison with different individuals and segmented groups, and the duration of time within which this is experienced. For example, higher income level raises happiness only to a small extent (Frey and Stutzer, 2002; Frey and Stutzer, 2000), and it may not have the same effect on different individuals (Easterlin, 1995). The positive income effect on happiness and life satisfaction was also found to be stronger for the poor than for the rich (Helliwell, Layard & Sachs, 2011).

2.6.1.1 Diminishing Return of Happiness and Diminishing Marginal Utility

The Easterlin Paradox, the hedonic treadmill theory and the theory of relative preference explain differently on the relationship between income and happiness. As one's income gets higher, one will experience diminishing return of happiness. This shows that having a higher income will make a person happier, but only to a certain extent, and this happiness will diminish after the income reaches a certain level (Clark, Frijters & Shields, 2008; Stevenson & Wolfers, 2008). This certain level is known as the "subsistence level" and the amount is between USD\$10,000 and USD\$15,000 ((Frey & Stutzer, 2002; Stevenson & Wolfers, 2008) per year. This finding is consistent with Vendrik and Woltjer (2007), who indicate that in either positive or negative relative income, there is an existence of the concavity of life satisfaction, where the happiness will increase when income increases, but will diminish when income increases beyond a specific point. However, this explanation is only applicable in the United States and not in Japan or other European countries (Binder,

2011; Vendrik & Woltjer, 2007). For the Scandinavian countries, especially Denmark, there is a positive correlation between income and happiness, as this high-income country is also known to be the “happiest country in the world” (Diener, Vittersø & Diener, 2010).

The study by Vendrik and Woltjer (2007) found concavity of the income effect on life satisfaction in the United States, i.e. happiness increases with income, up to a certain level, but this does not appear to be the case in Europe and Japan (Binder and Coad, 2011; Vendrik & Woltjer, 2007). This curvilinear relationship is also explained as a declining of marginal utility of income on happiness (Inglehart and Klingemann, 2000; Easterlin 2005, Diener and Biswas-Diener, 2002). Diminishing marginal utility explains that when income increases, total happiness increases, but the increment of happiness will become lesser. This is similar to the explanation of diminishing happiness returns by Venhoven (1991).

However, when Easterlin (2005) measures the diminishing return relationship on cross-sectional data, either with regard to international comparison or within country comparison, marginal utility is at a the level of zero, rather than diminishing. This is because the earlier studies on the relationship between income and happiness are based on a point in time. Easterlin also indicates “the time series regression curve is horizontal”.

2.6.1.2 Income and Relativity of Comparison

Absolute income does not sufficiently show the whole picture with regard to a person's happiness. When there is no association between income and happiness, relative income appears to matter (Clark, 2011; Graham, 2011; Blanchflower, 2008).

In addition, different incomes have different effects on different individuals (Easterlin, 1995). Individuals tend to compare their income levels, either with other people or with levels reached in the past. If a person has high income but this income is comparatively less than others, it will reduce the happiness of that person. If the income is less in comparison to previous years, it will also reduce the happiness of that person (Stevenson & Wolfers, 2008). The relativity of comparison will also adjust the person's expectation, yielding no additional utility. Duc (2012) states that job satisfaction and happiness experienced in farmers and fisherman happiness are found in relative income instead of actual income.

Additionally, Tsou and Liu (2001) also found that there is a negative correlation between comparison income and happiness or job satisfaction. Relative income and happiness is detected on individual level rather than family level in China while Japan and Korea experienced the effect on family level rather than individual level (Oshio, Nozaki & Kobayashi, 2011). Besides that, Australia also found that relative income plays an important role to affect happiness too.

People who are happier are also those who are in the higher income group. However, happiness levels change when individuals' incomes increase collectively. If there are changes in all income groups, the increase of income will not generate a high increment in happiness. This increase of income does not make a person feel special as everyone is having the same increment. This is mainly due to the comparative factor in each individual. When there is a change in income, relative income changes will cause larger impact on happiness as compared to absolute income changes (Ball and Chernova, 2008).

The comparative factor has a high impact on happiness. A happy person may be unhappy when he or she compares himself or herself with other people, with the past, or with other relative goods or events. When comparison takes place, it tends to be with a superior group of people or a better environmental condition, rather than to that which is deemed inferior. People tend to compare themselves with those who have higher achievements, higher income, better kids, better jobs, or even better cars than them. The "comparator" can be a person, a past event, or an experience (Helliwell, Layard & Sachs, 2011).

According to the relative income postulation, if everyone is earning a high income and there exists no differences in comparison, the income effect on life satisfaction or happiness will be negligible. However, comparative higher earnings among peers, colleagues, friends or relatives result in a person feeling relatively poor and this will reduce his or her life satisfaction or happiness (Powdthavee, 2010). Moreover, the relativity of income is not so much as to whether a person can earn more than another, but rather relates to the individual being able to rank himself or herself higher than other people. Clark, Frijters & Shields (2008) argue that evaluation on income is based not only on social comparison, but also

comparison with one's self and one's past habituation, which relates to the study in economics of behaviour. The utility function in relative income affects different domains in the economics of behaviour.

When a person seeks to compare, he or she starts to work hard to improve and thus increase his or her capabilities. Happiness will increase when a person succeeds in achieving his or her goals. However, this happiness will not last long because the individual will tend to compare himself or herself with a higher ranking individual or group. The comparative factor has always existed in human nature.

A significant relationship between income and happiness was also reflected in different groups of people – educated groups, lower income groups, homeless people, villagers and wealthy income groups (Biswas-Diener, Vittersø, & Diener, 2010). Increased income results in the poor income group to have a greater increment of happiness as compared to the rich income group (Helliwell, Layard and Sachs, 2011). An increment of \$100 may not be significant to the already wealthy and thus will not result in much of an increase in happiness for the rich income group. However, an increment of \$100 will make a lot of difference to the poor income group and thus there is a greater increase in happiness levels. The positive income effect is much stronger on the poor income group than the rich income group (Helliwell, Layard & Sachs, 2011).

Although an increase in income is positively related to happiness, a higher income level raises happiness only to small extent as duration of time is a concern (Appleton & Song, 2008; Blanchflower & Oswald, 2004; Andrew & Oswald, 1994; Frey & Stutzer, 2002;

Peiro, 2006). This is because when income increases, the short-term effect on happiness is higher than the long-term effect (Hagerty and Veenhoven, 2003; Blanchflower, 2008; Blanchflower & Oswald, 2004). Expectations and desires will rise to bring the level of happiness back to the stable level (Rosenbloom, August 7, 2010).

According to relative income hypothesis, peoples' happiness increases with their income, but they will be unhappy when other peoples' income increases more than their own. In other words, a more equitable distribution of income will increase the overall wellbeing of the people (Clark as cited in Ng, 2003; Helliwell, Layard & Sachs 2011). Furthermore, Ng and Wang (1993) argued that controlling for other factors such as aspiration, environmental quality, individual and political myopia, the income effects on a person's happiness diminishes as income increases (Ng & Wang, 1993).

2.6.2 Age

There are different findings on how age may affect life satisfaction. Palmore and Luikart (1972) found that there is no correlation between the two which Selim (2008) found negative effect of age on happiness in Turkey. However, most researchers have found that higher life satisfaction tend to be positively related with income, marriage and good health, but that a U shape relationship is found with respect to age, and age, or age squared (age^2), is found to be significant in the United States, the United Kingdom, Australia, Japan, and China (Appleton & Song, 2008; Blanchflower & Oswald, 2004; Clark & Oswald, 1994; Frey & Stutzer, 2002a; Peiro, 2006; Kusago, 2007; Cuñado & de Gracia, 2011). This indicates that middle-aged people are the least satisfied or happy with life, as

compared to younger people and the elderly. However, elderly Japanese people tend to score higher life satisfaction in comparison to young people (Kusago, 2007).

The U-shape effects indicate that people at the middle of their lifespan are unhappy compared to children or the elderly. This might be due to the pressures adults face with regards to their lives and workspaces, and the experiencing of mid-life crises when the comparator of life becomes more significant. The comparison factor will reduce the happiness of an individual. As competition increases between individuals, happiness decreases with age. In addition to that, when people get older, they feel more peaceful. Old people source happiness from the peaceful feelings where they are more risk averse and having less interest in accumulating knowledge. According to Sotgiu, Galati, Manzano et al. (2011), older people despite their reduced health and physical abilities are happier because they survived the unhappy moments in their mid-life and were able to adapt themselves. This contrasts with younger people who source happiness from acquiring knowledge and being adventurous (Ng, 2011).

While the younger generation might be anxious about the uncertainties in life, such as jobs and marriage (Kusago, 2007), children are happier than adults because they do not have to worry about making a living, and the comparative factor is not significant at that age. The most competitive challenge for children will be their studies. However, the increase in the number of suicide among children alerts us to the need for more research on the happiness of children.

2.6.3 Gender

The gender differential on life satisfaction, happiness or subjective well-being varies from country to country, but the differentials are generally insignificant (Palmore and Luikart, 1972; Cuñado & de Gracia, 2011; Graham, 2004; Dolan et al., 2008). Only a few studies have found significant gender differential in life satisfaction or subjective well-being. For example, females are happier than males in United States, but the reverse is true in Russia (Graham, 2004; Dolan et al., 2008).

In Asia, Japanese females felt more satisfied with their lives than Japanese males. This is because of the “strong patriarchal male-biased society” that places more pressure on Japanese men to be the breadwinner of the family and holds higher financial responsibility. Japanese women thus have less financial burdens and they are more concerned with finding successful Japanese men to marry (Kusago, 2007).

The differences between males and females were further discussed by Brdar, Anić and Rijavec (2011) where they found no differences in happiness based on gender, but rather noticed that males and females achieve life satisfaction in different ways. “For women, life satisfaction was predicted by zest, gratitude, hope, appreciation of beauty, and love, whereas men’s life satisfaction was predicted by creativity, perspective, fairness, and humour”.

2.6.4 Marital Status

Generally, married people are relatively much happier compared to singles, and singles are happier than those who experience separation and divorce (Clark & Oswald, 1994; Peiro, 2006; Tsou and Liu, 2001; Dolan et al., 2008; Kusago, 2007). According to Gove, Hughes et al. (1983): “family function to provide private satisfaction that makes life meaningful and rewarding for adults who live in families”, and that “married people tend to have better mental and physical health as well as life satisfaction and well-being, and are less inclined to negative psychological behaviour such as suicide”. Frazier, Arikian, Benson et al. (1996) explained that married people, especially men, tended to have more support from their family, and hence have a higher life satisfaction. Married people are less prone to negative behaviour, such as committing suicide and married men are happier as they tend to get more support from their family (Gove, Hughes & Style, 1983; Frazier, Arikian, Benson et al., 1996).

However, the number of divorces has increased in Japan and this has resulted in widowed or divorced people, and especially women, to feel less satisfied with their lives. Females who get divorced and need to support families suffer more financially. Women in Japan find it hard to enter the labour market and the social stigma surrounding divorced women places higher stress levels on this group (Kusago, 2007). Despite these findings, there is also study that has found that there is no correlation between marriage and life satisfaction (Palmore and Luikart, 1972).

When children are included in marriage, although it was found that in most countries that the number of children one has does not have much of an effect on one's happiness or life satisfaction levels (Clark & Oswald, 1994; Peiro, 2006), having children does create a negative financial effect in several developed countries, such as Australia, Finland, Sweden, and the United States, and it is perceived as a burden in Japan (Peiro, 2006). In the United Kingdom, having children is associated with feelings of less contentment (Clark & Oswald, 1994). Furthermore, having children under the age of five also results in negative effects on life satisfaction for Britain, Germany, and Ireland (Caycedo and Rollins, 1989).

2.6.5 Education

Education is important factor in improving life satisfaction, happiness, or subjective well-being. Past studies found that higher education increases subjective well-being, life satisfaction and happiness (Cunado & de Gracia, 2011; Chen, 2011; Dolan et al., 2008). However, some studies also found that education does not automatically increase happiness but its effect is mediated through the higher opportunity created by education to earn higher income, which is an important determinant of life satisfaction, subjective well-being and happiness (Schimmel, 2009). Education has both direct and indirect effects on happiness or life satisfaction through the chances of being employed as a worker and receiving an income. Education can indirectly affect happiness as a result of the higher income a person can get and the increased chances of getting a job due to having a higher level of education (Schimmel, 2009). As for the direct effect, the happiness is achieved when the individual acquires more knowledge, regardless of his or her level of education. However, according

to Binder & Coad (2011), the positive relation between education and subjective well-being, life satisfaction and happiness will become negative beyond certain level.

Furthermore, the relationship between education and happiness can be analysed from different angle and Chen (2012) discovered that monetary factors (education can increase the income) have less importance than non-monetary factors (inter-personal skills to connect with the world) in Japan, Taiwan, and South Korea. This is not the same, however, for China. “By enhancing one’s ability and propensity to connect with the wider social world, education may improve an individual’s subjective well-being” (Chen, 2012). Additionally, under the distribution of happiness, Binder and Coad (2011) finds that education has a positive effect on those who are least happy, but a negative effect on those who are happiest. On the contrary, Cuñado & de Gracia (2011) and Powdthavee (2008) found that people with low education are happier than those with higher education, as the latter have higher targets which they may not achieve, resulting in dissatisfaction. Besides positive and negative effects, there is also insignificant effect of education on life satisfaction where a higher education level does not have a significant effect on life satisfaction (Selim, 2008; Melin, Fugl-Meyer, K. & Fugl-Meyer, A., 2003).

2.6.6 Role of Government

Generally, good governance will reduce inequality and increase happiness (Kim and Kim, 2012; Ott, 2011). There are two theories on the role of government on the individuals’ quality of life. The neoclassical economics theory explains the rationale of government’s intervention and its’ impact on the individuals’ quality of life. The failure on the part of the

government to discharge its duty will adversely affect the quality of life of the citizens. Failures on the part of the government may arise due to the selfish act of those in power to fulfil their own interest, for example, lobbying, cronyism, and lack of control in monitoring the budget.

The government's role is to solve the market failures such as externalities through the provision of public goods in order to improve welfare and people's quality of life and enhance their life satisfaction (Besley and Coate, 1997). Public choice theory suggests that government's involvement and regulation would affect the quality of life of the citizens. Furthermore, happiness is also affected by cross country cultural differences, per capital income level, political freedom and access to public goods (Graham, 2011; Lai, Cummins & Lau, 2013).

While neoclassical economic theory predicts that government may play a positive role for individuals' quality of life, the public choice theory suggests that higher government spending may have an adverse effect on life satisfaction of the citizens, especially in countries with left wing median voters, and is alleviated by government effectiveness where the government has a small role (Bjornskov, Dreher and Fischer, 2008).

Veenhoven (2006) divides freedom into three categories: economic freedom, political freedom and private freedom. Research was undertaken in 126 countries from 2000 to 2006, and studies found that people are happier in countries that have more freedom. The positive effects that emerged from this research did not show any sign of diminishing,

implying that freedom had not reached its maximum level. The relationship between good governance and inequality to happiness can be found in a bell curve shape.

With regard to government policy satisfaction, Appleton and Song (2008) found that the policy-related aspects implemented positive effects in the analysis. Although Appleton and Song (2008) found the coefficient of 0.043 to overall satisfaction in China, the main reason for this was the low food price and lack of contribution from government policies. However, Radcliff (2001) modified the model by Granato, Inglehart and Leblang has found different findings. Radcliff noticed that none of the political variables that affect life satisfaction is significantly related to the state of economy.

Frey and Stutzer (2000b) in their study in Switzerland discovered that democracy is an important factor in affecting the happiness of a nation. More direct democracy will bring more happiness to the people. This is because the democratic system allows for the participation of people in the selection of political parties. Peoples have their own free will to make choices and decisions. Thus, democracy, federal structure, local autonomy, and the perceived free choice will increase an individual's well-being (Frey and Stutzer, 2000b; Inglehart, Foa, Peterson et al., 2008). In addition, "the role of happiness research as seeking to improve the nature of the political processes where individuals should have more opportunity of advancing what constitutes their idea of the good life, both individually and collectively" (Frey and Stutzer, 2010).

2.6.7 Standard of Living

Standard of living consists of the following scope: level of living, length of life, health and stature, family circumstances, school enrolment and literacy, and political democracy (Easterlin, 2000). A higher standard of living has a positive and significant effect on life satisfaction, at any stage of adulthood and for both males and females (Medley 1980; Amit 2010) and it even affects the family well-being (Noor, Gandhi, Ishak et al., 2014). Among the components in the standard of living, income, welfare and life expectancy are found to have positive correlation with life satisfaction, while average of hours worked, environmental degradation, crime, openness to trade, inflation and unemployment are negatively correlated with life satisfaction (Di Tella & MacCulloch, 2008).

2.6.8 Development

HDI is a ranking system that has been updated annually by the United Nations since 1990, is one such composite index that amalgamates three equally weighted sub-indices: life expectancy, education and per capita income indicators (Anand and Sen, 2000; Ogwang and Abdou, 2003). HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The 2000 Human Development Report stated that the concept of human development is much deeper and richer than what can be captured in any composite index or even by a detailed set of statistical indicators (UNDP 2000, p. 147).

Generally, a country which fulfils all three components of HDI will has a positive effect on life satisfaction (Stevenson and Wolfers, 2008; Frijters, Haisken-DeNew and Shields, 2004; Frijters, Geishecker, Haisken-DeNew et al., 2006; Selim, 2008; Georgellis, Tsitsianis and Yin 2009; Schyns, 2002; Lawless and Lucas, 2011; Biswas-Diener and Diener, 2001;Deaton, 2008; Veenhoven and Ehrhardt, 1995). However, a developed country does not necessarily guarantee happiness. “Development of a country can be different to its ranking of happiness” (Leigh and Wolfers, 2006) and it does not guarantee higher levels of happiness (Schimmel, 2009).

2.6.9 Religion

Witter, Stock, Okun et al. (1985) explored the relationship between religion and subjective well-being and discovered a significant and positive relationship, but this relationship weakened over time. To date, religion or spirituality satisfaction has been found to be positively related with personal well-being (Wills, 2009, Greene & Yoon, 2004). Fave, Brdar, Vella-Brodricet al. (2013) have also found that higher life satisfaction and overall happiness are related to high religious happiness or having higher spiritual meaning in one’s life.

The relationship between religion and subjective well-being is further researched in Pokimica, Addai& Takyi (2012). They explained that the two factors of religion: religious affiliation and religiosity are important factors affecting different types of subjective well-being: “absolute subjective well-being” and “relative subjective well-being”. The study found out that religious affiliation has a significant but not strong relationship with both

“absolute and relative subjective well-being” while religiosity shows lesser impact on both types of subjective well-being.

2.6.10 Social Groups

Helliwell, Layard & Sachs (2011) regard all people as social animals. Individuals need to interact with one another to feel happy and to have a sense of belonging to the society they are a part of. Complementing the findings, Hadler and Hadler (2006) mention that besides close social relations, there are other factors such as adaptation to life, health, and financial satisfaction. He also adds that macro social factors, for example political freedom, distribution of income and the role of welfare, play an equally important role towards achieving satisfaction.

In addition, Demir, Şimşek & Procsal (2012) and Demir, Özdemir & Weitekamp (2007) both explain that relationship among friends is important to generate happiness for a person. This is because of the unique feeling experienced by a person from his or her friend that makes the person happy. However, it is a high quality of friendship that guarantees happiness. Having more friends does not necessarily make a person happier.

2.6.11 Health

Health is positively related to life satisfaction (Caycedo & Rollins, 1989; Abdel-Khalek, 2006) and it is considered the most important factor to affect life satisfaction (Palmore & Luikart, 1972; Kennedy, King & Muraco, 1983; Barger, Donoho, & Wayment, 2009). Not

only that, health was also found to be an important determinant of satisfaction in retirement (Schmitt, White, Coyle et al., 1979). Even though Hutchinson, Simeon, Bain et al.(2004) explained that circumstances are more significant to affect the life satisfaction, health is still important to affect psychological well-being or in other words mental health where health can be divided into physical health and mental health (Abdel-Khalek, 2006).While health directly affects life satisfaction, health also indirectly affects life satisfaction through income, housing, and transportation (Kennedy, King & Muraco, 1983). For example, health enables a person to have higher income and thus higher life satisfaction.

As much as health is important to affect life satisfaction, the disability or accidents which cause deterioration in health will have less effect on life satisfaction according to Set point theory. This is because people will be able to adapt to changes and happiness level will not change when incidents happen (Lucas, 2007).

2.6.12 Culture

Generally, culture is important in affecting happiness (Ye, Ng & Lian, 2015). However, there are many dimensions in culture such as: individualism, power distance, masculinity, uncertainty avoidance, and Confucian dynamism (Hofstede and Bond, 1988). Where the factors are concerned, power distance is the most influential factor to affect life satisfaction (Ye, Ng & Lian, 2015). Power distance refers to the equal distribution of power in society especially with reference to government (management) empowerment. This finding is consistent with Böhnke (2008) where political culture plays a major role in affecting life satisfaction.

However, when political factor is separated from culture, Radcliff (2001) argued that the democratic competition has more “dramatic effects” on the national levels of life satisfaction and “the dominant theoretical approaches, comparison and trait theory, suggest that cross-national differences will be either non-existent or largely independent of political conditions”. In other words, political effect is less dominant as compare to culture effect when political culture is extracted from overall culture dimension. In addition to culture perspectives, when a person is “cultural fit” in low HDI countries, they are more satisfied with their lives(Li& Bond, 2010) and on individual level, culture affects the individual subjective well-being where it moderates the cognitive component of subjective well-being (Schimmack, Radhakrishnan, Oishi et al., 2002)

2.6.13 Unemployment and Inflation

Economic determinants, such as macroeconomic variables (GDP, inflation and unemployment) were found to strongly correlate with the happiness of a nation (Appleton & Song, 2008; Clark &Oswald, 1994; Di Tella & MacCulloch, 2001; Di Tella, MacCulloch & Oswald, 2001; Blanchflower, 2008; Frey & Stutzer, 2002). Individual happiness scores tend to be lower when the volatility of unemployment and inflation is high; unemployment will reduce happiness and the effect of this is larger than that of inflation. For example Tella & MacCulloch (2001) using Euro-Barometer Survey Series from 1975 to 1991 and United States General Social Survey from 1972 to 1994 found that people are willing to “trade off a 1% increase in unemployment for a 1.7% increase in inflation” and the later study by Blanchflower, Montagnoli, & Moro (2014) from year 1975 to 2013 and with large

European dataset found that one percentage point of unemployment reduces well-being five times higher than inflation.

Employed people tend to have higher life satisfaction (Hlavac, 2011; Cheah and Tang, 2011; Forsyth, Roberts & Robin, 1992). Mancini (1979), however, states that the effects are different according to gender. Being employed has a positive effect on life satisfaction for males, but has a negative effect on females.

In micro-level analysis, unemployment can be negatively related with life satisfaction (Pittau, Zelli & Gelman, 2010; Selim, 2008; Dolan et al., 2008) or it can cause a person to be less satisfied with his or her life as compared to an individual in the employed group (Singh and Singh, 2004). However, the unemployment effects on happiness also depend on the areas, time-period of being unemployed, and the age of the unemployed. If the person is young and stays in an area with high unemployment, the person who has been unemployed for a long period of time will be less affected by high unemployment rates (Clark & Oswald, 1994; Peiro, 2006). On the other hand, Pittau, Zelli & Gelman (2010) in their study on European Union citizens found that even if an unemployed person lives in a high unemployment region, the person's life satisfaction is still very much negatively affected by unemployment. In addition to this, anyone who is unemployed (whether a member of the higher social class status or lower social class status), he or she is less satisfied with his or her life as compared to those in the employed group.

Although unemployment affects life satisfaction equally for everyone (Singh and Singh, 2004), another interesting finding is that regional unemployment is found to have a stronger negative effect on those employed, compared to the unemployed in Germany, especially among those with good job prospects. The employed are afraid of losing jobs, compared to the unemployed who do not have jobs to worry about losing. Furthermore, these effects were more significant in males than in females (Clark, Knabe & Rätzl, 2010).

Another explanation for the effect of unemployment on life satisfaction is the set-point theory or adaptation theory. The theory posits that people who are unemployed will have lower life satisfaction over a short period of time, that they will adapt to the fact of not having a job and, as time passes, they will resume back to their baseline levels of life satisfaction. Even so, Lucas, Clark, Georgellis et al. (2004) findings suggest that even though the effect of unemployment on life satisfaction is considerably stable, unemployed people will not go back to the baseline levels of life satisfaction, even after they got employed. These life events have stronger effects on long-term levels of life satisfaction.

There is no doubt that unemployment has a negative effect on happiness, but Frey and Stutzer (2002) observe that the causality maybe in the opposite direction. They argue that unhappy workers are less productive than happy workers and thus have a higher chance of losing a job. The happiness effect on unemployment is as important as the unemployment effect on happiness. Therefore, Hlavac (2011) suggests that policies that will reduce unemployment need to be adopted to improve citizens' life satisfaction.

2.6.14 Inequality

According to Tomioka and Ohtake (2004), there is weak but positive correlation found between happiness and inequality (which is measured by the Gini coefficient and perception of inequality).

With regard to inequality and happiness, models of inequity aversion show a negative relation between inequality and happiness. This is because the models assume that an increase in income in one individual or group would have a negative effect on the other individual or group (Hopkins, 2008). This negative relation between life satisfaction and inequality is also found when averaging happiness and calculating inequality using standard deviation. When average happiness is high, the standard deviation is low. The low standard deviation implies low inequality (Ott, 2005). The use of standard deviation to measure inequality was also used by Kalmijin & Veenhoven (2005).

Other than income inequality, inequality of happiness was also detected in the study by Ott (2005). Under the materialistic theory of happiness, inequality of happiness is subject to the assumption that happiness depends on wealth. In order to gain higher happiness, one has to gain more wealth. As higher level of wealth is attained, inequality in wealth also increases. This is the trade-off one has to sacrifice to order to achieve development and growth (Okun, 1975³ in Ott, 2005). Negative correlation was found between happiness level and inequality of happiness. This indicates that inequality of happiness will be lower when average happiness increase. For example, correlation of -0.65 was found for all nations, correlation

³Okun's book "Equality and Efficiency: The Big Trade-off".

of -0.74 for rich nations and correlation of -0.29 for poor nations, indicating that higher happiness will lead to lower inequality of happiness.

Higher mobility also plays an important role in the relationship between inequality and happiness. When Americans have higher mobility to move in and out from their income group, they are not affected by the inequality issue. For Europeans, who experience less mobility, there is more of sensitivity to inequality (Alesina, Di Tella & MacCulloch, 2004).

2.7 Causality between the variables

Although the variables showed a relationship, at times significant, with happiness or subjective well-being, the causal effects among them are hard to determine. Diener & Biswas-Diener (2002) reported that it is difficult to determine whether income causes a person to be happier, or whether a happier person will be able to earn more income.

Much research has been done to determine the components in happiness, but it does not show any direction of causality, and we can neither determine the variables to be independent variables or dependent variables (Dolan et al., 2008). For example, unemployment will make a person unhappy, but an unhappy person is also less productive and less active and thus will have difficulty finding a job. Married people are much happier than unmarried people, but they might have a higher chance of getting married because they are already happy and exude that happiness and charm (Frey and Stutzer, 2002; Frey, 2008).

2.8 Distribution of Happiness or Life Satisfaction

Binder and Coad (2011) analysed the effects of determinants on the distribution of life satisfaction or happiness, where the “Average Joe’s” happiness is different than the “Cheerful John” and the “Miserable Jane”. Quantile regression was first introduced by Koenker and Basset (1978) and has been adopted since to study the distribution of life satisfaction or happiness.

2.9 Summary

Even though there were different concepts for well-being where life satisfaction, happiness, subjective well-being have been used interchangeably in many past studies, it plays an important role to affect a person’s life. A satisfied or a happy person not only affects the person at individual level but also to the country level. Thus, many theories such as Set Point theory, Easterlin Paradox, relative income theory and others have been developed to study the well-being issues. In addition to that, various correlates’ effects either demographic or socio-economy, positive effect or negative effect, micro or macro aspects are also identified and discussed. This includes the discussion on the causal relation between the determinants. As most of the past studies discussions focused on the average life satisfaction, happiness or subjective well-being, recent analysis is based on the distribution of well-being. This enables the study to examine the correlates that affect the group which is most satisfied with life to the group which is least satisfied with group. Last but not least, majority of the studies are done on Western countries and only a few have been conducted in Asia region.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter elucidates the data sources for this thesis, measurements of the study variables and statistical techniques used in this thesis. It provides justification on the selection of data source and the adoption of life satisfaction as a dependent variable. This chapter also deals with issues relating to the computation for life satisfaction and the independent variables included in the model.

Linear regression model was adopted to analyse the factors of life satisfaction in four regions of Asia (East Asia, South Asia, Central and West Asia and Southeast Asia). It included normality, multicollinearity and heteroscedasticity diagnostics checks. The same model is later applied to all 28 individual countries in Asia.

The factors affecting life satisfaction may differ at various levels of satisfaction. Hence, the thesis also included quantile analysis in examining life satisfaction according to five quantiles (q10, 125, q50, q75 and q90), where q10 represented the 10 percent of the least satisfied group and q90 represented the 10 percent of the most satisfied group. In addition, this chapter also elucidated the data sources for an analysis of the association between life satisfaction and HDI.

3.2 Data sources

Two international data sets were used for the analysis of life satisfaction in Asia - the Asia Barometer Survey and World Value Survey (WVS). Life satisfaction in these surveys was measured in ordinal scale. In addition, data from the 2010 Human Development Report (HDR) were used for the analysis of the correlation between HDI and life satisfaction. The mean life satisfaction from HDR was based on Gallup Poll data. A brief description of each of these data sources are given as below.

3.2.1 Asia Barometer

Asia Barometer was conducted to collect data on the daily lives of Asians. Their main purpose was to assess people's lives from physical, psychological and social domains, as well as to evaluate the affective and cognitive qualities of life (which measures happiness and life satisfaction). This survey was part of the larger surveys that include Euro Barometer, Latino Barometer and Afro Barometer.

Wave 5 of Asia Barometer survey was conducted between 2005 and 2007, covering 27,323 respondents. Following Asian Development Bank categorization, regions in Asia were grouped as: East Asia (5 countries), South Asia (6 countries), Central and West Asia (8 countries) and Southeast Asia (9 countries), where data are available (Table 3.1).

Table 3.1: Number of countries and number of respondents from 2005 to 2007 in Asia Barometer surveys

East Asia: (5 countries)			South Asia: (6 countries)			Central and West Asia: (8 countries)			Southeast Asia: (9 countries)		
Year	Countries	No. of respondent	Year	Countries	No. of respondent	Year	Countries	No. of respondent	Year	Countries	No. of respondent
2006	China	2000	2005	India	1238	2005	Kazakhstan	800	2006	Singapore	1038
2006	Hong Kong	1000	2005	Sri Lanka	813	2005	Pakistan	1086	2006	Vietnam	1000
2006	Japan	1003	2005	Bangladesh	1008	2005	Afghanistan	874	2007	Malaysia	1000
2006	South Korea	1023	2005	Maldives	821	2005	Mongolia	800	2007	Indonesia	1000
2006	Taiwan	1006	2005	Bhutan	801	2005	Tajikistan	800	2007	Philippines	1000
			2005	Nepal	800	2005	Turkmenistan	800	2007	Thailand	1000
						2005	Kyrgyzstan	800	2007	Myanmar	1000
						2005	Uzbekistan	800	2007	Cambodia	1012
									2007	Laos	1000
Total		6032			5481			6760			9050

The Asia Barometer survey covered 16 domains related to life satisfaction: housing, friendships, marriage, standard of living, household income, health, education, job, neighbours, public safety, environmental condition, the social welfare system, the democratic system, family life, leisure, and spiritual life. All of these domains were measured on a 5-point scale, ranging from “very dissatisfied” to “very satisfied”. In addition, there was also a question on happiness: “All things considered, would you say that you are happy these days?”

The life satisfaction questions:

Q8a Please tell me how satisfied or dissatisfied you are with the following aspects of your life.

- (a) Housing
- (b) Friendships
- (c) Marriage
- (d) Standard of living
- (e) Household income
- (f) Health
- (g) Education
- (h) Job
- (i) Neighbours
- (j) Public safety
- (k) Environmental condition
- (l) Social welfare system
- (m) The democratic system
- (n) Family life
- (o) Leisure
- (p) Spiritual life

-
- 1 Very satisfied
 - 2 Somewhat satisfied
 - 3 Neither satisfied nor dissatisfied
 - 4 Somewhat dissatisfied
 - 5 Very dissatisfied
 - 9 Don't know
-

Happiness question:

Q5 All things considered, would you say that you are happy these days?

- 1 Very happy
 - 2 Quite happy
 - 3 Neither happy nor unhappy
 - 4 Not too happy
 - 5 Very unhappy
 - 9 Don't know
-

3.2.2 World Values Survey (WVS)

World Value Survey (WVS) had been conducted since 1981 to collect data regarding social values and their impact to social and political life. The topics covered in WVS include economic development, gender equality, subjective well-being and other social and political issues. Data from WVS have been widely used for research and policy making.

Up until 2007, there were five waves of WVS. Each wave of the survey included several countries and lasted for 3 to 6 years. Table 3.2 shows the data collected in wave 5 of WVS from 18 countries with 27,533 respondents.

The WVS data was slightly different from that of the Asia Barometer. Both of these sets of data consist of the question on how happy a person is, but the question for life satisfaction was set differently. The Asia Barometer alienated the life satisfaction into 16 components, including satisfaction on housing, friendship, marriage, and others; while the WVS analysed life satisfaction as overall life satisfaction. Additionally, the WVS measured happiness on a 4 point scale (1 = very happy, 2= rather happy, 3= not

very happy, 4= not happy at all), and life satisfaction on a 10 point scale, but the Asia Barometer measured both on a 5 point scale.

Table 3.2: Number of countries and number of respondents from wave 1 to wave 5 in WVS

Country and Wave Cross tabulation						
Country	Wave					Total
	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	
	1981-1984	1989-1993	1994-1999	1999-2004	2005-2007	
Azerbaijan	0	0	2002	0	0	2002
Bangladesh	0	0	1525	1500	0	3025
China	0	1000	1500	1000	2015	5515
Taiwan	0	0	780	0	1227	2007
Cyprus	0	0	0	0	1050	1050
Georgia	0	0	2008	0	1500	3508
Hong Kong	0	0	0	0	1252	1252
India	0	2500	2040	2002	2001	8543
Indonesia	0	0	0	1004	2015	3019
Iran	0	0	0	2532	2667	5199
Iraq	0	0	0	2325	2701	5026
Israel	0	0	0	1199	0	1199
Japan	1204	1011	1054	1362	1096	5727
Jordan	0	0	0	1223	1200	2423
South Korea	970	1251	1249	1200	1200	5870
Kyrgyzstan	0	0	0	1043	0	1043
Malaysia	0	0	0	0	1201	1201
Pakistan	0	0	733	2000	0	2733
Philippines	0	0	1200	1200	0	2400
Russian Federation	0	1961	2040	0	2033	6034
Singapore	0	0	0	1512	0	1512
Viet Nam	0	0	0	1000	1495	2495
Thailand	0	0	0	0	1534	1534
Turkey	0	1030	1907	3401	1346	7684
TOTAL	2174	8753	18038	25503	27533	82001

3.2.3 Human Development Report (HDR)

Human development report was first introduced in 1990 to measure human well-being. It was published under the United Nations Development Programme (UNDP). It covered various issues related to human development such as subjective well-being, human slavery, child labour, gender inequality and many more. The Human Development Index (HDI), a composite index that combined income, health and education indicators, had been used to rank the countries, with "1" indicating the best performing country, and all the countries in the world were grouped into "very high", "high", "medium" and "low" HDI countries. Inequality-Adjusted Human Development Index (IHDI) had been adopted to take into account inequality that existed within each country, to reflect more accurately the wellbeing of the masses. Other indices contained in HDR include Gender Development Index (GDI), the Gender Inequality Index (GII), and the Multidimensional Poverty Index (MPI).

In this thesis, data from the Human Development Report (HDR) 2010 was used. This was the only year in which the report included the overall life satisfaction each country. Besides the life satisfaction index, the report also presented the percentage of citizens who are satisfied with personal dimensions of well-being in work, personal health and standard of living. Elements of happiness presented in the report are: a purposeful life, being treated with respect, and having a social support network.

3.3 Justification on the Selection of Data Sources

Both the Asia Barometer and the World Values Survey (WVS) used in this study as data sources had their strength and weaknesses. The Asia Barometer was used instead of the WVS mainly due to the components covered in the Asia Barometer. There are 16 components in the measurement of life satisfaction in the Asia Barometer, which covered a wide range of aspects in life. The WVS only had one measurement on life satisfaction; that is, overall life satisfaction. In addition, the Asia Barometer covered 28 countries (Table 3.1), while wave 5 of the WVS covered only 18 countries. Cronbach's alpha on the reliability test for the Asia Barometer was higher than the WVS. Hence, data for this thesis were taken from wave 5 of Asia Barometer survey.

3.4 Justification of Adopting Life Satisfaction as a Dependent Variable

People evaluated their lives based on the domains (for example: satisfaction with health, job and others) and it provided more perspectives to the overall picture of well-being rather their feelings of happiness (or positive feelings). Besides, life satisfaction is more cognitive in measurement, while happiness is more affective, besides providing more thorough, stable and positive mood (Cummins, 2012). Happiness is an emotion (Haybron, 2005) and "temporal", where it depends on the duration of the positive mood trait (Cummins, 2012). The information of a person who evaluates himself or herself as happy (or unhappy) may vary according to different moods, days or events.

In addition to that, there was only one question on happiness "All things considered, would you say that you are happy these days?" with 5-point scale. As for life satisfaction, it asked the question of "Please tell me how satisfied or dissatisfied you are

with the following aspects: housing friendship, marriage, standard of living, health, education, jobs, neighbours, public safety, environmental condition, social welfare system, the democratic system, family life, leisure and spiritual life?" which covers wider range of life aspects.

3.5 Computation of Life Satisfaction Mean

Life satisfaction was computed from questionnaire question 8 of the Asia Barometer survey. In the questionnaire, the 5point scale ranged from "very satisfied = 1" to "very dissatisfied = 5". Thus the scale was recoded from 1 of "very satisfied" to 5, and 5 of "very dissatisfied" is reversed coded, such that "1" would represent very dissatisfied and "5" would represent very satisfied. The same procedure was applied to the happiness question.

In the computation of life satisfaction, all of the 16 domains were added up and the index ranged from 0-80. The sum of life satisfaction was then be divided by 16 to get the mean life satisfaction.

However, there was missing data on the questions for the "marriage" domain. This was due to the fact that such questions were not applicable to respondents who were never married, widowed, divorced or separated. As such, respondents who were not in the "married" status would have a mean based on by 15 domains instead of the total 16 domains, omitting the "marriage" domain that was not relevant to them.

In addition, the question on 8(m) on the satisfaction of a country's democratic system was not applicable for Laos, Myanmar and Vietnam because these countries were under

communism and had no democratic system. Thus, these domains were not included in the computation of mean life satisfaction.

The life satisfaction (LS) index was computed from the mean of the 16 domains in the Asia Barometer. However, there were various statuses of life satisfaction: people who are married, single, divorced or widowed; and people who live in a democratic country. Thus, different means of life satisfaction were calculated. For those who are not married (single, divorced or separated, and widowed), they will not answer the question on the marriage domain – “How satisfied are you with marriage?” and for those who are not in a democratic country (Laos, Myanmar and Vietnam), they would not answer the question on the democracy domain – “How satisfied are you with the democratic system?” Thus, these two domains would be omitted in the calculation of the mean of life satisfaction. For example, a single person who stays in Laos, would omit these domains (thus the mean will only cover 14 domains), while a married person who lives in a democratic country would have included all the 16 domains.

A reliability test was adopted to test the sixteen domains. The reliability test, based on Cronbach’s Alpha, is a test on the consistency between the questions that measure the correlation of the same concept or construct (Tavakol and Dennick, 2011). The accepted Alpha value lied between 0.75 and 0.95. The higher value of Alpha indicated a high relationship between the items and construct.

3.6 The Correlates of Life Satisfaction

The choice of the correlates of life satisfaction for this thesis is guided by extensive literature review. The correlates are: gender, age, marital status, education, income,

employment, role of government, and standard of living. The measurements of the independent variables or correlates of life satisfaction were shown in Table 3.3.

Table 3.3: The Independent Variables

Variables:	Explanatory notes:
Demographic variables are: gender, age group, and marital status.	
Gender:	Male and female* Group gender: 1 if male, 0 if female
Age group:	20-29*, 30-39, 40-49, 50-59, 60-69 Group age 30-39: 1 if Age 30-39, 0 otherwise Group age 40-49: 1 if Age 40-49, 0 otherwise Group age 50-59: 1 if Age 50-59, 0 otherwise Group age 60-69: 1 if Age 60-69, 0 otherwise
Marital Status:	Single*, married and separated Group married: 1 if married, 0 otherwise Group separated: 1 if separated, 0 otherwise
Socioeconomic variables are: education group, income group, employment status, role of government index and standard of living index	
Highest level of education completed:	Low*, middle and high Middle education: 1 if middle education, 0 otherwise High education: 1 if high education, 0 otherwise
Income group:	Low* , middle and high Since the countries recorded in year 2005 do not have the categorization of income group, the categorization for the countries in year 2005 is calculated. Middle : 1 if middle income, 0 otherwise High income: 1 if high-income, 0 otherwise
Employment	Employed and Unemployed * Group employment status: 1 if employed, 0 if unemployed
Role of Government index is created from <i>Question 32</i>	Mean from this question is calculated and is applied as the Role of Government Index.
Standard of Living Index is created from <i>Question 9</i>	Mean from this question is calculated.

* Refers to reference group

Adapted from “Determinants of life satisfaction in Asia” by Ngoo, Tey& Tan (2015) pg.9.

3.7 Justification on the Independent Correlates that Affect Life Satisfaction but not Included in the Model.

There were other correlates that were discussed in the literature review but were not included in the model. This was mainly due to the unavailability of secondary data in the Asia Barometer and relativity of the data to the analysis. For example, secondary data collected was on micro level and thus correlates such as GDP growth, inflation and inequality would deem inappropriate. However, data on employment status was available for each individual, and hence the unemployment variable had been added in the model.

The data on social groups was not available in The Asia Barometer and thus was not included in the analysis. Although data on religion (whether with or without a religion) was available in The Asia Barometer, it was not adopted as the determinant to affect life satisfaction because the highly skewed distribution as more than 90 percent of the respondents embraced a religion.

There was however a need to examine the correlation between macro level variables with life satisfaction (Table 3.4). Owing to the unavailability of macro level data from the Asia Barometer survey, such data were gathered from 2006 World Development Indicators (WDI). The macro level variables show insignificant relationship with life satisfaction, except inequality which is measured by Gini coefficient but the result was counter intuitive (Table 3.4).

Table 3.4: Correlation of various macro level variables with life satisfaction

Correlation with life satisfaction		
Variables	Pearson correlation	Significant
GDP growth	0.025	0.900
Inflation	0.660	0.739
Gini coefficient	0.440	0.019*

* correlation is significant at 0.05 level

The lack of relationship between GDP growth, and inflation with life satisfaction was exemplified in the scatter plots in Figure 3.1, and 3.2 respectively.

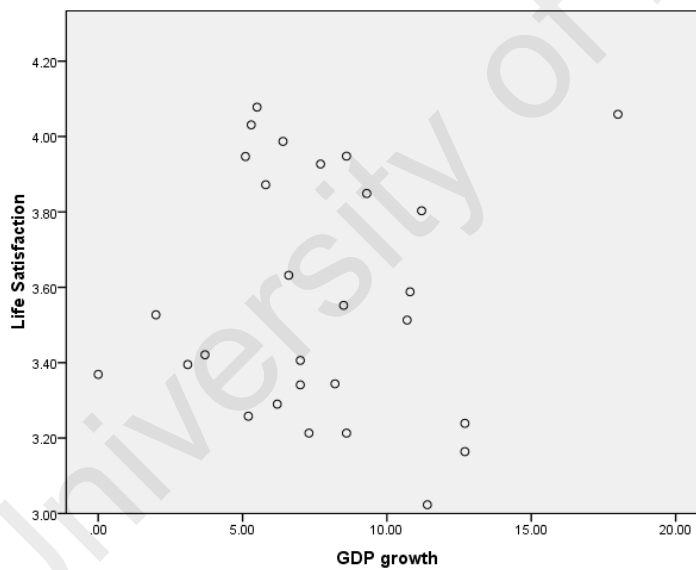


Figure 3.1: Correlations between life satisfaction and GDP growth

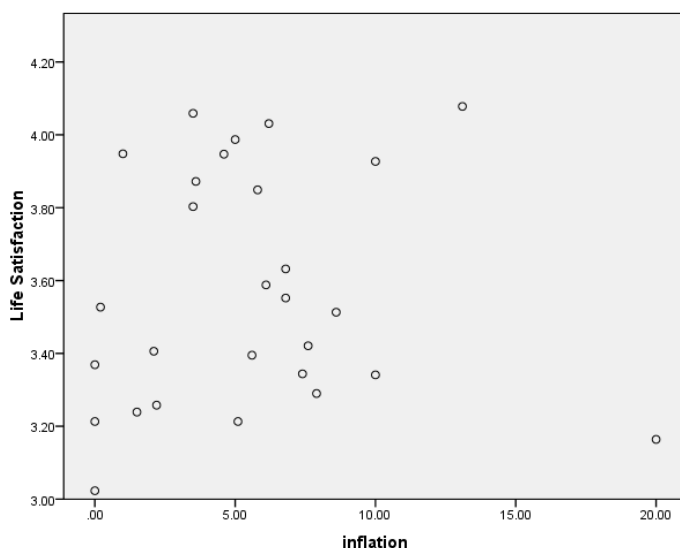


Figure 3.2: Correlations between life satisfaction and inflation

Gini coefficient is a method to measure inequality on the income distribution. It has the range of 0 and 1. The nearer the coefficient to 0 indicated less inequality but moved opposite when it is near to 1. Figure 3.3 showed the positive correlation between Gini coefficient and life satisfaction. This indicated that the higher Gini coefficient is, the higher life satisfaction would be achieved. In view of the unavailable data for Gini coefficient, countries without the data were omitted and this reduced the countries from 28 countries to only 22 countries. However, when Gini was regressed on life satisfaction, the coefficient was only 0.415 and the R^2 to explain its variation was as low as 17.2 percent. No causal relationship was detected in terms of determining the direction of the effects. However, more samples of data was required before any results could be drawn. The result was counter intuitive where higher satisfaction can be attained with higher inequality. There was insufficient information that could be derived from this variable, thus it was not included.

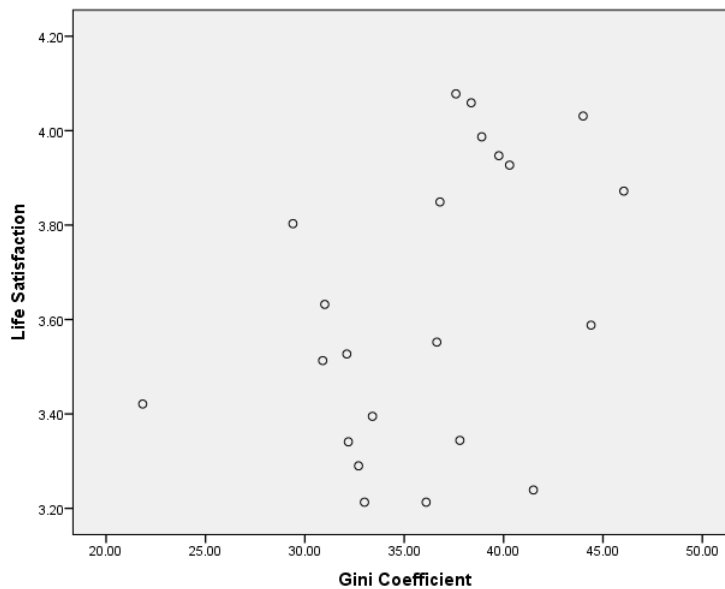


Figure 3.3: Correlations between life satisfaction and Gini coefficient

3.8 Linear Regression Model (OLS – Ordinary Least Square)

A regression model was used to determine the importance of the various factors of life satisfaction in Asia. The dependent variable, life satisfaction, was the composite index of the mean from the 16 domains mentioned above, and it was regressed on selected independent variables to ascertain the effects of each of the set of variables on the life satisfaction of people.

$$\text{life satisfaction} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + U$$

- ▶ Life satisfaction is a composite index created by summation of mean values of all the domains/aspects.
- ▶ α is the intercept
- ▶ β_s are the regression coefficients of the independent variables,
- ▶ X_s are the independent variables (some are grouped as dummy variables),
- ▶ U is an error term

The independent variables consisted of two categories: demographic (gender, age group and marital status), and socio economic variables (income group, education group, employment status, role of government index, and standard of living index). The computation and explanation of the independent variables were summarised in Table 3.3. This model was adopted to test both individual and country levels. For categorical independent variables, dummy variables were created for the regression analysis. A particular group was coded as 1, and the reference group as 0 (Cohen & Cohen, 1983). The reference category for each variable was marked as * in Table 3.3.

3.8.1 Diagnostic Checking

In this section, several diagnostic checking was conducted to ensure the robustness of the linear regression model. The diagnostic checking involved the test on normality, multicollinearity and heteroscedasticity.

3.8.1.1 Normality

Jarque-Bera (JB) is normally used to determine if the residuals of the regression are normally distributed. When JB shows the value of zero and a p-value that is more than 0.05, the residuals of the regression are deemed to be normally distributed. However, if the sample size is more than 30, the number of observations which is according to the Central Limit Theorem, the residuals can be normality distributed (Gujarati & Porter, 2009). The large samples does not cause any major problems and the sampling distribution is considered normal (Ghasemi, Zahediasl, 2012).

3.8.1.2 Multicollinearity

The problem of multicollinearity occurs when there is a high inter-correlation between the correlates. Variance Inflation Factor (VIF) is adopted to detect the multicollinearity problem. It is normally used to check the linear relationships among the independent variables to determine if multicollinearity exists in the model. When high VIF is detected, it will create serious multicollinearity problems, along with a large standard error, and have large effects on the coefficients estimates. The range for VIF is between 1 and 10.

3.8.1.3 Heteroscedasticity

When constant variance of error term is found in the OLS model, the model is deemed to achieve homoscedasticity. On the contrary, when the errors or disturbances do not have the same variances, heteroscedasticity problems arise. Even though the heteroscedasticity will not cause biasedness or inconsistency among the correlates, it will create inefficiency in the model. Alternatively, White heteroscedasticity-consistent variance can be adopted to solve the heteroscedasticity problem.

3.9 Linear Regression(OLS) on Individual Countries

Adopting the regression model from section 3.8, all of the 28 Asian countries were analysed individually using the OLS regression. Ranking of the top three correlates were then summarised in the table for all of the countries.

3.10 Quantile Regression – Distribution of Life Satisfaction

This section elucidates the analysis of life satisfaction into categories of very satisfied to least satisfied. The linear regression of OLS averaged the outcome and the effects of the correlates on the individual at different levels of satisfaction. For example, the income factor might have less effect on the most satisfied individual, as compared to the least satisfied individual, or the results may be contrary. Different correlates might affect most satisfied and least satisfied people differently. On average, income might be one of the key factors affecting individual life satisfaction. However, when it came to the least satisfied people, it might be the most influential correlates. For most satisfied people, the most important correlate affecting life satisfaction might not be income, but standard of living. Linear regression OLS provided the average results and ignored the people who are very satisfied with life and people who are least satisfied with life.

Quantile regression captured the perceived wellbeing of people at various levels of the distributions from those who are very satisfied to least satisfied. Quantile regression was first introduced by Koenker and Basset (1978), and was later adopted by Binder and Coad (2011) to analyse the distribution of subjective well-being in the analysis of the “Average Joe” to the “Miserable Jane” and the “Cheerful John”.

Distribution of life satisfaction was separated into five quantiles (q10, q25, q50, q75 and q90). The 10th quantile (q10) referred to the 10 percent of the least satisfied respondents, while the 90th represented the 10 percent of most satisfied respondents.

In the OLS model, the goodness-of-fit was measured by R-square which explained the variation in life satisfaction. However, since the dependent variable life satisfaction was distributed to different proportions of q10, q25, q50, q75 and q90, pseudo R-square was adopted instead of R-square.

The 28 countries from the Asia Barometer were also separated into two groups by HDI levels: one group with very high and high HDI, and another with medium and low HDI (Table 3.5).

Table 3.5: Asian countries grouped by HDI level

Very high and high HDI			Medium and low HDI		
Countries	No. of respondents		Countries	No. of respondents	
1 Hong Kong	1000	1	China	2000	
2 Japan	1003	2	India	1238	
3 South Korea	1023	3	Sri Lanka	813	
4 Singapore	1038	4	Maldives	821	
5 Taiwan	1006	5	Pakistan	1086	
6 Kazakhstan	800	6	Mongolia	800	
7 Malaysia	1000	7	Tajikistan	800	
		8	Turkmenistan	800	
		9	Kyrgyzstan	800	
		10	Uzbekistan	800	
		11	Vietnam	1000	
		12	Indonesia	1000	
		13	Philippines	1000	
		14	Thailand	1000	
		15	Cambodia	1012	
		16	Laos	1000	
		17	Bhutan	801	
		18	Bangladesh	1008	
		19	Nepal	800	
		20	Afghanistan	874	
		21	Myanmar	1000	
Total	6870			20453	

The quantile regression model shown below was adapted from Binder and Coad (2011). From the existing model in OLS regression, $Quant_{\theta}$ was added to identify the different distributions on life satisfaction.

$$\text{With } Quant_{\theta}(y_{it}|x_{it}) = x'_{it}\beta_{\theta}$$

$Life\ satisfaction_{it}$ is the dependent variable of person i at time t

x is a vector of independent variables

β refers to the correlates

u is the error term

$Quant_{\theta}$ measures the proportion of quantile and the θ lies between 0 and 1. If the distribution is 10, and the θ would be 0.1.

To solve the following problem:

$$\min_{\beta} \frac{1}{n} \sum_{i=1}^n \rho_{\theta}(u_{\theta it}), \quad \rho_{\theta}(u_{\theta it}) \text{ is used as a "check function" and thus,}$$

$$\text{If } u_{\theta it} \geq 0, \text{ then } \rho_{\theta}(u_{\theta it}) = \theta u_{\theta it}$$

$$\text{if } u_{\theta it} < 0, \text{ then } \rho_{\theta}(u_{\theta it}) = (\theta - 1)u_{\theta it}$$

Quantile regression in Eviews statistical software is adopted and the bootstrapped method was selected.

3.10.1 Justification for Adopting Quantile Regression

In order to justify for the adoption of quantile regression, detection of heteroscedasticity was needed. This could be done through the heteroscedasticity test as well as comparison of graphs between the OLS coefficient with upper and lower limit and quantile regression coefficient. If the quantile coefficient fell within the range of OLS model, there was no need to conduct the quantile regression.

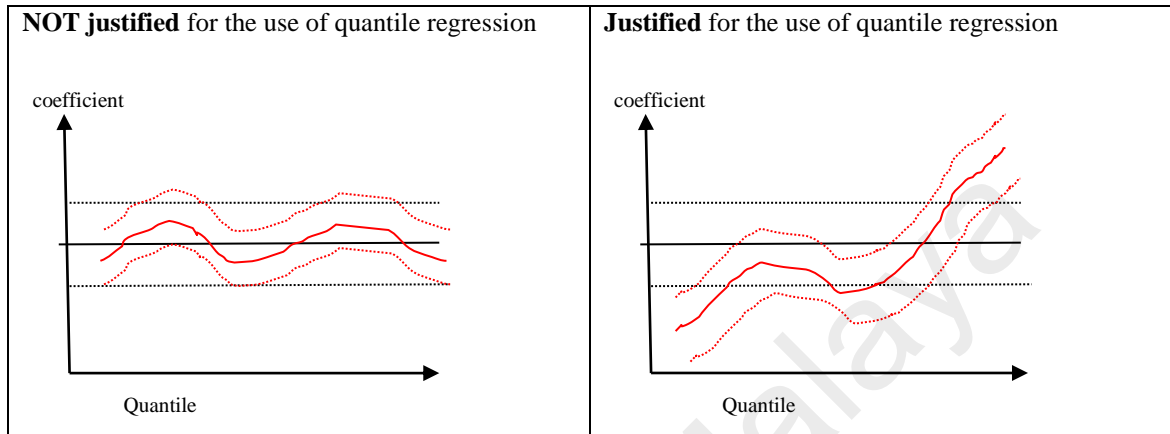
3.10.1.1 Detection of Heteroscedasticity

Heteroscedasticity needed to be detected in the OLS regression to justify the use of quantile regression, when the errors of disturbances did not have constant variance, which indicated that the correlates' effect on each quantile result is different. This justified the adoption of quantile regression on the model. If homoscedasticity was detected across all quantiles, the adoption of quantile regression is redundant.

3.10.1.2 Comparison of Graphs from OLS model and Quantile Regression Model

A comparison of the graph of linear regression OLS and quantile regression with 95% confidence interval could be used to detect the need for quantile regression in the model. The OLS regression line was identified from the straight line across all quantiles, with upper and lower limits of 95% confidence interval. However, the quantile regression line may differ across different quantiles. If the quantile regression line lied in the range of the OLS regression line, this showed that there is no significant different result from quantile regression and OLS. On the contrary, if the quantile

regression line fared far from the OLS straight line, the need for quantile regression is justified. The following graphs (Figure 3.4) could explain the justification of the use of quantile regression.



Note:

- Black straight line shows the coefficient for OLS regression, dotted black lines show the 95% confidence interval of upper and lower limits.
- Red line shows the different coefficient experienced by different quantiles, dotted red lines show the 95% confidence interval of upper and lower limits.

Figure 3.4: Graphs to show the justification for the use of quantile regression

3.11 Correlations/Regression of Life Satisfaction and HDI in Asia

Correlation of life satisfaction and HDI (Human Development Index) was examined in this section. This part of the study collected life satisfaction and HDI data from the Human Development Report (UNDP 2010). Asia Barometer was not adopted in this section was because Asia Barometer only included countries in Asia, and not the rest of the world. In HDR, there were a total of 144 countries, with 44 countries from the European continent, 39 from Africa, 34 from Asia, 25 from North and South America, and 2 from Oceania. However, only 34 countries from Asia would be adopted for analysis.

The life satisfaction mean was ranked from 0, as least satisfied, to 10, as most satisfied. The life satisfaction mean was conducted by the Gallup survey⁴ and the mean is reported in Table 9 of the HDR. The HDI (Human Development Index) and the Inequality Adjusted Human Development Report (IHDI) were also obtained from HDR 2010. The range of HDI for Asia continent was as low as 0.349 (Afghanistan) to 0.884 (Japan), while the IHDI range was as low as 0.289 to 0.763. Regression between the HDI and life satisfaction, as well as the IHDI and life satisfaction, is conducted. However, due to data unavailability in the IHDI, which resulted in a loss of 10 Asia countries and the narrower range of the IHDI. Thus, regression of the HDI and life satisfaction was chosen for the analysis. Diagnostic tests were later conducted to check for normality, multicollinearity and heteroscedasticity.

The regression of the HDI and life satisfaction mean was plotted on a scatter plot. The regression followed the following model:

$$LS_i = \alpha + \beta_1 HDI_i + U \text{ ----- Model 1}$$

Where the index i ($i=1\dots N$) mean the country, LS is Life Satisfaction, HDI is the Human Development Index, β_1 is the regression coefficient of the independent variable, and U is the error term.

Based on the simple regression analyses, the expected value of life satisfaction for each country was estimated. Differences between observed and expected values were divided by the expected values, and this was used to identify which country performs better or worse than expected given the level of HDI. Six countries where the observed life satisfaction deviates furthest from the expected values in either direction - three higher than expected values and three lower than expected values were further analysed.

⁴ Gallup survey is a research organization which conducted various researches with 80 years of experience. The research focuses are mainly on economics, finance, customer relations, organisation behaviour and more. Details can be found at: www.gallup.com.

It further explains Asia's position in terms of the relationship between life satisfaction and HDI as compared to other continents. Actual life Satisfaction and Expected Life Satisfaction with given HDI was compared as to identify countries that fare far from the regression line. A thorough analysis was then performed on countries that did not comply with the expected life satisfaction. In addition to that, personal dimensions of well-being and elements of happiness were also included in the analysis to explore different effects on Asia life satisfaction. Reliability test was conducted for the mean of personal dimensions of well-being and elements of happiness.

Multiple regression would be conducted by adding the three variables of personal dimensions of life satisfaction (satisfaction with job, personal health and standard of living) together with HDI in model 2, and then three variables of elements of happiness (purposeful life, treated with respect and social support) with HDI in model 3, all the six variables with HDI in model 4.

$$LS_i = \alpha + \beta_1 HDI_i + \beta_2 X_2 + U \text{ ----- Model 2}$$

Where the index i ($i=1...N$) mean the country, LS is Life Satisfaction, HDI is the Human Development Index, and X stands for a set of explanatory variables for personal dimensions of well-being, D stands for the dummy variables for the continents, β_s are the regression coefficients of the independent variables and U is the error term.

$$LS_i = \alpha + \beta_1 HDI_i + \beta_3 X_3 + U \text{ ----- Model 3}$$

Where the index i ($i=1...N$) mean the country, LS is Life Satisfaction, HDI is the Human Development Index, and X stands for a set of explanatory variables for elements of happiness, D stands for the dummy variables for the continents, β_s are the regression coefficients of the independent variables and U is the error term.

$$LS_i = \alpha + \beta_1HDI_i + \beta_2X_i + \beta_3D_i + U_i \text{ ----- Model 4}$$

Where the index i ($i=1\dots N$) mean the country, LS is Life Satisfaction, HDI is the Human Development Index, and X stands for a set of explanatory variables for personal dimensions of well-being and elements of happiness, D stands for the dummy variables for the continents, β s are the regression coefficients of the independent variables and U is the error term.

University of Malaya

CHAPTER 4:

FACTORS AFFECTING LIFE SATISFACTION IN ASIA

(Asia four regions and individual country)

4.1 Introduction

This chapter discusses the factors of life satisfaction in Asia across countries in the four regions in Asia, viz East Asia, South Asia, Central & West Asia and Southeast Asia (SEA). Section 4.2 presents the means of life satisfaction for all the 28 countries in Asia by sub-continent and income group, followed by the analysis of factors of life satisfaction for individual countries in section 3. Section 4.4 analyses the factors of life satisfaction by sub-continent, with some diagnostic checking for the models. Section 4.5 explains the reasons for the significance of the factors of life satisfaction. The chapter ends with a summary of the salient findings.

4.2 Mean Life Satisfaction of Countries in Asia

The life satisfaction (LS) index was computed from the mean of the 16 domains in the Asia Barometer. Before proceeding to present the mean life satisfaction mean, a reliability test of the multiple item measures was in order. Overall, the Cronbach's alpha for each status of life satisfaction was more than 0.800, indicating that the items were highly related constructs for the life satisfaction index (Table 4.1).

Table 4.2 showed that the mean life satisfaction by country ranged from 3.023 in Turkmenistan to 4.078 in Indonesia. Most of the countries with high life satisfaction were countries from SEA and South Asia. Indonesia had the highest life satisfaction, followed by Maldives, Philippines, Bhutan, and Singapore. Of the top five, three of the countries were from the Southeast Asia (SEA) region and the other two were from the South Asia region. Japan was ranked 14, the best among East Asian countries. On the other hand, the bottom five in terms of life satisfaction were Turkmenistan, Myanmar, Mongolia, Uzbekistan and China,

Table 4.1: Reliability test for life satisfaction

16 domains in total to compute life satisfaction: housing, friendships, marriage, standard of living, household income, health, education, job, neighbours, public safety, environmental condition, social welfare system, the democratic system, family life, leisure and spiritual life	For democratic countries		For countries which did not answer the democracy domain (Laos, Myanmar and Vietnam)	
	For individuals who are married	For individuals who are not married (single/separated/divorced/widowed)	For individuals who are married	For individuals who are not married (single/separated/divorced/widowed)
	Total life satisfaction divided by 16	Total life satisfaction divided by 15 (exclude marriage domain)	Total life satisfaction divided by 15 (exclude democracy domain)	Total life satisfaction divided by 14 (exclude democracy and marriage domain)
Chronbach's alpha	0.819	0.834	0.809	0.835

Income level of a country did not influence life satisfaction. People from higher income countries did not necessarily have higher life satisfaction. Citizens from lower middle-income countries were relatively more satisfied with life as compared to those from other income groups. For example, countries with lower middle income such as Indonesia, Philippines and Bhutan were among the countries with high life satisfaction. Citizens from higher income countries generally have medium level life satisfaction.

Table 4.2: Mean life satisfaction for all of the 28 countries in Asia

Ranking	Country	Income group	Region	Mean	N	Std. Deviation
1	Indonesia	LM	SEA	4.078	1000	0.511
2	Maldives	UM	SA	4.059	819	0.832
3	Philippines	LM	SEA	4.031	1000	0.531
4	Bhutan	LM	SA	3.987	801	0.565
5	Singapore	H	SEA	3.948	1038	0.499
6	Thailand	UM	SEA	3.947	999	0.558
7	Sri Lanka	LM	SA	3.927	813	0.548
8	Malaysia	UM	SEA	3.872	1000	0.490
9	India	LM	SA	3.849	1238	0.536
10	Afghanistan	L	CW	3.803	874	0.649
11	Bangladesh	L	SA	3.632	1008	0.597
12	Cambodia	L	SEA	3.588	1012	0.451
13	Laos	LM	SEA	3.552	1000	0.447
14	Japan	H	EA	3.527	1002	0.541
15	Kazakhstan	UM	CW	3.513	800	0.656
16	Nepal	L	SA	3.421	800	0.465
17	Hong Kong	H	EA	3.406	998	0.399
18	Kyrgyzstan	L	CW	3.395	800	0.628
19	Taiwan	UM	EA	3.369	1006	0.444
20	Vietnam	LM	SEA	3.344	999	0.481
21	Tajikistan	L	CW	3.341	800	0.632
22	Pakistan	LM	CW	3.290	1086	0.703
23	South Korea	H	EA	3.258	1023	0.525
24	China	UM	EA	3.239	1999	0.559
25	Uzbekistan	LM	CW	3.213	800	0.588
26	Mongolia	LM	CW	3.213	800	0.702
27	Myanmar	L	SEA	3.164	1000	0.416
28	Turkmenistan	UM	CW	3.023	800	0.619

Note:

Income group: low-income group (L), lower middle-income (LM), upper middle-income (UM) and high-income (H). These are categorized by Asian Development Bank.

Region: East Asia (EA), South Asia (SA), Southeast Asia (SEA) and Central and West Asia (CW).

4.3 Analysis of Factors Affecting Life Satisfaction for Individual Countries

This section dealt with the factors of life satisfaction for all individual countries in Asia where data were available from Asia Barometer. The same OLS method and factors were applied on all individual countries.

4.3.1 Regression Analysis of Life Satisfaction by Countries

When the countries were analysed individually, the R^2 in most of the countries were rather low and some countries only had a few significant correlates. The range of R^2 was between 0.038 and 0.435. The R^2 of the regression model was highest in Turkmenistan and lowest in Maldives. Despite the low R^2 values, it is still interesting to find out the correlates of life satisfaction across countries.

There were various findings on gender effect on life satisfaction. Some studies found no significant gender differential in life satisfaction (Cheah and Tang, 2011; Palmore and Luikart, 1972). However, in some other studies, males are significantly happier than females (Abdel-Khalek, 2006; Hutchinson, Simeon et. al. 2004), whereas other studies found females are happier (Kusago, 2007). Gender equality has also been found to have significant positive effect on happiness (Veenhoven, 2012). This study found that in Asia gender had a significant effect in countries such as Afghanistan, Bangladesh, Hong Kong, Kyrgyzstan, South Korea, Thailand, Turkmenistan and Uzbekistan. In these countries, males are happier than females except Bangladesh. This was especially true for married women where husband plays an important role to affects their happiness. In their cultural framework of expectations, husband provides needs, respect and

acknowledges the wives competency, which contributes to greater happiness for women.

The U shaped relationship between age and life satisfaction was found only in Hong Kong and Turkmenistan, where there existed significant negative effects of age on life satisfaction after age 20-29, but those who are aged 60-69 are less dissatisfied with life as compared to those aged 30-59. In China, older people felt more satisfied with life with significant positive effect on life satisfaction from age group of 40-49 and 60-69 as compared to those aged 20-29.

The countries where education had significant effects on life satisfaction were mainly from less developed countries. These countries include: Afghanistan, Bangladesh, China, Indonesia, Laos, Malaysia, Nepal, Pakistan, Philippines and Sri Lanka. People with a high education level are more satisfied with life than those with a low level of education. In these countries, education is viewed as a means to exit poverty, and improve their socio-economic status. Education enables the improvement of a person's ability and enhances their opportunities to connect to the world, to get better job and income and indirectly secure their life in future (Chen, 2012; Schimmel, 2009).

Table 4.3: Significant correlates that affect life satisfaction in Asian individual counties

Countries	Male	Age 30-39	Age 40-49	Age 50-59	Age 60-69	Middle education	High education	Middle income	High income	Married	Divorced/ separate/ widowed	employed	Standard of living	Role of government	R ²	Adjusted R ²
Afghanistan	*					*	*	*		*	*		*	*	.153	.139
Bangladesh	*, -				/	*	*			*	*, -		*	*	.282	.273
Bhutan					*	*	*		*	*			*	*	.166	.151
Cambodia								*					*	*	.160	.148
China			*		*	*	*			*		** ,	*	*	.312	.307
Hong Kong	*	** ,	*, -	*, -		**	*	**	*	*			*	*	.279	.268
Indonesia		**	*	*		*	*		**				*	*	.262	.252
India							*						*	*	.104	.094
Japan										*			*	*	.295	.285
Kazakhstan			*, -						*, -	*		*	*	*	.332	.320
Kyrgyzstan	**		*, -		*, -				**	*		*, -	*	*	.358	.346
Laos			*		**	**	*		*				*	*	.230	.219
Malaysia						*	*			*	*, -		*	*	.243	.232
Maldives										*	**	*, -		*	.055	.038
Mongolia										*		*	*	*	.246	.233
Myanmar							*			*			*	/	.163	.152
Nepal						*	*	*	*	*	*, -		*	*	.233	.219
Pakistan		*, -				*	*	*		*		*, -	*	*	.230	.220
Philippines						**	*		**	*			*	*	.176	.165
Singapore								*	*	*			*	*	.148	.137
Sri Lanka			*			*	*		*	*	*, -	*, -	*	*	.186	.172
South Korea	**	*, -						**	*	*		*	*	*	.369	.360
Taiwan							*	**	*		*, -		*	*	.165	.154
Tajikistan				*, -	** ,		*		*	*	** ,		*	*	.293	.280
Thailand	*									**		*	*	*	.167	.155
Turkmenistan	*	*, -	*, -	*, -	*, -					*	*		*		.446	.435
Uzbekistan	*			**							** ,		*	*	.391	.381
Vietnam							*			*			*	*	.193	.182

Dependent variable: life satisfaction

* Denotes the p value significant at 5%, ** significant at 10%, “/” = not available, “-” = negative relationship

Interestingly, although income had positive effect on life satisfaction (Frey and Stutzer, 2000a; Ball and Chernova, 2008; Appleton and Song, 2008; Clark and Oswald, 1994; Tsou and Liu, 2001, Selim, 2008), it only had significant positive effects on life satisfaction in only a few countries/territories, viz Bhutan, Hong Kong, Nepal, Singapore, South Korea and Taiwan - a mix of low and high income countries, although it is believed to be more significant in low income countries. Bhutan was the first country to adopt the Gross National Happiness index, and where income was the second most important correlates of life satisfaction.

Marriage played a significant role in affecting life satisfaction in Asian countries, except in Cambodia, Indonesia, India, Laos, Taiwan and Uzbekistan. This showed that marriage remains a fundamental social institution in Asia, and it is an important determinant of life satisfaction. Married people are generally more satisfied with life than the non-married. However, marital dissolution (divorce and widowhood) has less significant effect on life satisfaction in most of the countries in Asia. Although divorce and widowhood are deemed to have negative effect on life satisfaction but surprisingly a few countries showed different result. These countries which life satisfactions were positively affected by separation factor were Afghanistan, Maldives and Turkmenistan. Afghanistan and Turkmenistan are male dominated society where men are happier than women who are less empowered (Graham, 2012). This may be the reason on why separation brought positive effect on life satisfaction to the females. However, further research needed to be conducted to confirm this speculative statement. Other than that, set point theory that stated people tends to bounce back to their initial point regardless of the life circumstances; either happy incidents or tragedy accidents may also be the reason why the effect is positive.

Employment also had different impact on life satisfaction for different countries. Although employment only had significant effect in nine countries, it showed both positive and negative effects on life satisfaction. The countries where employment had significant positive effect on life satisfaction were: Kazakhstan, Mongolia, South Korea and Thailand. The countries where employment had negative effects on life satisfaction were: China, Kyrgyzstan, Maldives, Pakistan and Sri Lanka. Employment had indirect positive effect on life satisfaction. It brought better income and enabled the improvement in life thus the positive effect on life satisfaction. However, being employed may not necessarily improve life satisfaction. High job load, stress and the depression resulted from employment may reduce a person's life satisfaction as well.

The standard of living and the role of government were significant factors that affect life satisfaction in almost all individual countries. Data on the role of government was not available for Myanmar. Good governance increases happiness level as it ensures equal access to public services (Ott, 2011). Standard of living, which includes better quality of life, and living conditions (Easterlin, 2000) is the most important determinant of life satisfaction in most Asian countries.

4.3.2 The Ranking of Factors Affecting Life Satisfaction by Countries

Every country has its own culture and socio-political and economic conditions, and thus the factors of life satisfaction are likely to vary from country to country. This section discussed the relative importance as well as similarities and differences of factors in the 28 Asian countries in this study.

When the same model is adopted to explain the variance of life satisfaction for individual countries, the adjusted R^2 in each country varied from as low as 0.038 to as high as 0.435. This indicated that a better fit of the model in some countries and poorer fit in others, where other factors may be at work.

The role of government and standard of living were the most important factor of life satisfaction in most Asian countries. The role of government was among the top three factors for 22 out of 28 countries (78.57%), with the coefficient ranging from 0.111 to 0.507. This was followed by standard of living (19 out of 28 countries (67.86%)) with the coefficient ranging from 0.131 to 0.403. Only four countries are not affected by the role of government and standard of living correlates, viz Afghanistan, the Maldives, Sri Lanka and Turkmenistan, where marital status, education, employment, and age played a more prominent role in life satisfaction. The countries in which life satisfaction was highly affected by standard of living and the role of government, where the regression coefficient was greater than 0.600 are China, Kazakhstan, Kyrgyzstan, Laos, Mongolia and Vietnam.

Even though most of the countries were affected by the same factors, each country has its own unique character. Gender was a significant determinant in many of the Asian countries. Males were found to have higher life satisfaction than females due to cultural differences in Afghanistan, Hong Kong, Kyrgyzstan, South Korea, Thailand, Turkmenistan and Uzbekistan. Among these countries, Afghanistan had the highest coefficient of 0.233 while others were around 0.100. There was only one country where females have higher life satisfaction than males and that is in Bangladesh, where there was a coefficient of -0.076.

Table 4.4: Top three factors of life satisfaction in each individual country

Individual country	Most important Independent Variable (coefficient)	Second important Independent Variable (coefficient)	Third important Independent Variable (coefficient)
Afghanistan	Divorced/separated/widowed (0.287)	Married (0.272)	Male (0.233)
Bangladesh	Role of government (0.298)	Divorced/separated/widowed (-0.272)	High education (0.246)
Bhutan	Age 60-69 (-0.334)	Role of government (0.220)	Married (0.201)
Cambodia	Role of government (0.289)	Standard of living (0.181)	Middle income (0.095)
China	Role of government (0.356)	Standard of living (0.300)	Age 60-69 (0.151)
Hong Kong	Standard of living (0.305)	Married (0.141)	Role of government (0.111)
Indonesia	Role of government (0.309)	High education (0.212)	Age 50-59 (0.199)
India	Standard of living (0.181)	High education (0.100)	Role of government (0.044)
Japan	Standard of living (0.375)	Married (0.177)	Role of government (0.123)
Kazakhstan	Role of government (0.403)	Role of government (0.341)	Employed (0.265)
Kyrgyzstan	Role of government (0.335)	Standard of living (0.310)	Married (0.189)
Laos	Role of government (0.507)	Standard of living (0.124)	Age 60-69 (0.106)
Malaysia	Role of government (0.293)	Divorced/separated/widowed (-0.237)	Standard of living (0.203)
Maldives	Employed (-0.428)	Married (0.279)	Divorced/separated/widowed (0.236)
Mongolia	Standard of living (0.319)	Role of government (0.297)	Employed (0.208)
Myanmar	Standard of living (0.255)	Married (0.061)	NIL
Nepal	Divorced/separated/widowed (-0.200)	Role of government (0.197)	Married (0.166)
Pakistan	Role of government (0.216)	Married (0.207)	High education (0.206)
Philippines	Role of government (0.271)	Standard of living (0.212)	High education (0.139)
Singapore	Role of government (0.197)	Standard of living (0.131)	High-income (0.116)
Sri Lanka	Divorced/separated/widowed (-0.405)	High education (0.281)	Employed (-0.270)
South Korea	Standard of living (0.366)	Married (0.168)	High-income (0.167)
Taiwan	Role of government (0.238)	Divorced/separated/widowed (-0.235)	Standard of living (0.200)
Tajikistan	Standard of living (0.260)	Role of government (0.242)	High education (0.203)
Thailand	Standard of living (0.303)	Role of government (0.256)	Employed (0.159)
Turkmenistan	Age 40-49 (-0.551)	Age 50-59 (-0.539)	Age 60-69 (-0.526)
Uzbekistan	Standard of living (0.312)	Role of government (0.283)	Divorced/separated/widowed (-0.129)
Vietnam	Role of government (0.458)	Standard of living (0.227)	High education (0.132)

Note: Role of government data in Myanmar is not available

Generally age was not a significant correlate of life satisfaction for the countries in this study, and most of the countries only had one or two age groups that were differed significantly from those aged 20-29 in terms of life satisfaction. Turkmenistan was the only country that showed the U shape curve of the effect of age on life satisfaction, as documented in the literature. In Hong Kong, life satisfaction decreased with age, and the effect was statistically significant. Indonesia was the only country where age had a positive association with life satisfaction, indicating that as people aged, their life satisfaction increased.

Education had a positive effect on life satisfaction and a higher level of education was associated with higher life satisfaction; people with a high level of education had a higher life satisfaction than those with middle level of education, and those with middle level education had higher life satisfaction than those with low level to education. Countries where education had significant educational effects on life satisfaction were Afghanistan, Bangladesh, China, Hong Kong, Indonesia, Laos, Malaysia, Nepal, Pakistan and the Philippines. In Sri Lanka, people with middle level education were found to have a higher satisfaction than those with a high level of education, as well as compared to those with a low level of education.

In some countries, income had a positive effect on life satisfaction and that a higher income increased Asian life satisfaction - the higher income group had a higher life satisfaction than the middle-income group, who were in turn more satisfied than the low-income group. This was seen in the following countries: Bhutan, Hong Kong, Nepal, Singapore, South Korea and Taiwan.

Marriage was positively linked with life satisfaction, and divorce, separation or widowhood would have a negative effect on life satisfaction, as compared to being single. Marriage and divorce had an impact on life satisfaction for most of the Asian countries, except India and Laos where these factors were not significant in affecting life satisfaction. While divorce or separation decreased life satisfaction, there were two countries that showed a positive effect from divorced or separation: Afghanistan and Turkmenistan.

Even though employment did not have an effect in most of the countries in Asia, it had opposite effect on life satisfaction for a few. In Kazakhstan, Mongolia, South Korea and Thailand, employment had a positive effect on life satisfaction. On the other hand, the negative effect of employment on life satisfaction was observed in China, Kyrgyzstan, Maldives, Pakistan and Sri Lanka.

4.4 Analysis on the Factors Affecting Life Satisfaction by Region

Life satisfaction was influenced by a host of factors which were inter-related. Hence, multiple regression was used to determine the independent and combined effects of these variables on life satisfaction. The regression model was run using data from Asia Barometer survey conducted between 2005 and 2007, covering 27,323 respondents from 28 countries. The regression model was as follows:

$$\text{life satisfaction} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + U$$

The Asian regions were grouped according to the Asian Development Bank categorization, viz East Asia (five countries), South Asia (six countries), Central & West Asia (eight countries) and Southeast Asia (nine countries). (Note that only countries with data from the Asia Barometer Surveys were included).

The results of the analysis on the factors of life satisfaction regions were shown in Table 4.3. The model explained 18% to 27.1% of the variance in life satisfaction in all four regions. Among the factors, standard of living, role of government, both middle and high-income, marriage, and high level of education significantly affected Asian people's life satisfaction. However, gender, all age groups, and people who were divorced, separated or widowed were the factors that significantly affected life satisfaction in Central and West Asia, but not in other regions.

4.4.1 East Asia

The regression model explained 27.1 percent of variance in life satisfaction. The significant correlates to affect life satisfaction in East Asia were: age group 60-69, people with middle level and high level education, middle and high-income groups, being married, standard of living, and the role of government. Standard of living was the most important determinant of life satisfaction in East Asia, with a coefficient of 0.331, followed by high level of education (0.193), the role of government (0.160), age group 60-69 (0.132), middle level education (0.122), married people (0.101), high-income group (0.065), and middle-income group (0.042). Contrary to expectation, income was not an important determinant of life satisfaction in East Asia.

Table 4.5: Correlates of Life Satisfaction by Asia Regions

Independent Variables		Regions			
		East Asia	South Asia	Central & West Asia	Southeast Asia
(Constant)	coefficient	1.802*	2.557*	2.011*	2.626*
	s.e	.039	.043	.037	.029
	t	46.733	59.528	53.640	90.124
Male	coefficient	.008	-.001	.082*	.008
	s.e	.012	.016	.015	.010
	t	.722	-.070	5.493	.807
Age 30-39	coefficient	-.019	-.026	-.100*	.012
	s.e	.019	.021	.020	.015
	t	-.977	-1.214	-4.892	.831
Age 40-49	coefficient	.032	-.026	-.128*	.002
	s.e	.021	.024	.022	.016
	t	1.528	-1.078	-5.901	.113
Age 50-59	coefficient	.036	-.003	-.168*	-.011
	s.e	.023	.029	.026	.018
	t	1.574	-.104	-6.517	-.617
Age 60-69	coefficient	.132*	.051	-.127*	.025
	s.e	.025	.039	.032	.023
	t	5.195	1.313	-3.910	1.069
Middle edu	coefficient	.122*	.183*	-.001	.059*
	s.e	.015	.020	.018	.012
	t	8.384	9.203	-.081	4.797
High edu	coefficient	.193*	.159*	.034**	.096*
	s.e	.017	.021	.019	.015
	t	11.667	7.716	1.786	6.562
Middle-income	coefficient	.043*	.076*	.058*	.103*
	s.e	.013	.018	.017	.013
	t	3.173	4.224	3.359	8.186
High-income	coefficient	.065*	.134*	.147*	.142*
	s.e	.018	.023	.018	.014
	t	3.642	5.914	8.216	10.408
Married	coefficient	.101*	.142*	.213*	.106*
	s.e	.018	.023	.022	.014
	t	5.486	6.283	9.674	7.353
Divorced/ separated/ widowed	coefficient	-.025	-.048	-.058**	.001
	s.e	.032	.050	.033	.025
	t	-.783	-.953	-1.727	.045
Employed	coefficient	-.019	-.136*	-.019	.142*
	s.e	.021	.045	.025	.018
	t	-.914	-3.044	-.758	8.098
Standard of living	coefficient	.331*	.172*	.249*	.169*
	s.e	.009	.011	.009	.008
	t	35.223	15.991	28.680	20.901
Role of government	coefficient	.160*	.208*	.239*	.232*
	s.e	.011	.011	.009	.006
	t	14.870	19.201	25.649	41.957
R Square		.273	.182	.260	.237
Adjusted R Square		.271	.180	.258	.236

Dependent variable: life satisfaction

* Denotes the p value significant at 5%, ** significant at 10%

4.4.2 South Asia

The model explained only 18 percent of the variation in life satisfaction in South Asia.

Role of government, with a coefficient of 0.208, was the most important factor of life satisfaction. Other than this, education and standard of living were also important factors of life satisfaction in South Asia. Interestingly, employment had a negative

effect on South Asian peoples' life satisfaction, with the coefficient of -0.136, and its impact was far higher than income and marriage.

4.4.3 Central & West Asia

The model explained 25.8 of the variance in life satisfaction, making it the second best fit model, besides East Asia. Most of the independent variables in Central & West Asia was significant in affecting life satisfaction, except middle level education and employment. Standard of living (with a coefficient of 0.249) and the role of government (with a coefficient of 0.239) were equally important in affecting life satisfaction in Central & West Asia. This was followed by being married, with coefficient of 0.213. While married people were more satisfied than singles, those who were divorced, separated or widowed reported a negative effect on life satisfaction, with a coefficient of -0.058.

In Central & West Asia, males were more satisfied than females, with a coefficient of 0.082. The age group of 50-59 was the least happy group compared to the age group of 20-29, with a negative coefficient of -0.168. However, those in the group aged over 60 years had higher life satisfaction than the other age groups, except those aged 20-29, with a coefficient of -0.127. Income had a greater effect on life satisfaction, especially the high-income group. This high-income group was reported to have higher life satisfaction than the low-income group by 0.147, but the middle-income group were only slightly more satisfied with life than the low-income group, with a coefficient of 0.058.

4.4.4 Southeast Asia

The model explained about 23.6 % of the variance in the life satisfaction. Standard of living and the role of government were the two most important factors of life satisfaction. Interestingly, employment and income had the most impact on life satisfaction, followed by education. People who are married had higher life satisfaction than singles and marriage was ranked as the fourth important determinant to affect life satisfaction. Gender, age and marital dissolution (widowhood and divorce) were not significant factors of life satisfaction in this region.

4.4.5 Diagnostic Checking

4.4.5.1 Normality

The results of the normality tests performed in all four regions failed to achieve JB of zero value and the p-value is 0.0000. This indicated that the residuals were not normally distributed. However, the total sample size of 27,323 was very large, and hence it will not cause large trouble and the residuals were considered to be normality distributed under the Central Limit Theory (Gujarati, 2009; Ghasemi & Zahediasl, 2012).

4.4.5.2 Multicollinearity

The VIF (Variance Inflation Factor) was used to check the existence of multicollinearity. The VIFs for all the variables included in this study were less than three, indicating there was no serious multicollinearity problem.

4.4.5.3 Heteroscedasticity

The problem of heteroscedasticity existed in the model for all the four regions. Log transformation could be adopted to resolve the heteroscedasticity problem. However, most of the variables were dummy variables and it was difficult to show accurate results. Alternatively, White heteroscedasticity-consistent variance could be adopted. As the result, the rectified model (after the correction for heteroscedasticity) showed the same coefficients, adjusted R-square and significance of the factors with the initial model. The only differences were in the standard error and t statistics. Besides this, any insignificant variables were also omitted from the model and results from the regression did not deviate much from the model with the “full” model.

4.5 Explaining the Significance of the Factors Affecting Life Satisfaction in Different Regions

This section discusses why the various factors matter for life satisfaction in Asia, some of which have positive effects while others have negative effects. The findings from this analysis are compared with studies conducted in developed countries to identify the similarities and differences of factors that affect life satisfaction on Asian and western countries.

The two factors that affected life satisfaction across all regions in Asia were standard of living and the role of government (see Table 4.4). Other than these, education, income, and employment also had significant and important impacts on life satisfaction. Demographic variables such as gender, age, and education level were not significant factors in life satisfaction in Asia. Interestingly, despite the common belief that an

increase in income would bring greater life satisfaction, income had its influence through providing a higher standard of living to affect life satisfaction.

4.5.1 Standard of Living

Standard of living was the most important determinant of life satisfaction in East Asia and Central & West Asia, the second most important determinant for Southeast Asia, and the third most important in South Asia. This was consistent with the past findings that life satisfaction was positively related to a higher standard of living (Medley, 1980; Amit, 2010). Generally, standard of living included the following aspects: level of living, health condition, working life, family circumstances, literacy, political context, and democracy (Easterlin, 2000). When people are satisfied with most of these aspects, they will perceive their standard of living has improved and so is their life satisfaction.

Table 4.6: Top three correlates of life satisfaction in the four regions

Regions	Correlates of life satisfaction (regression coefficient)		
	Most important	Second important	Third important
East Asia	Standard of living (0.331)	High-level of education (0.193)	Role of government (0.160)
South Asia	Role of government (0.208)	Middle-level of education (0.183)	Standard of living (0.172)
Central & West Asia	Standard of living (0.249)	Role of government (0.239)	Marriage (0.213)
Southeast Asia	Role of government (0.232)	Standard of living (0.169)	High-income group (0.142) Employment (0.142)

4.5.2 The Role of Government

Government plays an important role in determining the life satisfaction of people in Asia. Good governance enhances life satisfaction, especially when issues regarding inequality are reduced (Kim and Kim, 2012; Ott, 2011). Good governance was the most important factor of life satisfaction for people in Southeast Asia and South Asia, second most important factor of life satisfaction in Central & West Asia, and the fourth most important factor in East Asia. Good governance can help to reduce inequality as well as improve people's happiness or satisfaction (Ott, 2011). On the contrary, a corrupt government decreases people's life satisfaction (Besley and Coate, 1997). Any government policies that eliminate inequality and corruption would elevate the trust of people and increase their life satisfaction. This was clearly shown in Laos and Vietnam where there was a high coefficient impact on the role of government on life satisfaction.

There were two theories on the role of government on the individuals' quality of life. The neoclassical economics theory explained the rationale of government's intervention and its' impact on the individuals' quality of life. The failure on the part of the government to discharge its duty would adversely affect the quality of life of the citizens. Failures on the part of the government may arise due to the selfish act of those in power to fulfil their own interest, for example, lobbying, cronyism, and lack of control in monitoring the budget. The government's role is to solve the market failures such as externalities through the provision of public goods in order to improve welfare and people's quality of life and enhance their life satisfaction (Besley and Coate, 1997). Public choice theory suggested that government's involvement and regulation would affect the quality of life of the citizens. Furthermore, happiness is also affected by

political freedom and access to public goods, besides cross country cultural differences, per capital income level, (Graham, 2011; Lai, Cummins et al., 2012).

While neoclassical economic theory predicted that government plays a positive role for individuals' quality of life, the public choice theory showed that higher government spending had an adverse effect on life satisfaction of the citizens, especially in countries with left wing median voters, and is alleviated by government effectiveness where the government has a small role (Bjornskov, Dreher and Fischer, 2008). On the other hand, democracy, federal structure, local autonomy, and the perceived free choice would increase an individual's well-being (Frey and Stutzer, 2000; Inglehart et al, 2008).

4.5.3 Marriage

Marriage was an important factor life satisfaction besides standard of living and the role of government. A married person had higher life satisfaction compared to someone who is single and this was consistent across all regions, as well as in past studies where it has been shown that marriage does increase happiness (Clark and Oswald, 1994; Peiro, 2005; Dolan et al., 2008). Asians still hold on to the traditional values of family, where each member of the family is linked with one another in both hard times as well as to cherish any celebrations in life. Family life helps to increase life satisfaction (Medley, 1980). Family in Asian countries acted like a support system and a place of shelter, and this gave comfort to people and helped to increase life satisfaction.

Those who are divorced, separated or widowed did not differ significantly from the unmarried in terms of life satisfaction, except in the Central and West Asia region where there was a significant negative impact on life satisfaction. However, the effect

was very small with the negative coefficient of 0.058 and is only significant at 10% confidence intervals. This may be due to the explanation of set point theory or adaptation theory (Graham, 2005). The shock (divorce or the loss of a partner) tended to have a short effect on life satisfaction; people adapted to shocks and as time passed, healing took place and life satisfaction resumed. Each individual would go back to the initial happiness or satisfaction level, regardless of the incidents.

4.5.4 Income

Although income had a positive effect on life satisfaction, it is relatively less important compared to standard of living and the role of government. The income variable was ranked 4th or 5th in importance in explaining life satisfaction in different regions in Asia. A high-income group showed a higher coefficient effect compared to middle-income and low-income groups. A higher level of income did cause Asian people more satisfied with life. This is consistent with past literature studies where most of the studies focus on western countries (Appleton and Song, 2008; Clark and Oswald, 1994; Blanchflower and Oswald, 2004; Peiro, 2006; Dolan et al. 2008). Money is essential for the poor, but it is not the most important correlate for a person's life satisfaction.

The positive effect of income on life satisfaction was relatively less significant due to diminishing marginal utility of income (Inglehart and Klingemann, 1999; Frey and Stutzer, 2002; Stevenson and Wolfers, 2008) and was depicted by the curvilinear relationship. Nevertheless, higher income continued to have a higher effect on life satisfaction - the higher income group had higher life satisfaction as compared to the middle-income group, and the middle-income group had a higher life satisfaction as compared to the low-income group. In Asia, having a higher income will enable higher

satisfaction, and thus it has always been the policy of the government to pursue higher economic growth or GDP (Gross Domestic Production).

4.5.5 Age

Past studies found that older people seemed to be more satisfied with life while the middle aged group (age group of 50-59) is the most miserable group. Satisfaction decreased as people aged and only began to improve after the age of 60. The elders appeared to settle with the seasons of life, the happy and unhappy moments, and adapt to the process of getting old (Sotgiu et al. 2011). However, age was not an important determinant for life satisfaction in Asia. None of the age groups showed significant effect on life satisfaction. The U-shaped relationship between age and life satisfaction in the West (Clark and Oswald, 1994; Blanchflower and Oswald, 2004; Peiro, 2005; Dolan et al., 2008) was only found in the Central & West Asia, and only the age group of 60-69 in the East Asia region was significant as individuals in this group were more satisfied as compared to the 20-29 age group.

4.5.6 Gender

Gender inequality had been an issue for Asian countries for a long time in terms of mortality inequality, natality inequality, basic-facility inequality, special-opportunity inequality, professional inequality, ownership inequality, and household inequality (Sen, 2001). In this analysis, there was no significant gender differential in life satisfaction, and this was consistent with research done in some of the Western countries (Graham, 2004; Dolan et al., 2008). However, Central & West Asia was an exception: males had a higher life satisfaction compared to females, and the coefficient

effect was higher than the effect from education and the middle-income group. Women in Afghanistan showed their fear and was reluctant to answer the questionnaire on the life satisfaction survey. They were afraid of their husbands, fathers, brothers or other relatives to see them talking to strangers (Graham, 2012).

4.5.7 Education

Education had a positive effect on life satisfaction in Asia and this was consistent with past literature (Cunado & de Gracia, 2011; Chen, 2012; Dolan et al., 2008). Generally, life satisfaction was positively associated with higher education, except South Asia where people with a middle level of education were more satisfied with life compared to the higher level of education group. South Asia consisted of more under developed countries and engaging in higher education creates a greater burden for a family that is already struggling to survive. In other sub-regions, higher education had a larger impact on life satisfaction than middle education, compared to low education group. These effects were more prominent in East Asia and South Asia than Central & West Asia and Southeast Asia. East Asia consisted of the more developed countries, thus higher education levels acted as a bridge or opportunity to have better jobs, income or quality of life (Schimmel, 2007; Cuñado & de Gracia, 2011).

4.5.8 Employment

Employment had a significant effect on life satisfaction in two regions, but these two effects were in opposite. Employment had a negative effect on life satisfaction in the South Asia region but a positive effect in the Southeast Asia region. Past literature indicated that unemployment will have a negative effect on life satisfaction (Pittau et

al., 2010; Selim, 2008; Dolan et al., 2008); thus, an employed status should cause higher satisfaction for people. The results in the Southeast Asia region were consistent with Hlavac (2011), Cheah and Tang (2011) and Forsyth et al. (1992) - that employed people had higher life satisfaction. However, those employed in the South Asia region had a lower life satisfaction compared to those who are unemployed. This was similar to a finding in Germany (Clark, Knabe & Rätzl, 2010), where life satisfaction among the employed was lower than the unemployed because those who has a very good job also had a greater fear of losing the job, and this would cause more misery than being unemployed and thus having no job to lose⁵.

4.6 Summary

Standard of living, the role of government, employment, and income were the main factors of life satisfaction in Asia. However, demographic variables such as gender and age were less prominent than marital status in affecting Asian life satisfaction. Of the socioeconomic correlates, education was least significant in affecting life satisfaction. Income had a positive effect on Asian life satisfaction, thus the Easterlin paradox was not applicable in the context of Asian life satisfaction. Adaptation theory and set point theory were more relevant to explain the U-curve relation between age and life satisfaction. This showed that as people aged, their life satisfactions decline until they reach the age between 50 to 60 years old. After this, the life satisfaction starts to bounce back. The reasons behind were that they had started to accept the reality of life and adapted to the changes of life. Any life circumstances no longer had much effect on their life satisfaction. On top of that, they would find it rather easy to get back to their life satisfaction 'set-point' when life circumstances occurs. This is because at their age,

⁵ The unemployment is high in South Asia and in most of the countries which are in the state of poverty. Thus keeping a job is hard. A person employed has lower life satisfaction compared to a person who is unemployed is because of the stress involved in striving to maintain the job and the fear of losing it. This person need to keep the job for the benefits of the family members.

they have gained all the experience to face the difficulties in life. Education had a positive effect on life satisfaction, but higher education brings different effects in different regions when compared to a lower level of education. Lastly, the employment factor, when comparing the employed and unemployed groups, had opposite effects on life satisfaction for different regions.

As for the individual country, the role of government and standard of living were the most important factors of life satisfaction in most Asian countries. Of the 28 countries in this study, 13 countries or 46.4 percent ranked the role of government as the most important determinant for their life satisfaction and 8 countries or 28.6 percent ranked standard of living as the most important. Other variables that were regarded as important were marriage (being married or divorced), education and employment. The effect of income was not that prominent as it only appeared as the third most important variable to affect life satisfaction in Cambodia and South Korea.

CHAPTER 5:
CORRELATES OF LIFE SATISFACTION IN DISTRIBUTION
(QUANTILE REGRESSION)

5.1 Introduction

Linear regression is a useful statistical tool for modelling the relation between a dependent variable and a set of independent variables. In the preceding chapter, it was shown that the linear regression model can address the question "is marital status important in predicting life satisfaction, it cannot answer the question "does marital status influence life satisfaction differently for people with high level, average level of low level of life satisfaction". A more comprehensive picture of the effect of marital status on life satisfaction can be obtained by using Quantile regression.

Quantile regression models the relation between a set of predictor variables and specific percentiles (or quantiles) of the response variable. It specifies changes in the quantiles of the response. For example, a median regression of life satisfaction on marital status specifies the changes in the median life satisfaction as a function of marital status. The effect of marital status on median life satisfaction can be compared to its effect on other quantiles of life satisfaction. This chapter presents an analysis of life satisfaction in different quantiles. Quantile regression enables the study of life satisfaction of people who are least satisfied to those who are most satisfied. Before adopting quantile regression, it is necessary to perform heteroscedasticity test and to compare through graphs of linear regression and quantile regression.

In this chapter, Asian countries are separated into two groups according to their HDI level: the first group comprising high and very high HDI countries, and the second group comprising low and medium HDI countries. They are then distributed into quantiles of: q10, q25, q50, q75 and q90, where q10 represents the least satisfied group and q90 represents the most satisfied group. The determinant of life satisfaction based on quantile regression will be discussed.

5.2 Establishing the Need for the Use of Quantile Regression

Before adopting quantile regression, heteroscedasticity tests were carried out, followed by a comparison of graphs from linear regression and quantile regression. These tests are needed to detect if there are differences of results among the distributed quantiles as compared to the average results from linear regression. If no heteroscedasticity problem is detected and the quantile coefficient line falls within the range of linear regression, quantile regression is not needed as there are no significant differences in the correlates on each quantiles and taking the average outcome from linear regression seem is sufficient.

5.2.1 Detection of Heteroscedasticity

In this study, the p value reported for both low and medium HDI groups, and very high and high HDI groups are 0.0000, which is less than 0.05, and this indicates there's problem with heteroscedasticity (see Table 5.1).

Table 5.1: Heteroscedasticity test result

Heteroscedasticity Test: Breusch-Pagan-Godfrey for low and medium HDI countries

F-statistic	16.92123	Prob. F(14,20346)	0.0000
Obs*R-squared	234.3433	Prob. Chi-Square(14)	0.0000
Scaled explained SS	502.9636	Prob. Chi-Square(14)	0.0000

Heteroscedasticity Test: Breusch-Pagan-Godfrey for very high and high HDI countries

F-statistic	1.892166	Prob. F(14,6842)	0.0226
Obs*R-squared	26.44601	Prob. Chi-Square(14)	0.0227
Scaled explained SS	32.63997	Prob. Chi-Square(14)	0.0032

5.2.2 Comparison of Graphs between OLS Regression and Quantile Regression

Besides testing for heteroscedasticity, the justification for the use of quantile regression is to compare the quantile coefficient with the OLS regression at 95% confidence interval. Table 5.2 shows the upper limit and lower limit for OLS regression, with 95% confidence interval. If the quantile coefficients at different distributions (q10, q25, q50, q75 and q90) differ significantly from the OLS regression, the use of quantile regression is justified. On the contrary, if there is no significant difference, quantile regression result is the same as OLS regression. There is not much variation between the distributions in dependent variables (life satisfaction). In other words, there is no difference between the most satisfied and least satisfied group.

The upper limit and lower limit of the confidence interval is shown in Table 5.2. Any coefficient that falls within the confidence interval indicates that there is no need for distribution analysis or quantile regression. A clearer picture can be seen from the graph (Figure 5.1 and Figure 5.2).

Table 5.2: Independent variables with 95% confidence level and OLS coefficient

Independent Variables	OLS coefficient	Confidence interval (upper, lower)
Constant	1.932	(2.006, 1.858)
Male	0.012	(0.035, -0.011)
Age 30-39	-0.065	(-0.028, -0.102)
Age 40-49	-0.079	(-0.040, -0.119)
Age 50-59	-0.088	(-0.045, -0.132)
Age 60-69	-0.059	(-0.009, -0.110)
Middle edu	0.003	(0.032, -0.026)
High edu	0.026	(0.057, -0.006)
Middle-income	0.037	(0.063, 0.012)
High-income	0.110	(0.142, 0.077)
Married	0.134	(0.167, 0.100)
Divorced/Separated/Widowed	-0.043	(0.015, -0.101)
Employed	0.064	(0.123, 0.006)
Standard of living	0.300	(0.318, 0.281)
Role of government	0.281	(0.299, 0.263)

Figures 5.1 and 5.2 compare the OLS coefficient with the quantile coefficient. The OLS coefficient is the same across all quantiles and this is shown by the straight black line. The dashes are the 95% confidence interval for upper and lower limits of the regression coefficients.. Quantile regression coefficient is shown by the blue line, and the red line is the 95% confidence interval for upper and lower limits.

For illustrative purposes, in the middle-income group determinant for low and medium HDI countries, the quantile coefficients are outside the range of 95% confidence interval of the OLS coefficient, and hence the use of quantile regression is justified. The significant distribution differences are found at q10, q25 and q90.

Variables that show significant differences in comparison with OLS regression are the correlates that display an upward or downward trend. In medium and low HDI countries, most of the correlates have either upward or downward trend, suggesting that distribution analysis is needed. However, the upward or downward trend is not so evident in very high and high HDI countries. In other words, the correlates that affect

life satisfaction for the most satisfied people and the least satisfied people are different than the OLS regression in the low and medium HDI countries, while the differences are much less pronounced for the very high and high HDI countries.

5.3 Analysis of the Quantile Regression (by HDI level)

Table 5.3 shows the quantile regression results on the factors of life satisfaction. The results by quantiles of q10, q25, q50, q75 and q90 are presented separately for the very high and high HDI group, and the medium and low HDI group of countries.

5.3.1 Very High and High HDI Countries

In the very high and high HDI countries, factors such as gender and middlelevel education are not statistically significant across all quantiles. Highlevel education and being divorced or separated are also not significant across quantiles, except q75 for high-level education and q50 for being divorced or separated. However, when compared to the age group of 20-29, life satisfaction is significantly higher for the age groups of 30-39 and 40-49 in all quantiles. The age group of 50-59 has a significantly lower life satisfaction in all quantiles, and those in the age group 60-69 have lower life satisfaction in q10, q25 and q50. The magnitude of the negative correlation increases with age up to those aged 50-59, with the highest negative coefficients of -0.122, -0.119, -0.070 and -0.086 for q25, q50, q75 and q90 respectively. In short, the relationship between life satisfaction and age is depicted by a U shape, indicating that a higher life satisfaction among the elderly as compared to those aged below 60.

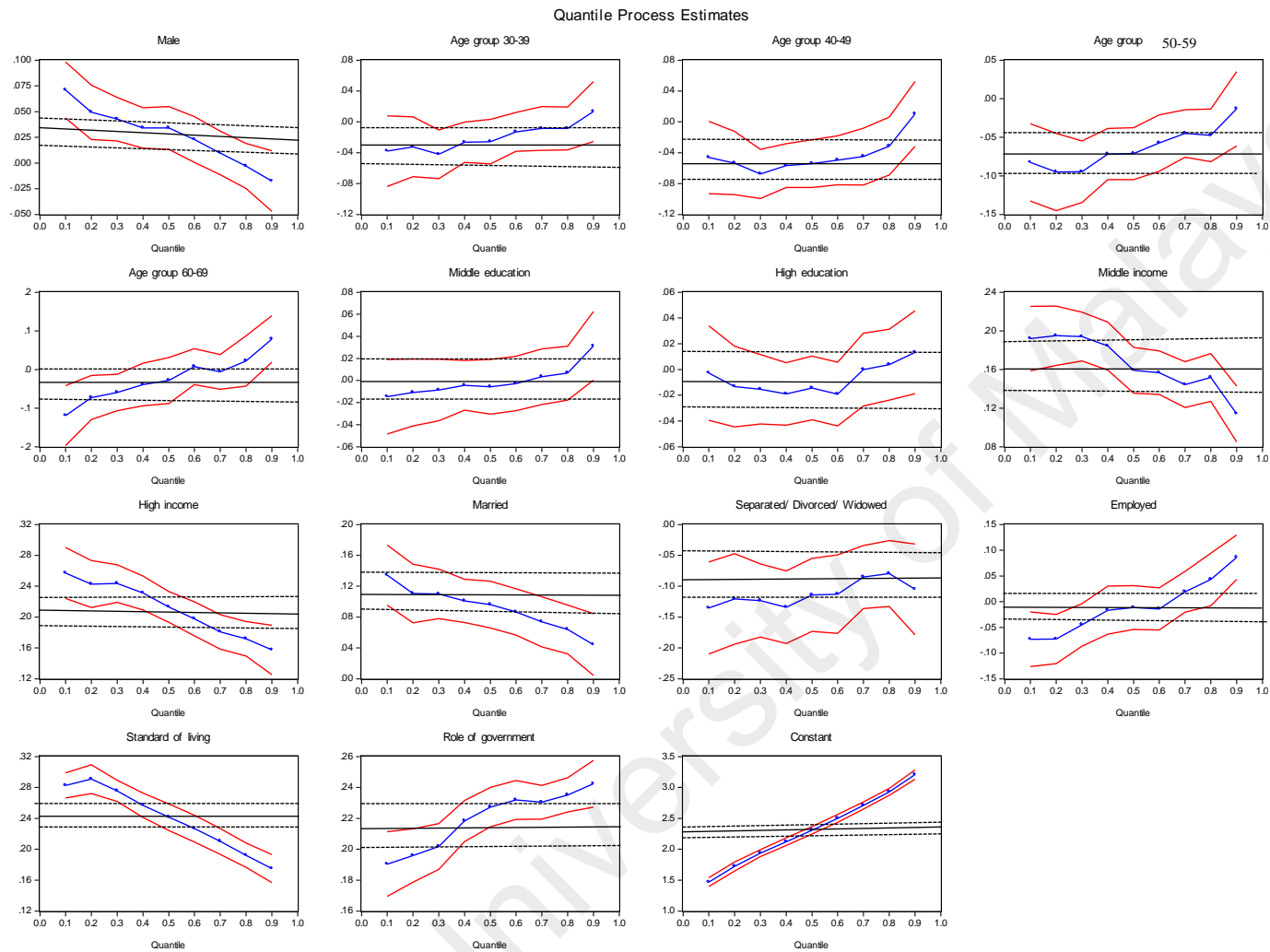


Figure 5.1: Graphs for independent variables with 95% confidence interval compared to OLS coefficient with 95% confidence interval for medium and low HDI countries

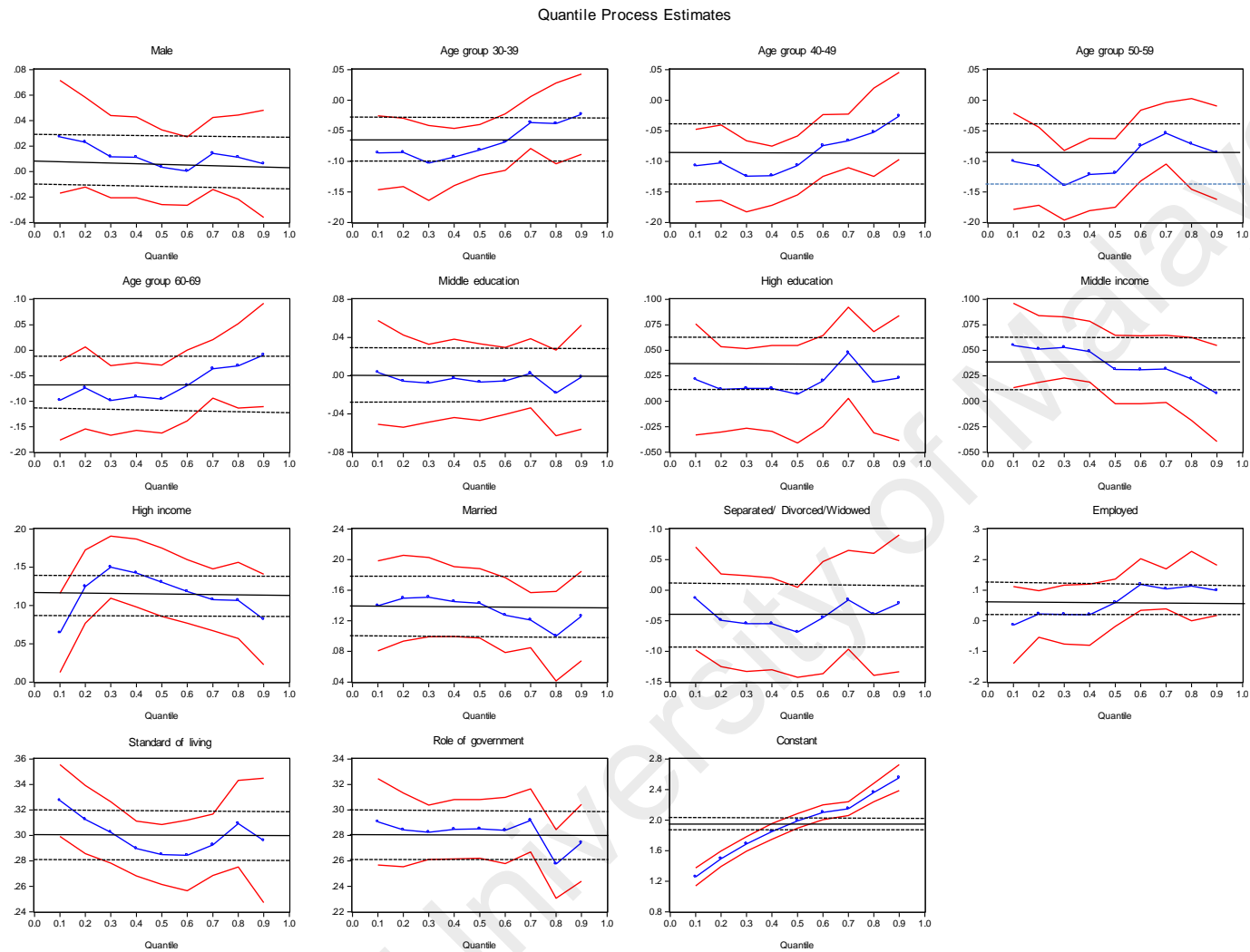


Figure 5.2: Graphs for independent variables with 95% confidence interval compared to OLS coefficient with 95% confidence interval for very high and high HDI countries

The education variable does not have a significant impact on life satisfaction. There are no significant differences across all educational categories, except for q75 where high education has a positive impact on life satisfaction.

Generally, people with high and middle-income levels, as compared to those in the lower income group, are more satisfied with life in all quantiles except for q90 in the middle-income group. The effects of income on life satisfaction are higher among those in the lower quantiles (least satisfied group), as shown by the highest coefficient of 0.055 in q10 among the middle-income group, and the coefficient of 0.142 in q25 among the high-income group.

In all quantiles, married people are much happier than people who are single, divorced, separated or widowed. The effects of marriage are quite homogeneous across life satisfaction, with the coefficients ranging from 0.119 to 0.155.

The effect of employment on life satisfaction is significant at higher quantiles (q75 and q90). Working people have higher life satisfaction than non-working people, with regression coefficients of 0.132 for q75 and 0.099 for q90; but this is not a significant factor for lower quantiles.

Standard of living has a major influence on the life satisfaction of Asians. The coefficients of standard of living on life satisfaction range from 0.285 to 0.327 for the different quantiles. The role of government, which is the second most important determinant of life satisfaction, has a rather uniform coefficient across all quantiles, ranging from 0.274 to 0.291.

5.3.2 Medium and Low HDI Countries

For the medium and low HDI group, the results differ slightly as compared to very high and high HDI group. While gender is not a significant determinant across quantiles in the very high and high HDI group of countries, males generally have higher life satisfaction than females in the medium and low HDI countries in the lower quantiles, of q10, q25 and q50 with a coefficient of 0.071, 0.051 and 0.034 respectively. In other words, there are no gender differentials in life satisfaction among those who are well contented with life.

Those in the age group 30-39 are less satisfied than those in the age group of 20-29, but this is only significant at q25, q10 and q50. Those in the age groups 40-49 and 50-59 are significantly less satisfied with life compared to those aged 20-29 across all quantiles except q90 and those aged 60-69 are significantly less satisfied with life at q10, q25 and q90. Similar to the very high and high HDI countries, those aged 50-59 have the lowest life satisfaction at q25 and q50. Interestingly, those aged 60-69 at q90 are more satisfied than those aged 20-29 (with a positive coefficient of 0.079) even though they reported least satisfied at q10, with a coefficient of -0.119. This indicates that aging negatively affects least satisfied groups, but most satisfied group get more satisfied as they grow old.

Education in medium and low HDI countries, as well as very high and high HDI countries (regardless of middle education or high education), has not much effect on life satisfaction. In medium and low HDI countries, education has significant effect in q90 among those with middle level education.

Table 5.3: Correlates of Life Satisfaction in different quantiles/ distribution

Independent Variables	Very high HDI and high HDI					Medium and low HDI				
	Quantile					Quantile				
	q10	q25	q50	q75	q90	q10	q25	q50	q75	q90
Constant	1.256*	1.590*	1.989*	2.219*	2.555*	1.469*	1.835*	2.308*	2.827*	3.207*
s.e	0.055	0.057	0.044	0.062	0.079	0.037	0.029	0.033	0.026	0.038
t	22.891	27.816	45.047	35.606	32.391	39.614	64.163	70.378	106.825	83.777
Male	0.027	0.015	0.003	0.022	0.006	0.071*	0.051*	0.034*	0.002	-0.018
s.e	0.021	0.015	0.016	0.015	0.023	0.016	0.011	0.009	0.012	0.014
t	1.267	1.065	0.216	1.487	0.262	4.474	4.525	3.659	0.169	-1.249
Age 30-39	-0.086*	-0.105*	-0.082*	-0.039**	-0.023	-0.038**	-0.044*	-0.026**	-0.015	0.013
s.e	0.032	0.024	0.023	0.022	0.036	0.022	0.017	0.015	0.014	0.018
t	-2.685	-4.363	-3.528	-1.791	-0.648	-1.702	-2.594	-1.781	-1.075	0.757
Age 40-49	-0.107*	-0.116*	-0.107*	-0.062*	-0.026	-0.046*	-0.062*	-0.054*	-0.039*	0.010
s.e	0.029	0.024	0.026	0.024	0.042	0.022	0.017	0.015	0.017	0.021
t	-3.667	-4.758	-4.067	-2.627	-0.613	-2.069	-3.683	-3.680	-2.286	0.500
Age 50-59	-0.100*	-0.122*	-0.119*	-0.070*	-0.086*	-0.083*	-0.100*	-0.071*	-0.054*	-0.013
s.e	0.037	0.026	0.028	0.026	0.042	0.025	0.021	0.016	0.020	0.024
t	-2.706	-4.718	-4.292	-2.728	-2.069	-3.274	-4.880	-4.510	-2.676	-0.529
Age 60-69	-0.098*	-0.086*	-0.095*	-0.033	-0.009	-0.119*	-0.074*	-0.029	-0.003	0.079*
s.e	0.038	0.033	0.036	0.036	0.058	0.036	0.028	0.027	0.025	0.026
t	-2.611	-2.621	-2.620	-0.926	-0.160	-3.275	-2.666	-1.069	-0.103	2.984
Middle edu	0.003	0.014	-0.007	-0.003	-0.001	-0.015	-0.011	-0.006	0.001	0.031**
s.e	0.026	0.021	0.020	0.021	0.029	0.019	0.015	0.014	0.013	0.018
t	0.135	0.658	-0.337	-0.134	-0.049	-0.772	-0.717	-0.415	0.040	1.791
High edu	0.021	0.018	0.007	0.050*	0.023	-0.003	-0.014	-0.015	-0.004	0.013
s.e	0.034	0.021	0.023	0.024	0.033	0.019	0.015	0.016	0.014	0.018
t	0.632	0.834	0.291	2.085	0.690	-0.150	-0.921	-0.924	-0.294	0.755
Middle-income	0.055*	0.045*	0.031**	0.036*	0.007	0.192*	0.195*	0.159*	0.137*	0.114*
s.e	0.022	0.016	0.017	0.018	0.026	0.019	0.015	0.013	0.012	0.016
t	2.500	2.867	1.841	2.052	0.289	10.240	12.928	11.858	11.111	6.991
High-income	0.064*	0.142*	0.130*	0.104*	0.082*	0.257*	0.240*	0.213*	0.177*	0.157*
s.e	0.029	0.023	0.019	0.024	0.034	0.018	0.016	0.015	0.012	0.018
t	2.177	6.255	6.890	4.418	2.399	14.019	14.735	14.489	14.579	8.632
Married	0.140*	0.155*	0.143*	0.119*	0.126*	0.135*	0.106*	0.096*	0.066*	0.044*
s.e	0.027	0.022	0.025	0.020	0.032	0.023	0.017	0.015	0.016	0.021
t	5.137	7.169	5.828	5.900	3.988	5.942	6.279	6.452	4.122	2.118
Divorced/ Separated/ Widowed	-0.013	-0.052	-0.070*	-0.027	-0.021	-0.135*	-0.130*	-0.114*	-0.090*	-0.105*
s.e	0.048	0.033	0.036	0.037	0.056	0.040	0.027	0.028	0.028	0.037
t	-0.278	-1.544	-1.931	-0.739	-0.380	-3.419	-4.736	-4.072	-3.190	-2.822
Employed	-0.014	0.007	0.059	0.132*	0.099*	-0.073*	-0.062*	-0.011	0.027	0.086*
s.e	0.067	0.042	0.041	0.049	0.047	0.026	0.021	0.020	0.024	0.024
t	-0.210	0.179	1.442	2.715	2.101	-2.824	-3.029	-0.581	1.121	3.636
Standard of living	0.327*	0.309*	0.285*	0.298*	0.296*	0.283*	0.285*	0.241*	0.204*	0.175*
s.e	0.015	0.013	0.010	0.014	0.024	0.009	0.008	0.009	0.008	0.010
t	22.127	24.470	27.367	21.130	12.493	31.850	35.107	26.618	27.100	16.980
Role of government	0.291*	0.281*	0.285*	0.282*	0.274*	0.190*	0.200*	0.227*	0.232*	0.242*
s.e	0.016	0.015	0.012	0.016	0.016	0.011	0.007	0.006	0.006	0.008
t	17.857	18.600	23.977	17.856	17.037	17.997	29.808	36.919	42.093	29.975
Pseudo R-squared	0.197	0.182	0.167	0.145	0.143	0.141	0.134	0.117	0.103	0.094
Adjusted R-squared	0.195	0.180	0.165	0.143	0.142	0.140	0.133	0.116	0.103	0.093

Dependent variable: life satisfaction

* Denotes the p value significant at 5%, ** significant at 10%

The high-income group tend to be more satisfied compared to those in the middle-income group. This is shown by the higher coefficient of high-income group across all quantiles. A downward trend is found in the decreasing coefficient from q10 to q90, indicating that more satisfied people are less affected by income than less satisfied people.

Married people in medium and low HDI countries also have higher life satisfaction than single people and this is consistent in all quantiles. The coefficient is higher at lower quantiles and diminishes at higher quantiles from 0.135 to 0.044. Unlike the very high and high HDI countries, the divorced, separated and widowed have significantly lower level of life satisfaction than the single, and this is true in all quantiles where the coefficients range from -0.090 to -0.135. Marital status which was the third or fourth most important determinant of life satisfaction in very high and high HDI countries is ranked fifth or sixth most important determinant in medium and low HDI countries.

The employment variable shows a very interesting contrast in different quantiles. For example, in q10 and q25, those who are employed have lower life satisfaction than those who are not employed, with coefficients of -0.073 and -0.062. In contrast, those in q90 has a coefficient of 0.086, indicating that being employed has positive effects on the most satisfied person.

Standard of living and the role of government are also significantly and positively correlated with life satisfaction across all quantiles. Standard of living has the greatest effect on the life satisfaction of Asians. This variable has the largest coefficients amongst the factors determining life satisfaction across all quantiles, irrespective of HDI group, and the coefficients tend to be larger in the very high HDI and high HDI groups

of countries. However, in the medium and low HDI group of countries, the effect of standard of living on life satisfaction diminishes with rising life satisfaction, with the coefficients decreasing from 0.285 for q25 to 0.175 for q90.

The role of government is an important determinant of life satisfaction. In very high and high HDI countries, the role of government on life satisfaction assumes increasing importance with higher levels of life satisfaction, with the estimated coefficients increasing monotonically from 0.190 for q10 to 0.242 for q90, ranking from the fourth most important determinant in q10 to the most important determinant in q90.

5.4 Analysis of the Quantile Regression (by Correlates of Life Satisfaction)

Analysis of the distribution of life satisfaction provides a different perspective on Asians among those who are least satisfied with their lives as compared to those who are most satisfied. The effects of some of the correlates from quantile analysis on life satisfaction remain the same as the overall model while others have different effects at various levels of distribution. The following discussion will highlight the differential effects of these correlates.

5.4.1 Standard of Living

Standard of living is a significant determinant for life satisfaction (Medley, 1980) and it was found to be the main determinant of life satisfaction in OLS regression. A higher standard of living is associated with higher life satisfaction for all citizens, including the immigrants (Amit, 2010). A high and rather uniform coefficient is detected in very high and high HDI countries, and although a higher coefficient of standard of living is also

found in medium and low HDI group, the effect tends to decrease across the quantiles. People who are less satisfied with life are more affected by standard of living than those who are more satisfied with life.

5.4.2 The Role of Government

The role of government is an important determinant of life satisfaction among Asians. Even though the impact of this variable on life satisfaction is rather uniform across all quantiles for the very high and high HDI group, the impact is larger in the medium and low HDI group. In the medium and low HDI group, people with higher life satisfaction reported that the role of government will help to increase their life satisfaction more than people who are less satisfied with their lives. The findings are consistent with Kim and Kim (2012) which state that good governance increases happiness, as well as the analysis by Whiteley, Clarke, Sanders et al. (2010) which reveals that government policy has a bigger impact on improving the life satisfaction of the least satisfied group. This is also consistent with quantile regression results which show that the role of government ranked as the second most important determinant for life satisfaction in most of the quantiles.

5.4.3 Income

The income determinant shows different results in overall and quantile regression. In the distribution analysis, it shows a positive relationship with life satisfaction, as well as the existence of the Easterlin paradox. The positive relationship of income (Frey and Sturzer, 2000; Ball and Chernova, 2008; Tsou and Liu, 2001) is noticeable for the group of people who reported least satisfaction with life, while the group of people with the

most satisfaction with life fulfilled the Easterlin paradox theory that income does not increase happiness or life satisfaction (Easterlin, 1995; Stevenson and Wolfers, 2008).

People tend to have the misperception that a higher income will increase their life satisfaction. That is why chasing after a higher income has been the ultimate goal for most individuals. The income determinant showed a higher increment for life satisfaction for the people who are least satisfied with their lives. As for the people who are very satisfied with life, even though income has a positive impact on their life satisfaction, the income effect on their life satisfaction is much less pronounced than in the least satisfied group. In other word, “Money will not make you happy” (McFarlin, 2008). A more satisfied person knows that income is not the most influential factor in contributing to life satisfaction.

Having a higher income is more likely to affect people in medium and low HDI countries where poverty issues are far more important than marriage. “Money can buy happiness”, and a higher income does make people much happier. The Easterlin paradox does not hold in medium and low HDI countries.

5.4.4 Marital Status

Marital status has a decreasing effect on life satisfaction from the lower quantile to the higher quantile. This shows that people who are more satisfied with life are less affected by their marital status, and people who are least satisfied with life are more affected by their marital status.

While marital status in very high and high HDI countries is an important determinant of life satisfaction (being the third or fourth most important determinant across quantiles), people in medium and low HDI countries are less affected by their marital status in terms of life satisfaction, and this variable is ranked fourth or fifth in importance to affecting life satisfaction, and it is the 5th most important determinant of life satisfaction in q90.

Family life is a more important predictor of life satisfaction for people in the very high and high HDI countries compared to the medium and low HDI countries. Family life is a significant determinant of life satisfaction (Medley, 1980) and married people are happier than singles, and singles are happier than the separated or divorced (Clark and Oswald, 1994; Peiro, 2006; Dolan et al., 2008; Tsou and Liu, 2001).

5.4.5 Employment

Employment is not a significant determinant of life satisfaction in the overall model, although it is significant in some quantiles. Being employed is negatively associated with life satisfaction among the people who are least satisfied, but it has a positive effect on people who are more satisfied. This means that being employed reduces life satisfaction for people who are least satisfied with life, but that having a job will increase life satisfaction for people who are more satisfied. Lower life satisfaction due to being employed may be as a result of worrying about losing a job in a high unemployment country (Clark, Knabe & Rätzl, 2010; Frey and Stutzer, 2002). Although being employed has a positive effect on life satisfaction among those in the higher quantiles, it has a low coefficient (coefficient of 0.086 for q90 in medium and low HDI group and 0.099 in very high and high HDI group).

Having a job thus can reduce or increase life satisfaction for people at different level. If a person who is less satisfied with life may not be satisfied with job and a person who is satisfied with life may be very satisfied of having a job. Besides that, a satisfied person can be more productive and have better promotion opportunities where the causality may be in the opposite direction (Frey and Stutzer, 2002).

5.4.6 Gender, Age and Education

Gender is only significant for the least satisfied group (q10, q25 and 150), for medium and low HDI countries, and is not significant for very high and high HDI countries. A U shaped relationship between age and life satisfaction is only significant for people with lower life satisfaction in very high and high HDI countries. Life satisfaction decreases with age, but a reversal was seen after the age of 60. In the medium and low HDI countries, there is no consistent trend at different distributions of satisfaction. People who are getting older show lower satisfaction in the least satisfied group (q10), but a U shape relation was detected for q25. Lastly, across all quantiles, education is not a significant determinant of life satisfaction.

5.5 Concluding remarks

Different correlates have different impacts on the distribution of life satisfaction, indicating that people who are least satisfied and people who are most satisfied are affected differently by different correlates. The ranking of correlates that affect the very high and high HDI group are also different to that of the medium and low HDI group. Based on the differences, analysis of distribution is justified and different policies should be custom-made for different groups of people.

This analysis focuses on the well-being of people across the distribution of life satisfaction: the least satisfied to the most satisfied. The results show that the analysis on the distribution of life satisfaction delivers a new path and perspective on the impact of the correlates. Policy implementation should not focus only on the mean result, but also needs to consider the varieties of the distribution on life satisfaction. This is because the factors that affect life satisfaction will vary across the least satisfied to the most satisfied, and will lead to adopting different policies for different groups of people to enhance life satisfaction and well-being of the citizens.

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CHAPTER 6:

HUMAN DEVELOPMENT INDEX AND LIFE SATISFACTION IN ASIA

6.1 Introduction

The Human Development Index (HDI), a ranking system that has been updated annually by the United Nations since 1990, is a composite index that amalgamates three equally weighted sub-indices: life expectancy, education and per capita income indicators (Anand and Sen 2000; Ogwang and Abdou 2003). According to the United Nations, the HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The 2000 Human Development Report stated that the concept of human development is much deeper and richer than what can be captured in any composite index or even by a detailed set of statistical indicators (UNDP, 2000, p.147).

Although Human Development Index (HDI) has been adopted as a measure of development for a quarter century now, there was no analysis on the association between HDI and life satisfaction across all countries, and the few macro level studies on this topic were confined to few countries or regions (Leigh and Wolfers 2006; Kusago 2007; Bonini 2008; Bjørnskov, Dreher et al. 2008; Jagodzinski, 2010; Narayana 2009; Lanzi and Delbono 2008; Nitschke 2008; Blanchflower and Oswald 2005; Ogwang and Abdou 2003; Li and Bond 2010). Moreover, these studies produced contradictory results, with some studies showing a lack of association between HDI and life satisfaction, while others have found strong association between the two. For instance, while Blanchflower and Oswald (2005) singled out Australia as an

unhappiness paradox – a country with lower than expected life satisfaction given its level of HDI, Leigh and Wolfers (2006) found that Australia is not a paradox, but they did identify a few other paradoxes - a few countries are unusually happy or unhappy.

The 2010 Human development Report contains data on mean life satisfaction based on Gallup Surveys for 144 countries (39 countries in Africa, 34 countries in Asia, 44 countries in Europe, 25 countries in North and South America, and only two countries in Oceania). The availability of data on HDI and life satisfaction globally provides an excellent opportunity for a more comprehensive examination of the linkage between development and life satisfaction. This chapter examines the relationship between life satisfaction and human development index (HDI) in Asia. It begins with a description of HDI, inequality adjusted HDI (IHDI) and mean life satisfaction, a description of HDI and IHDI, and the ranking of countries by these indices. This is followed by an analysis of the bivariate relationship between life satisfaction and HDI globally and in Asia using scatter plots and regression analysis. In the multivariate analysis, dimensions of life satisfaction and elements of happiness were added to the model consisting of life satisfaction to assess the independent effect of each variable and the combined effects on life satisfaction. Based on the results from multiple regression, the expected value of mean life satisfaction was computed for each country, and then subtracted from the observed value to determine countries that fare better or worse than the expected value, given the HDI, dimensions of life satisfaction and elements of happiness. The reasons for the paradoxes were explored and discussed.

6.2 HDI, IHDI and Life Satisfaction

Countries are classified as having very high, high, medium and low human development. In 2014, the HDI ranged from 0.348 to 0.548 in 44 low HDI countries, 0.555 to 0.698 in 39 medium HDI countries, 0.702 to 0.798 in 56 high HDI countries and 0.802 to 0.944 in 49 very high HDI countries (UNDP, 2015).

Table 6.1: HDI, IAHD and life satisfaction of individual countries by regions

Africa				Asia			
Countries	IAHDI	HDI	LS	Countries	IAHDI	HDI	LS
Algeria	-	0.677	5.6	Afghanistan	-	0.349	4.1
Angola	0.242	0.403	4.3	Bangladesh	0.331	0.469	5.3
Benin	0.282	0.435	3.0	Cambodia	0.351	0.494	4.9
Botswana	-	0.633	4.7	China	0.511	0.663	6.4
Burkina Faso	0.195	0.305	3.6	Hong Kong	-	0.862	6.0
Burundi	0.177	0.282	2.9	India	0.365	0.519	5.5
Cameroon	0.304	0.46	3.9	Indonesia	0.494	0.6	5.7
Central African Republic	0.183	0.315	4.6	Iran	-	0.702	5.6
Chad	0.179	0.295	5.4	Israel	0.763	0.872	7.1
Congo	0.334	0.489	3.6	Japan	-	0.884	6.8
Congo (RD)	0.153	0.239	4.4	Jordan	0.55	0.681	5.7
Côte d'Ivoire	0.254	0.397	4.5	Kazakhstan	0.617	0.714	6.1
Djibouti	0.252	0.402	5.7	Korea (R)	0.731	0.877	6.3
Egypt	0.449	0.62	5.8	Kuwait	-	0.771	6.6
Ethiopia	0.216	0.328	4.2	Kyrgyzstan	0.508	0.598	5
Ghana	0.349	0.467	4.7	Laos	0.374	0.497	6.2
Guinea	0.209	0.34	4.5	Malaysia	-	0.744	6.6
Kenya	0.32	0.47	3.7	Mongolia	0.527	0.622	5.7
Liberia	0.188	0.3	3.4	Nepal	0.292	0.428	5.3
Madagascar	0.308	0.435	3.7	Pakistan	0.336	0.49	5.4
Malawi	0.261	0.385	6.2	Philippines	0.518	0.638	5.5
Mali	0.191	0.309	3.8	Qatar	-	0.803	6.7
Mauritania	0.281	0.433	5.0	Saudi Arabia	-	0.752	7.7
Morocco	0.407	0.567	5.8	Singapore	-	0.846	6.7
Mozambique	0.155	0.284	3.8	Sri Lanka	0.546	0.658	4.7
Namibia	0.338	0.606	5.2	Syrian Arab Republic	0.467	0.589	5.9
Niger	0.173	0.261	3.8	Tajikistan	0.469	0.58	5.1
Nigeria	0.246	0.423	3.8	Thailand	0.516	0.654	6.3
Rwanda	0.243	0.385	4.2	Turkey	0.518	0.679	5.5
Senegal	0.262	0.411	4.5	Turkmenistan	0.493	0.669	7.2
Sierra Leone	0.193	0.317	3.6	United Arab Emirates	-	0.815	7.3
South Africa	0.411	0.597	5.0	Uzbekistan	0.521	0.617	6.0
Sudan	-	0.379	5.0	Viet Nam	0.478	0.572	5.4
Tanzania (UR)	0.285	0.398	2.4	Yemen	0.289	0.439	4.8
Togo	0.287	0.428	2.6				
Tunisia	0.511	0.683	5.9				
Uganda	0.286	0.422	4.5				
Zambia	0.27	0.395	4.3				
Zimbabwe	0.098	0.14	2.8				

Europe				The Americas			
Countries	IAHDI	HDI	LS	Countries	IAHDI	HDI	LS
Albania	0.627	0.719	4.6	Argentina	0.622	0.775	7.1
Andorra	-	0.824	6.8	Belize	0.495	0.694	6.6
Armenia	0.619	0.695	5	Bolivia	0.398	0.643	6.5
Austria	0.787	0.851	7.8	Brazil	0.509	0.699	7.6
Azerbaijan	0.614	0.713	5.3	Canada	0.812	0.888	8
Belarus	0.664	0.732	5.5	Chile	0.634	0.783	6.3
Belgium	0.794	0.867	7.3	Colombia	0.492	0.689	7.3
Bosnia and Herzegovina	0.565	0.71	5.8	Costa Rica	0.576	0.725	8.5
Bulgaria	0.659	0.743	4.4	Dominican Republic	0.499	0.663	7.6
Croatia	0.65	0.767	6.0	Ecuador	0.554	0.695	6.4
Cyprus	0.716	0.81	7.1	El Salvador	0.477	0.659	6.7
Czech (R)	0.79	0.841	6.9	Guatemala	0.372	0.56	7.2
Denmark	0.81	0.866	8.2	Guyana	0.497	0.611	6.5
Estonia	0.733	0.812	5.6	Haiti	0.239	0.404	3.9
Finland	0.806	0.871	8.0	Honduras	0.419	0.604	7
France	0.792	0.872	7.1	Jamaica	0.574	0.688	6.7
Georgia	0.579	0.698	4.3	Mexico	0.593	0.75	7.7
Germany	0.814	0.885	7.2	Nicaragua	0.426	0.565	7.1
Greece	0.768	0.855	6.8	Panama	0.541	0.755	7.8
Hungary	0.736	0.805	5.7	Paraguay	0.482	0.64	6.9
Iceland	0.811	0.869	7.8	Peru	0.501	0.723	5.9
Ireland	0.813	0.895	8.1	Trinidad & Tobago	0.621	0.736	7.0
Italy	0.752	0.854	6.7	USA	0.799	0.902	7.9
Latvia	0.684	0.769	5.4	Uruguay	0.642	0.765	6.8
Lithuania	0.693	0.783	5.8	Venezuela	0.549	0.696	7.8
Luxembourg	0.775	0.852	7.7				
Malta	-	0.815	7.1				
Moldova	0.539	0.623	5.7				
Montenegro	0.693	0.769	5.2				
Netherlands	0.818	0.89	7.8				
Norway	0.876	0.938	8.1				
Poland	0.709	0.795	6.5				
Portugal	0.7	0.795	5.9				
Romania	0.675	0.767	5.9				
Russia	0.636	0.719	5.9				
Serbia	0.656	0.735	5.6				
Slovakia	0.764	0.818	5.8				
Slovenia	0.771	0.828	7.1				
Spain	0.779	0.863	7.6				
Sweden	0.824	0.885	7.9				
Switzerland	0.813	0.874	8.0				
The former Yugoslav Republic of Macedonia	0.584	0.701	4.7				
Ukraine	0.652	0.71	5.3				
United Kingdom	0.766	0.849	7.4				

Oceania			
Countries	IAHDI	HDI	LS
New Zealand	-	0.907	7.8
Australia	0.864	0.937	7.9

HDI varies widely across countries, from 0.14 in Zimbabwe to 0.938 in Norway. Most African countries have low or medium HDI while European countries have high HDI. In Africa, 19 out of 40 countries have HDI below 0.4, in contrast 25 out of 44 countries in Europe have HDI of 8.0 or higher. Of the 34 Asian countries, seven have HDI of below 5.0 while seven have 8.0 and above, and HDI ranges from 0.349 in Afghanistan to 0.884 in Japan. Most countries in Central and South America have HDI of between 0.6 and 0.8, but the only two countries in North America have very high HDI (0.902 in USA and 0.888 in Canada).

Critics argued that HDI can at best provide partial explanation of people's life satisfaction because it does not capture many other aspects of well-being, such as inequality issues, living condition, security, public freedom or environment degradation, all of which are essential to the well-being of the citizens (Bilbao-Ubillos 2013; Schimmel 2009; Kusago 2007; Alesina, Di Tella et al. 2004; Sagar and Najam 1998). These criticisms led to the introduction of inequality adjusted HDI (IHDI). IHDI incorporates the inequality measures and tackles the distributional problem in the development of HDI index by adding in the Gini coefficient⁶. IHDI is deemed to have to address the issues relating to inequalities (Hicks, 1997). IHDI data are not available in quite a number of Asian countries. Detailed computation of IHDI is explained on pages 218-219 in the Technical Notes of the 2010 HDR. Table 6.1 shows IHDI alongside HDI and life satisfaction.

The life satisfaction index ranges from a low 0.24 in Tanzania, 2.6 in Togo, 2.8 in Zimbabwe and 2.9 in Burundi (all in Africa) to a high 8.5 in Costa Rica in Central America, followed by five European countries with life satisfaction index of 8.0 and

⁶ Gini coefficient is an ad hoc measure of income inequality (Dorfman, R. 1979) which is derived from Lorenz Curve.

above (Denmark, Norway, Iceland, Ireland and Switzerland) and Canada (8.0). Out of the 40 countries in Africa, 27 (or 67.5 percent) have life satisfaction index of less than 5.0, compared to 7 out of 34 (20.6 percent) in Asia, none in Europe and only one (Haiti) in the Americas. The mean value of life satisfaction was 4.4(4.0-4.6) in Africa, 5.9 (5.6-6.5) in Asia, 6.5(6.1-6.8) in Europe and 7.0 (6.6-7.4) in the Americas. In Asia, mean life satisfaction ranges from 4.1 in Afghanistan to 7.3 in United Arab Emirates

6.3 Relationship between Life Satisfaction with HDI -A Global Analysis

The scatterplots in Figure 6.1 shows that life satisfaction is positively correlated with HDI. Citizens of countries with low HDI generally have low life satisfaction, while citizens from high HDI countries tend to have high life satisfaction. However, countries with about the same level of HDI were found to have vast difference in the level of life satisfaction – some fare much better than expected (way above the regression line in Figure 1), while others fare much worse than expected (countries that fall way below the regression line).

Simple regression analyses show that HDI is a much better predictor of life satisfaction across countries as compared to GDP per capita. HDI by itself explains of 63 percent of the cross-country variation in life satisfaction, as compared to 40 percent accounted for by GDP per capita. Table 1 shows that for each 0.1 unit increase in HDI, life satisfaction will increase by 0.589 unit (± 0.076 at 95 percent confidence level). For instance, a country with HDI of 0.80 is expected to have 2.36 (± 0.304) higher life satisfaction than one that has HDI of 0.40. The predictive power of HDI is strongest in Europe, accounting for 74% of the variance in life satisfaction, followed by Asia, a

distant second at 54.5%. The mean life satisfaction of most Asian countries lies close to the regression line.

Using IHDI in the regression analysis produces a much smaller coefficient of determination of 52.0 percent. The lower R^2 value can be explained by the exclusion of 14 countries that do not have data on IAHDI, and also the narrower range of values of IAHDI as compared to HDI. As the relative ranking of countries is about the same in terms of HDI and IHDI, HDI instead of IHDI will be used in the following analyses, to have more countries included in the study and also on the ground of a higher coefficient of determination. Regression analysis shows that for each 0.1 unit increase in HDI, life satisfaction will increase by 0.589 unit (± 0.076 at 95 percent confidence level). For instance, a country with HDI of 0.80 is expected to have 2.36 (± 0.304) higher life satisfaction than one that has HDI of 0.40.

Table 6.2: Regression between HDI, IAHDI, and life satisfaction

Dependent variable: Life satisfaction					
Independent variables					
Constant	Coefficient	2.07*	Constant	Coefficient	3.29*
	s.e	0.26		s.e	0.23
	t	8.05		t	14.07
HDI	Coefficient	5.89*	IAHDI	coefficient	4.97*
	s.e	0.38		s.e	0.42
	T	15.41		t	11.73
Adjusted $R^2 = 0.63$			Adjusted $R^2 = 0.52$		

Note: *denotes $p < 0.05$.

Countries with a low HDI and a low life satisfaction are mainly from the African continent, while countries with a high HDI and a high life satisfaction are from the North and South America and Europe. Countries in the Asian continent are in the middle range of both the HDI level and life satisfaction (see Figure 6.1).

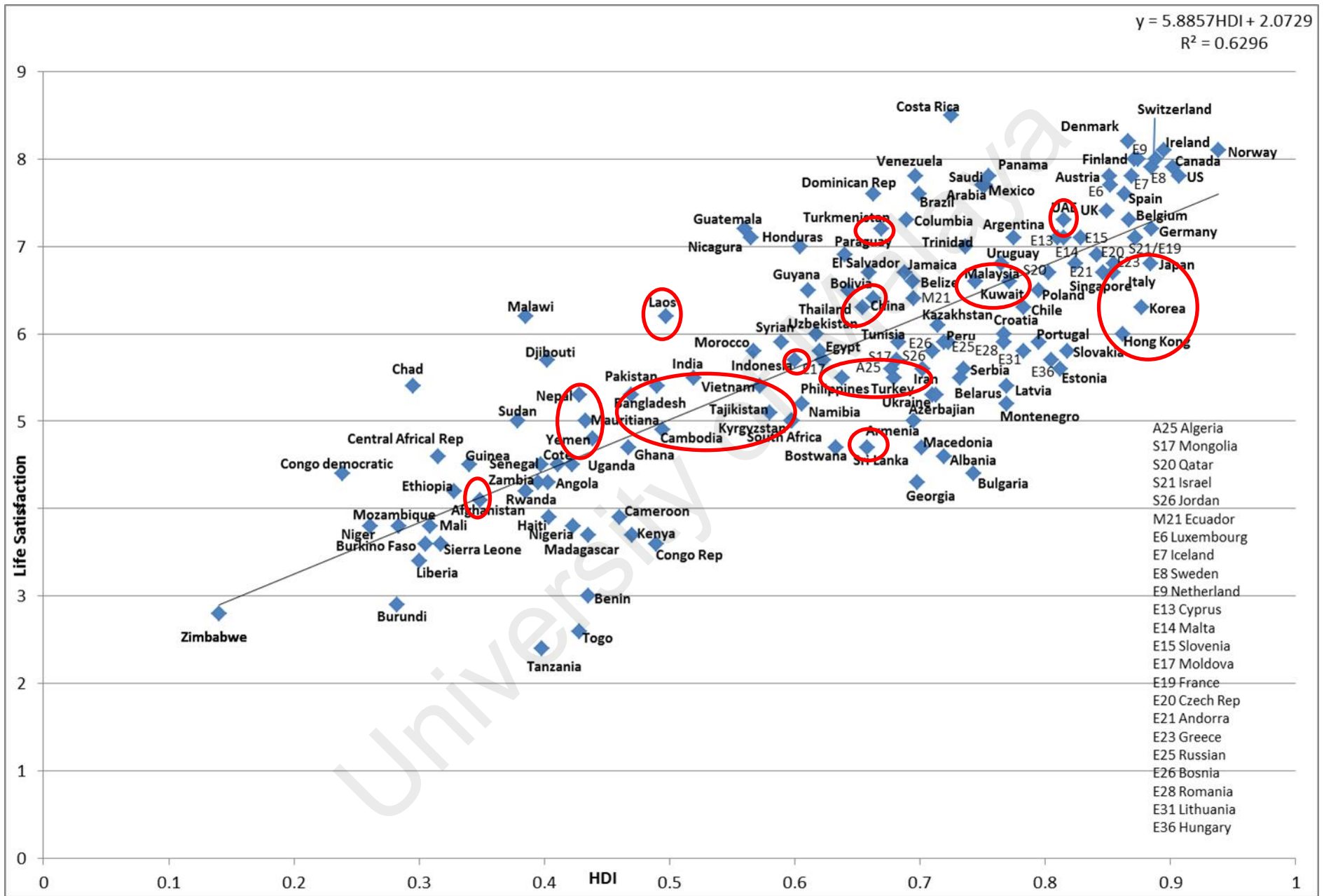


Figure 6.1 Regression of life satisfaction and HDI

The regression model for all 144 countries with HDI as the predictor variable, explains 63 percent of the variation in life satisfaction. However, HDI explains up to 74 percent and 54.5 percent of the variance in life satisfaction in Europe and Asia respectively. On the other hand, HDI explains only 24.7 percent and 34.4 percent of the variation in life satisfaction for Africa continent and North and South America continent respectively (see table 6.3).

Table 6.3: Regression between HDI and life satisfaction in four continents

Independent Variables		ALL countries (144 countries)	Continents			
			Africa (39 countries)	Asia (34 countries)	Europe (44 countries)	North and South America (25 countries)
Constant	coefficient	2.090*	2.675*	3.109*	-4.779*	3.305*
	s.e	0.258	0.467	0.459	1.006	1.011
	t	8.109	5.730	6.768	-4.752	3.270
HDI	coefficient	5.850*	3.976*	4.307*	14.000*	5.324*
	s.e	0.387	1.083	0.690	1.248	1.445
	t	15.104	3.672	6.246	11.222	3.685
Adjusted R ²		0.627	0.247	0.545	0.744	0.344

Note: Two countries from Oceania are not grouped into the regions
Note: *denotes $\rho < 0.05$.

In Europe, each 0.1 unit increment in HDI improves life satisfaction by 1.4 points. An increment of HDI by 0.1 would have improved the life satisfaction by between about 0.4 in Africa and 0.5 in the Americas.

6.4 Regression of Life Satisfaction and HDI on Asia

HDI in Asia ranges from 0.349 in Afghanistan to 0.884 in Japan, while life satisfaction ranges from 4.1 in Afghanistan to 7.7 in Saudi Arabia. Out of the 34 Asian countries, 10 have HDI of between 0.6 and 0.67 and these were classified as medium HDI countries. In terms of life satisfaction mean, 14 Asian countries have a mean score of between 5.0 and 5.9 while 12 are in the range of 6.0 and 6.9.

A country with a higher HDI does not necessarily have a higher mean life satisfaction. For example, Japan has the highest HDI but was ranked 5th in life satisfaction. Saudi Arabia was ranked 9th in HDI but has highest life satisfaction. Afghanistan has the lowest HDI and life satisfaction.

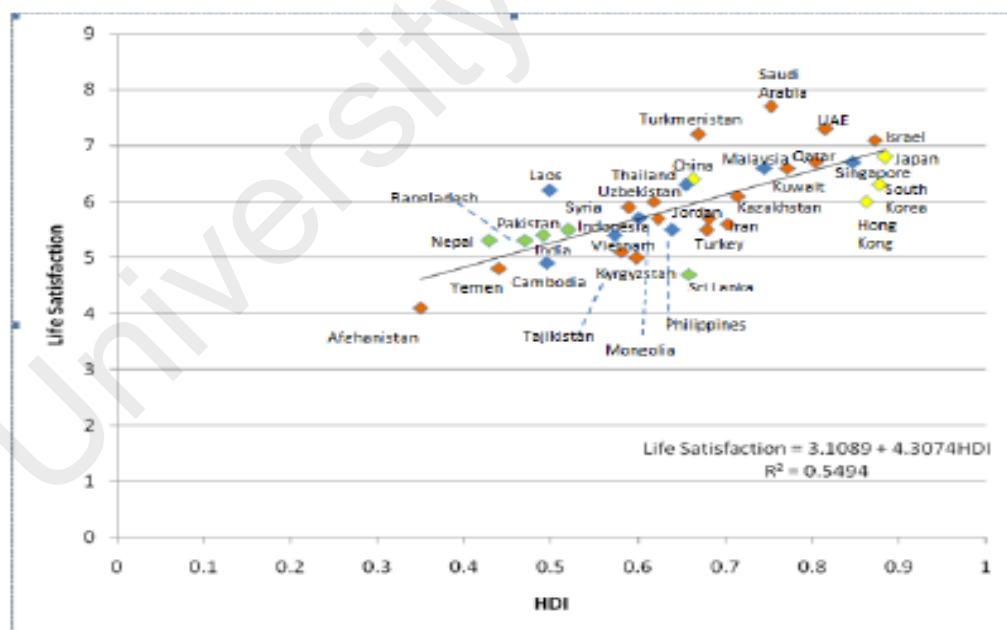


Figure 6.2: Regression of life satisfaction and HDI in Asia

A scatter plot regression which focuses only on Asia countries is shown in Figure 6.2. The scatter plots are shown for four sub-regions in Asia: East Asia (in yellow), South Asia (in green), Central and West Asia (in orange) and Southeast Asia (in blue). Countries in Central West and Southeast Asia regions lie closely to the regression line, while countries in East Asia and South Asia are scattered further from the regression line.

Countries which have actual life satisfaction higher than expected life satisfaction lie above the regression line, and these include Saudi Arabia, Turkmenistan and Laos. On the other hand Sri Lanka, Hong Kong and Kyrgyzstan have lower than expected life satisfaction, given the HDI level

6.4.1 Asian Countries with Actual Life Satisfaction Higher or Lower than Expected Life Satisfaction given HDI.

A more detailed analysis of the difference between actual and expected life satisfaction is shown in Table 6.4. The differences between actual and expected life satisfaction are divided by the expected value of life satisfaction. Countries with actual life satisfaction that is higher than expected will have a positive value and countries with actual life satisfaction that is lower than expected will have a negative value. Of the 34 countries in Asia, 17 countries have lower than expected life satisfaction, while 17 have higher than expected life satisfaction.

Countries that have much higher than expected life satisfaction are Saudi Arabia (21.3 percent above expected value), Turkmenistan (20.2 percent) and Laos (18.1 percent). On the contrary, among the countries where life satisfaction is lower than expected life

satisfaction given HDI, Sri Lanka has much lower than expected life satisfaction (-20.9 percent), followed by Hong Kong (-12.0 percent) and Kyrgyzstan (-12.0 percent).

Table 6.4: Differences of actual life satisfaction and expected life satisfaction given HDI

No.	Country	HDI	Life satisfaction	Life Satisfaction Expected Value	Difference (life satisfaction - expected life satisfaction)	Difference divide by expected (percentage)
Higher life satisfaction than expected given the level of development						
1	Saudi Arabia	0.752	7.7	6.348	1.352	21.296
2	Turkmenistan	0.669	7.2	5.991	1.209	20.188
3	Laos	0.497	6.2	5.250	0.950	18.102
4	United Arab Emirates	0.815	7.3	6.619	0.681	10.281
5	China	0.663	6.4	5.965	0.435	7.297
6	Nepal	0.428	5.3	4.953	0.347	7.016
7	Thailand	0.654	6.3	5.926	0.374	6.312
8	Malaysia	0.744	6.6	6.314	0.286	4.535
9	Syrian Arab Republic	0.589	5.9	5.646	0.254	4.499
10	Uzbekistan	0.617	6.0	5.767	0.233	4.047
11	Pakistan	0.490	5.4	5.220	0.180	3.457
12	Israel	0.872	7.1	6.865	0.235	3.423
13	Bangladesh	0.469	5.3	5.129	0.171	3.332
14	India	0.519	5.5	5.344	0.156	2.910
15	Kuwait	0.771	6.6	6.430	0.170	2.645
16	Qatar	0.803	6.7	6.568	0.132	2.013
17	Indonesia	0.600	5.7	5.693	0.007	0.116
Lower life satisfaction than expected given the level of development						
18	Singapore	0.846	6.7	6.753	-0.053	-0.785
19	Kazakhstan	0.714	6.1	6.184	-0.084	-1.365
20	Mongolia	0.622	5.7	5.788	-0.088	-1.523
21	Japan	0.884	6.8	6.917	-0.117	-1.687
22	Viet Nam	0.572	5.4	5.573	-0.173	-3.100
23	Yemen	0.439	4.8	5.000	-0.200	-3.998
24	Jordan	0.681	5.7	6.042	-0.342	-5.665
25	Philippines	0.638	5.5	5.857	-0.357	-6.096
26	Cambodia	0.494	4.9	5.237	-0.337	-6.431
27	Korea (Republic of)	0.877	6.3	6.887	-0.587	-8.517
28	Iran	0.702	5.6	6.133	-0.533	-8.687
29	Turkey	0.679	5.5	6.034	-0.534	-8.845
30	Tajikistan	0.580	5.1	5.607	-0.507	-9.046
31	Afghanistan	0.349	4.1	4.612	-0.512	-11.106
32	Kyrgyzstan	0.598	5.0	5.685	-0.685	-12.046
33	Hong Kong	0.862	6.0	6.822	-0.822	-12.048
34	Sri Lanka	0.658	4.7	5.943	-1.243	-20.918

Of the top three countries that fare much better than expected life satisfaction, one is from Southeast Asia and two from Central West regions. The top three countries that have much lower than expected life satisfaction, given HDI are from different sub-region, with Sri Lanka from South Asia region, Hong Kong from East Asia region and Kyrgyzstan from Central West region. .

6.4.2 Analysis and Discussion on HDI and Life Satisfaction in Asia

Generally, HDI is a strong predictor of life satisfaction, simple regression analysis shows that HDI has a coefficient of 5.9 globally, and 4.3 for Asia. However, there are countries which have lower or higher than expected life satisfaction, given HDI.

Leigh and Wolfers (2006) found that the Philippines, Brazil, Mexico and Chile appear unusually happy given their relatively low levels of development. The paradoxes may be attributed to individualism, cultural factors and different perceptions and expectations of people in different countries (Cummins 1998; Costanza, Hart et al. 2009; Alesina, Di Tella et al. 2004). Analysing data from 70 countries, Bjørnskov, Dreher et al. (2008) found that factors such as openness, business climate, post-communism, number of chambers in parliament, Christian majority, and infant mortality robustly influence life satisfaction across countries. Based on review of happiness research, Carol Graham concluded that "there is a remarkable human capacity to adapt to both prosperity and adversity; and as such, people can adapt to tremendous adversity and retain their natural cheerfulness, while they can also have virtually everything and still be miserable" (Graham, 2010).

Laos, Turkmenistan and Saudi Arabia have reported life satisfaction that is more than 10percent higher than expected life satisfaction given the HDI level. On the other hand, the top three countries which have lower than expected life satisfaction given the HDI level are Sri Lanka, Hong Kong and Kyrgyzstan (see Table 6.4).

People in Laos are more satisfied with life than expected, given its level of development. Laos was a former communist country, and it is transforming to allow people more political and economic freedom and choice. Verme (2007) found a strong relationship between freedom of choice and happiness or life satisfaction and this may just explain why Laotians are relatively happier. Compared to neighbouring countries in Central and West Asia, the socio-political environment in Saudi Arabia and Turkmenistan are much more favorable, and hence people tend to be more satisfied with life in these countries. In all these countries, other factors such as happy family life, social interaction and support, good governance, the ability to achieve their life goals probably contributed to the higher than expected life satisfaction.

Of the countries that have lower than expected life satisfaction, Sri Lanka tops the list. This may be due to the civil war that happened in 1983 and the damages from the war lasted more than 25 years after the war. The war has caused immense suffering for the people. The war not only killed more than 100,00 people, it has also created political instability which deterred the growth and development for the country. Sri Lanka political status is not transparent or stable which caused the “kasta” or a caste-based discrimination in Sri Lanka. Besides that, Sri Lankans place great emphasis on honour and dignity.

Hong Kong is a highly modernized and prosperous city state, but the people are less satisfied with life as compared to many less developed regions or countries. One explanation for Hong Kong paradox may be due to its high population density, cost of living and income inequality. Other than that, high working hours and pressure at work with aging society are also contributing to the paradox.

As in the case of Laos, Kyrgyzstan is also in the midst of transformation into a more democratic country. Kyrgyzstan gained its independence in 1991 from Soviet Union. After 20 years of independence, Kyrgyzstan still lags behind in development and is grappling with the “clash of old and new trends, traditional and modern tendencies in spiritual culture; a clash of archaic phenomena and paternalism with the democracy of civil society in politics, of the millennial history of the ethnic community with that of the formation of the nation and a new state in conditions of globalization” (Bugazov, 2013). In view of these dilemmas, Kyrgyzstan is struggling to have a democratic and market economy, and to create a civil society. Besides that, crimes and corruptions, borders insecurities and inter-ethnic tensions also contribute to the low life satisfaction.

Many countries from the Central West region have lower than expected life satisfaction are. These countries have just gained independence and are in the process of transforming into democratic countries. However, the process of reformation that makes people unhappy usually last for some time, but the duration of transformation varies from country to country (Graham, 2012).

6.5 Correlations between Personal Dimensions of Well-being and Elements of Happiness with Life Satisfaction

It is clear that HDI does not fully explain the variation in life satisfaction, at the country level. Life satisfaction is influenced by a multitude of microsocial factors such as personal dimensions of well-being and elements of happiness. Personal dimensions of well-being reflect the satisfaction with job, health and standard of living which are related to the Desire theory. Elements of happiness reflect the need to have purposeful life, to be treated with respect and to have social support, as postulated in Authentic Happiness Theory.

Haller and Hadler (2006) held that although “macrosocial factors” such as distribution of income and political freedom are important predictors of life satisfaction, “microsocial” factors are also influential in affecting life satisfaction. Microsocial factors relate to the ability to handle oneself in good health and have close social relation. Hence, with available data from HDR, dimensions of well-being and elements of happiness which are more “microsocial” are included in the analysis. Personal dimensions of well-being consist of job satisfaction and satisfaction with health and standard of living; while elements of happiness include feeling of having a purposeful life, having social support network, and been treated with respect.

The association of these variables with life satisfaction are examined for all 34 Asia countries. Table 6.5 shows that life satisfaction is significantly correlated with all the components in personal dimensions of well-being ($p < 0.01$). Life satisfaction has the strongest correlation with satisfaction in standard of living, followed by job satisfaction and

satisfaction with health. Of the elements of happiness, social network component is the only significant correlate of life satisfaction.

Table 6.5: Spearman rank correlation coefficients of overall life satisfaction with personal dimensions of well-being and elements of happiness, for Asia countries

Components of satisfaction with personal dimensions of well-being and elements of happiness	Correlation with Life Satisfaction
Satisfaction with personal dimensions of well-being:	
% satisfied with job among employed, 2006-2009	0.456**
% satisfied with health, 2006-2009	0.439**
% satisfied with standard of living, 2006-2009	0.689**
Elements of Happiness:	
% yes to purposeful life, both sexes, 2006-2009	0.227
% treated with respect, both sexes, 2006-2009	0.100
% with social support network, both sexes, 2006-2009	0.609**

Note: **denotes $p < 0.01$

Owing to the small sample size of 34 countries, only three predictors can be entered into the regression model. Hence, rather than entering the six components of satisfaction with personal well-being and three elements of happiness, the mean of personal dimensions of well-being and the mean of elements of happiness is adopted for the multivariate regression. Countries with missing data are deleted and thus left 30 countries. Cronbach's Alpha for personal dimension of well-being is strong with 0.735 but elements of happiness reported the opposite of 0.249. Under personal dimensions of well-being, percentage of respondents who are satisfied with life reported the largest gap between min and max value from 44 percent to 80 percent while percentage of employed respondents who are satisfied with job and percentage of respondents who are satisfied with their personal health have the range of 63 to 92 percent and 68 to 95 percent respectively.

Unlike personal dimensions of well-being, components in elements of happiness reported large gap of min and max value. Respondents who are satisfied of being treated with respect has the gap of min 43 to 94 percent and respondents who are satisfied of having social support has the min percentage of 41 to 91. Most of the respondents with 60 to 98 percent agreed that having a purposeful life contributed to life satisfaction

Table 6.6: Mean, min, max and Cronbach's Alpha for components of well-being

Components of well-being		Mean	Min	Max	Cronbach's Alpha
Personal Dimensions of well-being	% of employed respondents who are satisfied with job	79.43	63	92	0.735
	% of all respondents who are satisfied with their personal health	79.60	68	95	
	% of all respondents who are satisfied with their standard of living	63.20	44	80	
Elements of happiness	% answering "yes" to having the purposeful life	89.20	60	98	0.249
	% answering "yes" to have been treated with respect	78.67	43	94	
	% answering "yes" to having social support	77.63	44	91	

Four regression models were run to examine the combined and independent effects of HDI, mean personal dimensions of well-being and mean elements of happiness on the overall life satisfaction across countries. In model 2, mean elements of happiness was added to the model containing HDI (model 1), and model 3 incorporates dimensions of well-being. All three variables were entered in model 4.

6.5.1 Diagnostic test

Diagnostic test shows that the normality assumption is supported in models 2, 3 and 4, as the p-value is more than 0.05. In order to detect multicollinearity problem, VIF is calculated for the models. Multicollinearity has been successfully encountered as all models exhibit the VIF values of less than 10, indicating that there are no serious inter-correlations among the independent variables. All the four regression models in Table 6.6 show no signs of heteroscedasticity where the tests show that the p-value in the four models are more than 0.05.

Table 6.7: Regression of life satisfaction by HDI, personal dimensions of well-being & elements of happiness in Asia continent

Dependent Variable: Life Satisfaction

Independent Variables		Model 1 HDI	Model 2 HDI and personal dimensions of well- being	Model 3 HDI and elements of happiness	Model 4 HDI, personal dimensions of well- being & elements of happiness
Constant	Coefficient	3.109*	0.169	1.848	-0.043
	s.e	0.459	0.908	1.130	1.140
	t	6.768	0.186	1.635	-0.038
HDI	Coefficient	4.307*	3.395 *	3.989*	3.358 *
	s.e	0.690	0.612	0.709	0.642
	t	6.246	5.467	5.630	5.228
Personal dimensions of well-being mean	Coefficient		0.047*		0.045*
	s.e		0.013		0.014
	t		3.531		3.203
Elements of happiness mean	Coefficient			0.017	0.004
	s.e			0.014	0.013
	t			1.188	0.318
Adjusted R ²		0.545	0.714	0.574	0.683

Note:

Under personal dimensions of well-being:

job : % of employed respondents who are satisfied with job

health : % of all respondents who are satisfied with their personal health

stdofliving: % of all respondents who are satisfied with their standard of living

Under elements of happiness:

life : % answering "yes" to having the purposeful life

respect : % answering "yes" to have been treated with respect

support : % answering "yes" to having social support

* denotes $p < 0.05$

HDI itself explains 54.5 percent of the variance in life satisfaction across countries in Asia. Adding personal dimensions of well-being (model 2 in Table 6.5) increases the predictive power to 71.40 percent. Adding elements of happiness (model 3 in Table 6.5) to HDI only increases the explanation points to 57.40 percent. In model 4, adding elements happiness into the model containing HDI and personal dimensions of happiness slightly increase the explanatory power. However, results from multiple regressions show that HDI is the most significant factor in explaining life satisfaction, after adjusting for all other variables in the models.

In model 2, a one unit increase in HDI would increase life satisfaction by 3.395. An increase in one unit in personal dimensions of well-being increases life satisfaction by only 0.047. In Model 3 and Model 4, elements of happiness do not have any significant effect on life satisfaction after controlling for HDI and dimensions of well-being.

6.5.2 Discussions

HDI is by far the most important predictor of life satisfaction. Elements of happiness are insignificant to affect life satisfaction as compared to dimensions of well-being. Bivariate analysis also shows that satisfaction with one's job, health status, standard of living (all representing dimensions of well-being) are strongly related to life satisfaction, and it remains significant after adjusting for HDI. This result shows the practicality in assessing life satisfaction. It is reasonable to have the outcome since to have satisfaction with job, health and standard of living is relatively more important than finding a purposeful life, being treated with life or having a social life.

The three dimensions of well-being: job, health and standard of living essentially reflect a modern person's basic needs and desire theory is best applied here to explain the reasons why it is significant in influencing life satisfaction. The "fulfilment of a desire contributes to one's happiness regardless of the amount of pleasure or displeasure" (Seligman and Royzman, 2003). For example, satisfaction arise from job may be a mixed of many rounds of success and hardship, but it leads to higher satisfaction in life. The same applies to the desire for satisfaction with health and standard of living. People work hard to maintain the health either go through the pain of exercise or work hard to improve the standard of living. All these contribute to a higher life satisfaction.

Other than that, one also finds it easier to measure his or her life satisfaction evaluating from job, health and standard of living. As for the elements of happiness, it is more abstract and it needs self-examination to reflect on the question of finding a purposeful life or even implicates religion spiritual seeking to achieve that. Being treated with respect is also tough for a person to judge as it varies from a person's definition of respect, background or experience of a person on where he or she is treated when they are young, different culture values on respect and emotion feelings over judgement. Respect definition is obviously different from a Korean to an Indian or Afghanistan. Thus they are not significant to affect a person's life satisfaction as compare to other components which stand more valid justification.

Among the three elements of happiness, the last element - social support seems to be the only one element that affects life satisfaction as shown in the bivariate correlation. As noted in a popular poem: “No man is an island, entire of itself; every man is a piece of the continent, a part of the main”. Interaction is needed in order to enhance life satisfaction or happiness. The interaction creates a sense of belonging to the society and meeting social norms improve a person’s happiness (Helliwell, Layard and Sachs 2011). Although friendship contributes to happiness, it is conditional on the quality of the relationship (Demir, Simsek, et al. 2012; Demir, Ozdemir et al. 2007). Other than that, social support element is also aligned to Authentic Happiness Theory (AHT) (Seligman 2002). Having social support network indicates a life which involves interacting and socialising with people and this is important to create happiness and improve their life satisfaction.

6.6 Concluding remarks

HDI has a high predictive power of life satisfaction at the country level globally (adjusted R square of 0.63). People from high HDI countries tend to have higher life satisfaction than those from low HDI countries. This suggests that income, health and education, the three components in the HDI are important predictors of life satisfaction. However, wide variations in life satisfaction can be seen in countries with the same level of HDI, and this is especially evident in Africa and the Americas where many countries fare much better and others fare much worse in life satisfaction, given their level of development. Clearly such anomalies are caused by factors other than income, health and education

In Asia, HDI by itself explains more than 50 percent of the variance in life satisfaction across countries. In the multivariate context, HDI has the most significant effect on life satisfaction, after adjusting for microsocial variables such as personal dimensions of well-being and elements of happiness. Hence, it is the goal of development planning to raise the income and educational level and improve the health status of the citizens to enhance quality of life. The development of a well-being indicator to include life satisfaction has been a recent effort from the government to develop public policies (Musikanski, 2015).

Previous studies found that the well-being of a population differs across countries and region due to the country's income, development, environment, and social security, as well as political issues (Bonini 2008; Böhnke 2008; Kusago 2007; Jagodzinski, W. 2010; Bjørnskov, Dreher et al. 2008). What matters life satisfaction is the human development as measured by the HDI, as well as other factors such as standard of living, good governance, security, social relation and interaction, respect and sense of self-worth. There are also the timeline lag effects which the country needs to pay attention to. The country which has low life satisfaction that is due to the adaptation to the new democratic system and in the transition period towards a more 'freedom' society need time to adjust their life satisfaction. Their low life satisfaction is neither due to HDI nor personal well-being or elements of happiness. As far as the time factor is considered, these countries are yet to achieve higher life satisfaction in future. Therefore, government policies must be targeted appropriately in order to improve the life satisfaction of the people, taking into consideration the new dimension of life satisfaction or well-being.

CHAPTER 7: CONCLUSION

7.1 Introduction

This chapter summarises the key findings on the differentials and correlates of life satisfaction in Asia. This is followed by a discussion of the policy implications of these findings. A discussion of the limitations of this thesis and some recommendations for policy and research concludes the thesis.

7.2 Salient findings from this research

On a scale of 1 to 5 the mean life satisfaction of Asians from 28 countries ranged from 3.023 in Turkmenistan and 3.164 in Myanmar to 4.059 in Maldives and 4.078 in Indonesia. Citizens living in the high income countries are not necessarily happier than those from the lower income countries. Of the five countries with the highest life satisfaction score, only two are from high income countries (Singapore and Maldives) while three are from low medium income countries (Indonesia, the Philippines and Bhutan). On the other hand, of the five countries with the lowest life satisfaction score, two are from upper middle income countries (China and Turkmenistan), two are from lower middle income countries (Uzbekistan and Mongolia), and one from low income countries (Myanmar). Japan, Hong Kong, Taiwan and South Korea, the richest among the Asian countries are ranked 14th, 17th, 19th and 23rd.

In terms of sub-regions, seven out of nine Southeast Asian countries are on the top half, and only two are in the bottom half of the ranking (Vietnam and Myanmar), five countries out of six countries from South Asia are in the top half, with Nepal the only country in the bottom half; Japan (ranked 14th) is the only country out of five from East Asia in the top half, and Afghanistan (ranked 10th) is the only country out of eight from Central and West Asia in the top half.

The differences in life satisfaction in Asian countries can be explained by “environmental disruption, excessive competitiveness, repressive education, excessive conformity, negative attitudes towards enjoyment and the emphasis on outward appearance.” (Ng, 2002) Development and growth come with the cost of pollution. The effect is especially significant in the more developed countries in Asia where development has destroyed a lot of forest, where it was later replaced it with industries’ factories, concrete buildings and chemical pollution. As a result, air, water and land are highly polluted. For example, due to air pollution, people find it hard to breathe, having short of breathe problem, coughing, drowsy and it may lead to fatality. Environmental disruption caused discomfort to people and thus affect their life satisfaction. The pollution issues are more serious in Asia as compared to Western countries mainly due to the negligence of Asian government in their adoption and implementation of pollution enforcement.

Excessive competitiveness existed in Asian culture for many generations. Although competitiveness can bring higher productivity and maybe higher income in the future, excessive competitiveness caused stress, feeling of failure and incompetent which lead to lower life satisfaction among the Asian. The culture exist because most of the Asian

countries are developing countries, they need to be competitive to stand out and earn better living for their future. The increasing competitiveness can be found in the education system in Asia. In order to get into the elite school, students need to get good results. Education system in Asia is repressive and more passive in learning. It is also focused too much on conformity and obeying order where it killed a lot of potential creative ideas. There were too many rules and regulations not only in primary school, students are too used to study by memorization rather than understanding. It has also failed to achieve higher level of Bloom's Taxonomy. Asian peoples' has a more moderate life value and they are instilled with the thought that 'happiness is considered unworthy and shameful' (Lu and Shih, 1997; Fang, 1980 in Ng 2002). Over joy or over sad is not appropriate in Asian's moderate life values.

Face value, honour or dignity in Asian is very important in Asia society. Many family problems occurred due to the outward appearance. This is especially true in the Eastern Asia. One cannot bring shame to the family and he or she has the duty to glorify or honour the name of their ancestors. A person's achievement's is reflected by their materials ownings, such as how big is the house or car? Social status and job title? This indirectly brings wrong life value for a person to judge others or him or herself. An underachiever maybe labelled and discriminated and thus create further dissatisfaction to life. On the contrary, a high achiever may need to continue to carry the responsibility and honour of the family which may also leads to dissatisfaction in life too.

The regression model consisting of eight variables explains between 18 percent (South Asia) and 27.3 percent (East Asia) of the variance in life satisfaction. Standard of living and role of the government are two of the more significant factors in all the four sub-regions in Asia. Being employed is positively associated with life satisfaction in Southeast Asia, but negatively associated with life satisfaction in South Asia. Except for Central & South Asia, people with higher education tend to be more satisfied with life than those who are less educated. Within each country, the higher income groups tend to be more satisfied with life than the lower income group. Generally age and sex do not have significant effect on life satisfaction. However, in Central & South Asia males are more satisfied with life than the females, and life satisfaction increases with age. In all the four sub-regions, married people are happier than the single, but those who are divorced or widowed are less satisfied with life than the single ($p < 0.01$).

The role of government was ranked the most important determinant of life satisfaction in 13 countries (Bangladesh, Cambodia, China, Indonesia, Kazakhstan, Kyrgyzstan, Laos, Malaysia, Pakistan, the Philippines, Singapore, Taiwan and Vietnam), and second most important in 7 countries (Bhutan, Kazakhstan, Mongolia, Nepal, Tajikistan Thailand and Uzbekistan). Standard of living is the most important determinant of life satisfaction in eight countries (Hong Kong, India, Japan, Mongolia, Myanmar, Tajikistan, Thailand and Uzbekistan), and second most important determinant in seven countries (Cambodia, China, Kyrgyzstan, Laos, the Philippines, Singapore and Vietnam), Those who are married tend to be happier than the singles in Afghanistan, Hong Kong, Myanmar, Pakistan and South Korea. However, those who were divorced or widowed are less satisfied with life

compared to the singles in Bangladesh, Malaysia, Nepal, Sri Lanka, Taiwan and Uzbekistan.

7.2.1 Correlates of life satisfaction in Asia - quantile regression analysis

The various correlates affect the life satisfaction differently for people who are less satisfied with life from those who are more satisfied with life. These correlates also have different effects for people living in different HDI groups of countries. Hence, there is a need to carry out quantile regressions in order to assess the importance of these correlates in different settings.

Of the more significant correlates of life satisfaction, standard of living has a uniformly high coefficient in very high and high HDI countries, and although a higher coefficient of standard of living is also found in medium and low HDI group, the effect tends to decrease across the quantiles. People who are less satisfied with life are more affected by standard of living than those who are more satisfied with life. The impact of the role of government on life satisfaction is also rather uniform across all quantiles for the very high and high HDI group - the impact is larger in the medium and low HDI group, where government policy has a bigger impact on improving the life satisfaction of the least satisfied group.

Generally, people with high and middle-income levels are more satisfied with life in all quantiles (except for q90 in the middle-income group), as compared to those in the lower income group, among people who are least satisfaction with life, higher income leads to higher life satisfaction, but income has a much smaller effect on life satisfaction among

those who are most satisfied with life. Having a higher income is more likely to affect people in medium and low HDI countries where poverty issues are relatively more important.

Being employed is negatively associated with life satisfaction among the people who are least satisfied, but it has a positive effect on people who are more satisfied. This means that being employed reduces life satisfaction for people who are least satisfied with life, but that having a job will increase life satisfaction for people who are more satisfied.

Education has relatively small effect on life satisfaction. It only has significant effect in medium and low HDI countries, and even that is confined to those in q90 among those with middle level education.

Quantile regression results reconfirm the fact that married people are happier than the singles who are in turn more satisfied in life as compared to the divorced and widowed. While marital status in very high and high HDI countries is an important determinant of life satisfaction, life satisfaction has little or no effect on life satisfaction in medium and low HDI countries. Likewise, family life is a more important predictor of life satisfaction for people in the very high and high HDI countries compared to the medium and low HDI countries.

Males are significantly more satisfied with life than females in the least satisfied group (q10, q25 and 150), for medium and low HDI countries, but it is not significant for very high and high HDI countries. A U shaped relationship between age and life satisfaction is

only significant for people with lower life satisfaction in very high and high HDI countries. Life satisfaction decreases with age, but a reversal was seen after the age of 60.

7.2.2 Correlates of Life Satisfaction in Asia - Macro level analysis

Globally, HDI explains 63 percent of the variations in life satisfaction. In Asia, HDI by itself explains more than 50 percent of the variance in life satisfaction across countries. In the multivariate context, HDI has far more significant effect on life satisfaction than microsocial variables such as personal dimensions of well-being and elements of happiness.

HDI in Asia ranges from 0.349 in Afghanistan to 0.884 in Japan, while life satisfaction ranges from 4.1 in Afghanistan to 7.7 in Saudi Arabia. Out of the 34 Asian countries⁷, 16 countries have HDI of between 0.490 and 0.669 and these were classified as medium HDI countries. In terms of life satisfaction mean, 14 Asian countries have a mean score of between 4.7 and 7.2 while 10 are in the range of 5.5 and 7.2. As for the 7 countries with high HDI level, the range of life satisfaction is between 5.5 to 6.6, and the other 7 countries with very high HDI level, the range increases from 6.0 to 7.3. There are only 4 countries under the low HDI category and their life satisfaction mean is between 4.1 and 5.3.

In the global context, most of the Asian countries lie in the middle in terms of HDI and life satisfaction. Higher HDI does not guarantee a high life satisfaction. For example, Japan has the highest HDI, followed by Korea and Israel but citizens of these countries are less satisfied with life compared to those from many of the high and medium HDI countries.

⁷ Refer to the analysis in Chapter 6 which sourced data from HDR, 2010.

The three countries which have the highest life satisfaction in Asia are Saudi Arabia, United Arab Emirates (both from high HDI groups) and Israel (from very high HDI group).

Some countries have higher than expected life satisfaction while others have lower than expected life satisfaction, given the level of HDI. Life satisfaction in Saudi Arabia, Turkmenistan and Laos is 21.3 percent, 20.2 percent and 18.1 percent higher than expected life satisfaction. On the contrary, life satisfaction is 20.9 percent lower than expected in Sri Lanka, and 12.0 percent lower than expected in Hong Kong and Kyrgyzstan. While positive contribution may be due to more freedom and choice, happy family life, social interaction and support, good governance and the ability to achieve their life goals; negative contribution are caused by the “kasta” differences, crimes and corruptions, borders insecurities, inter-ethnic tensions and process of transformation into democratic countries.

Apart from HDI, microsocial factors such as personal dimensions of well-being and elements of happiness also affect life satisfaction. Including the personal dimension of wellbeing increases the R^2 from 54.5 percent (with HDI as the only predictor) to 68.3 percent. Even with the inclusion of personal dimensions of well-being and elements of happiness, HDI remain as the strongest determinant to affect life satisfaction. Although personal dimensions of well-being is significant in affecting life satisfaction, the effect is relatively small. Elements of happiness are not significant in affecting life satisfaction.

7.3 Policy Implications

This section discussed the policy implications involving value judgments, which is unavoidable when applying welfare economics in making policy or recommendation (Ng, 1972). Although the discussion of policy implications involve value judgements, it provides a platform to distinguish welfare issues from different perspectives. However, in making policy recommendations, the utilitarian aspects should be given attention. In other words, preference utilitarianism and welfare utilitarianism should be given equal emphasis (Ng, 1981; Ng, 1990).

Human development plays an important role in life satisfaction. Countries with higher HDI tend to have higher life satisfaction than those with lower HDI. However, microsocial factors such as standard of living, good governance, security, social relation and interaction, respect and sense of self-worth are also important correlates of life satisfaction. Hence, it is the ultimate goal of development planning to raise the income and educational level and improve the health status of the citizens to enhance the quality of life of the citizens.

There are also the timeline lag effects which the country need to pay attention to. The country which has low life satisfaction that is due to the adaptation to the new democratic system and in the transition period towards a more 'freedom' society need time to adjust their life satisfaction. Their low life satisfaction is neither due to HDI nor personal well-being or elements of happiness. As far as the time factor is considered, these countries are yet to achieve higher life satisfaction in future. Therefore, government policies must be

targeted appropriately in order to improve the life satisfaction of the people, taking into consideration the new dimension of life satisfaction or well-being.

How do the roles of government affect life satisfaction? Given their importance, what should the state do to enhance life satisfaction of the citizens? Government policies and programmes could have a direct impact on the standard of living which has a direct impact on life satisfaction. In some Asian countries, basic amenities such as public schools, health care services, low cost housing, and financial assistance provided by the state have led to improved standard of living among the poor. This helps to bridge the gap between the rich and the poor in terms of meeting the basic needs of daily living. Besides the provision of free and subsidized goods and services, some countries also provide direct cash assistance to the people. For example, BRIM (Bantuan Rakyat 1 Malaysia – People’s aid 1 Malaysia) is introduced to help the poor and needy. In order to be eligible for the cash assistance, family with household income that is less than RM3,000 will receive RM1200 cash assistance. For the family with household income between RM3000 and RM4000 will receive RM900 aid annually⁸. Cash assistance provides the much needed financial means for low income households. However, there is a saying that “give a man a fish and you feed him for a day, teach a man to fish and you teach him for a life time”. Hence, cash assistance can be considered towards enhancing human capital and employability of the people.

Besides providing cash, those who are in need of help should be given the opportunity to be self-reliant. For example, Grameen Bank in Bangladesh provides not only microfinancing but also equipment loans for agriculture projects, training and at the same time careful supervision and discipline management. Projects of improving the survival skills or

⁸ Sources are from the BRIM website: <http://www.br1m.info/>

vocational training need to be implemented and target for the low income group especially those who do not have a job. While teaching and learning of new skills will take some time, it should still be the top priority. In a nutshell, changing attitude and mind set is the key for the poor to get out from the poverty gap.

Citizens in countries that are facing issues of non-transparency, corruption, inequality, and unstable political conditions are naturally dissatisfied with the government and this affects their overall life satisfaction, especially when the problems are compounded with lack of security and opportunities. Therefore, good governance such as accountability, integrity, equality is needed in order to enhance the life satisfaction. Government needs to be more transparent in the decision making which allows more freedom to expression and access to information, reduces red tapes in administration procedures, open audit report, open advertisement for government position, transparent bidding on development projects and so on. Besides that, government needs to have more frequent monitoring to prevent mismanagement and corruption. Anti-corruption agency is needed to perform the task to combat corruption. This agency must be independent of any political parties and is independent to make its own actions and decisions. Through this agency, public will not only have a place to file the complaints for corruptions, they can also be involved in combating corruption by becoming the whistle blower or witness on corruption cases. The public can also be educated on the corruption issue and be inculcated with integrity since young. All of these will contribute to a more efficient reduction in corruption crimes.

Corruption is a serious crime as it does not only create unfairness or inequality, but results in confidence deficits and impedes economic growth. All these undoubtedly will lead to

frustration, disillusionment, and hence lower life satisfaction. Hence, stern actions must be taken to eliminate corruption. The sentence for corruption should include not only fining upon conviction, it must also be accompanied by imprisonment or canning when the person failed to pay back the fine. Therefore the fine amount need to be large enough to deter the corruption activities. China even took a more serious step in combatting corruption. Anyone who was caught for corruption may be sentenced to death.

People living in democratic countries where they have freedom of expression and freedom of choices tend to be more satisfied with life than those living in autocratic and communist countries. Thus, it is important that people are granted their rights in practicing their freedom of choice as well as freedom of speech. This is especially important for the countries which are experiencing the transformation period such as Myanmar, Vietnam and China.

A country's welfare is not only sole responsibility of the government. Every individual, the civil societies and the private sectors must play their roles to contribute to the welfare of the well-being and life satisfaction. It is thus important for the government to continue the good programmes that improve the welfare of the people and making more efforts to improve the wellbeing of the people by removing bureaucratic inefficiency. Government can have more partnership with private sector not only to create more public goods that generate positive externalities but also to encourage more social corporate responsibilities among the corporate sector to be more responsible for the country's welfare. Besides that, collaboration with non-government organisations (NGO) should be encouraged. NGO involves in many social projects including children care such as orphanage, taking care of

the old folks and many other communities based projects and have more experience and advices which can be referred by the government in decision making. Other than that, collaboration on projects such as public goods especially public infrastructure is important too. This helps to connect the rural area to city centre and bring development to the country. For example, building tar road within Cambodia city or development of highway not only creates easy access for the people travelling to city centre Phnom Penh, it also helps to improve their standard of living and also enhances life satisfaction.

Government policies have direct impact on peoples' life satisfaction. An ineffective policy is a waste of resources and does not help in improving life satisfaction of the people. Government needs to constantly keep and deliver their promises. Fair elections must be held regularly to ensure the rights of the citizens are safeguarded.

Standard of living represents the quality of life the person is living and it covers all basic necessities and needs of a modern life such as living conditions, inflation, working environment, family, friends and social life, freedom to speech, and a fair political system,. Higher standard of living is essential for enhancing life satisfaction. It is one of the most important determinant that affects life satisfaction in Asia, and came up top in 9 out of 28 countries (32.14 percent). Therefore, implementing specific policies that results in the improvement on the various dimensions of standard of living will lead to enhanced well-being and a higher life satisfaction. For example, recreation and exercise programmes that can help to improve the physical health of the people, therapy and counselling projects promoting better mental health can help to improve the quality of life and life satisfaction. Other than that, more basic needs such as clean water treatment is very much needed in

India where more than 80% of the water bodies in India are polluted. Death due to water contamination is taking a serious toll, and it is known as the “quiet killer’ in India. “Globally, an estimated 2,000 children under the age of five die every day from diarrhoea diseases and of these some 1,800 deaths are linked to water, sanitation and hygiene” (UNICEF⁹). This situation needs to be improved and government needs to take instant action to overcome this problem.

The standard of living in Asia is highly affected by climate change, warming, natural disaster, such as earthquake, floods, drought, landslides, typhoon which have caused great misery to the people. These disasters have catastrophic consequences especially on countries like India, Cambodia, Indonesia, Sri Lanka due to their geographical area and monsoon weather. There is a need to set up more crisis relief centres to provide aids such as food and shelter to the victims. There is also a need to educate people on the knowledge of rescue, how to flee for one’s life when disaster attack, first aid knowledge, disaster awareness and emergency management courses.

It is generally believed that higher income is associated with higher life satisfaction. Individuals with higher income are assumed to be happier than the poor, as the latter have to struggle to make ends meet. However, analyses in the preceding chapters show that many other factors are more dominant in explaining the differentials in life satisfaction. Moreover, quantile regression shows that these factors have different effects at different level of life satisfaction.

⁹Unicef press release, dated 22 March 2011. Source from: https://www.unicef.org/media/media_68359.html

Generally, income plays an important role in affecting life satisfaction in Asia although it is not as important as the standard of living and the role of government. The Easterlin paradox theory may not be applicable in the Asian context because income has a positive effect on life satisfaction in most countries in Asia that are still at relatively low level of development. Nevertheless, income effects on life satisfaction is less dominant for people who are more satisfied with life, and more dominant for people who have lower life satisfaction. In other words, an increase in income matters much less for those who have high level of satisfaction.

The Asian Development Bank has launched “Poor Farmer Income Improvement Through Innovation Project” in Indonesia. The project aims to empower the poor farmers by increasing the innovation in agricultural production besides providing information on marketing, project management, village level investment and agricultural development.¹⁰ This can also be adopted by other countries to assist the poor farmers to raise their income level. In this respect, India which has a large number of poor farmers that are in dire need of assistance may consider reinventing or renovate the farmer policies or adopt idea from Indonesia “poor farmer” project, by introducing proper irrigation system, efficient stocks and crops management with up to date weather forecast to reduce the income stress of the farmer to improve life satisfaction.

Poverty eradication is one of the main goals of Millennium Development Goals and the objective of International Conference on Population and Development. The respective country must recognise the urgency of poverty eradication and make afford to lift their citizens out of poverty by embarking on poverty eradication programmes. Strengthening the economy is crucial to combat poverty. Government needs to revamp and reconstruct the

¹⁰<https://www.adb.org/projects/34112-013/main#project-overview>

economy carefully especially for countries that lacking resources. Policies adopted by other countries such as: micro credits, school meals, rural banking, job creation, provision of training centers may be good models for other countries to emulate, according to the country's culture and needs.

Marriage is another important determinant of life satisfaction in Asia. Married people in Asia are more satisfied than single people; however, those who are divorced or separated in medium and low HDI countries have lower life satisfaction. People in more developed and high HDI countries such as Japan, Singapore, South Korea and Hong Kong are not affected by separation or divorce where separation or divorce shows insignificant effect on life satisfaction. Even though Asian family values and culture of marriage are strong in the Eastern society, when a marriage falls apart, the effects are less prominent in the more developed countries. This shows that marriage institution is not as important in these countries as people tend to be less concerned whether they are divorced or separated. Set point theory and hedonic adaptation theory, which explains why those who experienced shock (tragedy, accidents or bad experiences) will resume their former level does not apply in most low income Asian countries. Divorce, separation or being widowed creates dissatisfaction for people and it is the second or third important determinant adversely affecting life satisfaction for countries such as Bangladesh, Malaysia, Maldives, Taiwan and Uzbekistan. Nevertheless, the theory of hedonic adaptation and set point theory point out that time is a key factor in resuming back to former levels.

Marriage used to be universal in Asia but there are indications of a rising trend in delayed and non-marriage. Women empowerment with rising education and female labour force participation in the modern sector are among the factors contributing to low marriage in Asia society. This directly contributed to the decline in fertility for many Asia countries especially Japan, Singapore, China, Korea and of late Thailand which are facing serious aging issue. Policies and programs to promote marriage may contribute to raise life satisfaction, they will also help to raise the fertility level and ameliorate population aging. In view of this, Singapore has introduced direct government involvement in matchmaking, Japanese government has launched dating services and even China has many TV dating shows like “if you are the one” for match making.

Many Asian countries have specific ministries and agencies such as the Ministry of Women and Family, Social Welfare Department to take charge of matters relating to the families and social welfare. These agencies should play an active role in promoting family life not only in encouraging marriage but also provides marriage counselling courses and guidance for the newlyweds. Asian culture also places great emphasis on family values. Therefore, policies that are formulated to enhance life satisfaction should also be geared towards strengthening the family institution. Special programs can be implemented to foster family interaction and bonding.

Some of the socio-demographic variables are not significant in affecting life satisfaction in Asia. Age, which was reported to have U-shape relationship with life satisfaction, is only significant in explaining life satisfaction in Central and West Asia and it is not a significant factor in life satisfaction in other regions in Asia. It does not show much difference in the

distribution of life satisfaction either. Gender is also not an important factor that affects life satisfaction, except in countries in the Central and West Asian region such as Afghanistan, Kyrgyzstan, Turkmenistan and Uzbekistan, and is more prominent at lower quantiles in the medium and low HDI countries. For the countries where women's life satisfaction is reported to be lower than that of the men, especially in the Central & West Asia, the Gender Inequality index is more than 0.5 indicating a low level of gender empowerment (Human Development Report). Hence, there is a need for women in these countries to have access to higher education and job opportunities besides fundamental changes in the social system to bring about gender equality. They need to be encouraged to participate more actively in economic, social and political sector. Projects which involve economic opportunities, improving women's rights and securities, promoting women's participation in political and public life are strongly encouraged and this is currently on going by The Asia Foundation.

Education is important in affecting life satisfaction across all regions in Asia; but having higher education does not necessarily lead to higher life satisfaction. Higher education brings positive effect when it creates opportunity or enables individuals from the low income group to move out from poverty. However, higher education can also cause negative effect on life satisfaction when the high education cost becomes a burden to a family when it is struggling to meet the basic needs of daily living. In addition to that, the more developed country such as Japan and South Korea, having higher education has no significant effect on life satisfaction. This is mainly due to the easy access of education in developed countries which diminishes the education role of mitigating poor income group to high income group. Thus, not much effect on life satisfaction can be expected from the

education determinant. Subsequently, when education is analysed in the distribution of life satisfaction, it has no significant impact on life satisfaction from the least satisfied to the most satisfied.

Education also has indirect effect in helping the poor to move out from poverty where education helps to deliver knowledge and skills and thus making the poor income group to be competitive and secure better job opportunity and increase their income earnings. Although most of the Asian countries have seen rising level of education, the literacy rate is still low in some countries, especially in South Asia where Bangladesh and Nepal reported the literacy rate of about 60%. For the countries where child labour issues exist which deter their opportunity of schooling, government may need to consider the law enforcement or subsidies to aid the family in order to allow the children their rights and opportunities of education. Besides improving on the existing education policies to encourage enrolment of students, policies should also focus on job training, soft skills training and technical skills enhancement to improve the productivity of the workers.

As for employment, the effects are either small or insignificant, and it affects life satisfaction in both positive and negative ways. Being employed guarantee a job, an income and a better living, which will increase life satisfaction. Having job but the fear of losing it may also create the negative effect on life satisfaction. On the contrary, those who are unemployed will be more satisfied with life, as they have nothing to lose or to fear for. Being employed does not automatically result in higher life satisfaction as there are other factors that need consideration such as mismatch of job, passion on job, working environment, expectations on job versus reality, fair treatment and many more. However,

countries such as Kazakhstan and Kyrgyzstan which experienced unemployment rate between 7 percent to 8 percent in 2009 showed positive significant effect from employment. Being employed brings not only income but also security to a household and in a way generates higher life satisfaction for the people. Therefore, job agency needs to play an active role in matching the job for the people which includes advertising it on social media, as well as collaboration with government to gain information for any jobs opportunities. Besides working for others, the government can promote more entrepreneur projects especially for the young generation to get involve in the market. This not only solves the unemployment issue and it also helps the country to have higher economy growth.

Besides that, a person who enjoys the work or not will also has effect on life satisfaction. For those who work with passion, they tend to have higher life satisfaction. Other than this, workers or employees who are appreciated in a company, have more motivation to contribute to their work and only life satisfaction but also their productivity. Good relationship with colleagues, less political practice and other factors that contribute to the enjoyment of work tend to improve the person's life satisfaction. Companies either private or government sectors are encouraged to enhance the life satisfaction of their employee through various appreciation activities such as appreciation night or recreational activities to allow the employee to have more bonding time and build healthy relationship. Thus, the political competition issues can be reduced and better working environment can be created.

Policies and programs that can enhance the satisfaction in personal dimensions of well-being, which relates to the satisfaction in job, personal health and standard of living should be implemented. Favourable working environment, together with reward and recognition are the main factors that boost job satisfaction. Health awareness programme needs to be implemented to enable the public to acquire the basic knowledge on how to maintain a healthy life style.

Having social support network especially between family and friends that involves interacting and socialising with people is important for life satisfaction. Although each individual has different personality and character, every individual needs the sense of belonging and support from the social group in order to have greater life satisfaction. Thus, family values and friendship need to be cultivated in the early stage of children in order to set them in the correct path in search of happiness and a more satisfied life in future.

Policy implementation should not focus only on the average end results, but also needs to consider the varieties of the distribution on life satisfaction. This is because the factors that affect life satisfaction will vary across the least satisfied to the most satisfied, and will lead to adopting different policies for different groups of people to enhance life satisfaction and well-being of the citizens. This is because the correlates of life satisfaction differ in nature and strength for different groups of people, ranging from those who are least satisfied with life to those who are most satisfied and from those who reside in medium and low HDI countries to those in very high and high HDI countries. Hence, the adoption of different policies for different groups of people based upon such empirical findings could improve the efficacy of life satisfaction-enhancing policies rather than a “one size fits all” approach.

When the differences are identified, adopting wrong and ineffective policies can be avoided and this enables the country to improve the standard of living, giving people a higher level of life satisfaction or well-being. A more accurate measure of correlates and components of life satisfaction can be established so that policy makers can adopt appropriate policies to improve the well-being and happiness of the people, thus creating a united, progressive, harmonious, and peaceful society. Analysis of life satisfaction at the individual level provides a platform for a better understanding of what people really need and care about in their current life situations and sets a path on how to improve on that.

Given that life satisfaction is a goal for the country, structural formation may be needed especially in public finance. The policies and programs incur costs and benefits. When one side of well-being is improved, the other side of cost is rising. Government needs to be careful in the implementation of policies after weighting the cost to achieve it besides ensuring the efficiency of resource allocation. In order to improve well-being of the disadvantaged groups, it may be necessary for the haves to contribute more through taxation for the government to implement the various policies and programs.

7.4 Contributions of the Study

Most of the well-being studies were conducted in and on western countries. This is one of the few studies that examine the correlates of life satisfaction in Asia. There are vast differences between East and West including demographic, culture and history thus what contributes to an individual life satisfaction may differ too. Besides that, this study has

examined a wider range of factors of life satisfaction, that included social elements (personal dimensions of well-being and elements of happiness) in the analysis. Thus, this study not only complement but also supplement previous studies to give a more complete picture of the world's life satisfaction in Asia.

Apart from that, the study also contributes to the literature on life satisfaction in Asia according to distribution of life satisfaction using quantile regression. Correlates that affect people who are most satisfied with life may be different to those who are least satisfied with life. This contributes to inform policy makers in identifying the variation of well-being more precisely rather than taking the average of the life satisfaction. Appropriate policies can be adapted to target on specific group especially the group which is least satisfied with life. This can avoid excessive use or waste of resources where a wrong or ineffective policy does not help in improving life satisfaction of the people in Asia. Besides that, quantile regression method which covers people with different levels of satisfaction can be applicable on other welfare studies too. It provides a clearer perspective and differentiates the analyses from the highest distribution to the lowest distribution.

The 2010 HDR report provides the data for an analysis of the linkage between HDI and life satisfaction at the country level. HDI is a better measure than GDP per capita or economic growth, as it encompasses economic, health and educational dimensions. While HDI has been used to rank country in terms of development since 1990, no research has been done to link HDI and life satisfaction at the global level and for Asia as a whole. This thesis has demonstrated that HDI is by far the most influential determinant in explaining life satisfaction at the country level. Generally citizens from high HDI countries are happier

than those from low HDI countries. However, there are countries that fare better or worse in life satisfaction, given their level of HDI. The thesis has also provided some exploration of the reasons for the paradoxes.

7.5 Specific Recommendations

This section provides some recommendations for the consideration of policy makers to implement programs to improve life satisfaction of the citizens. Based on the findings from this thesis, there is an urgent need to enhance the role of government and improve governance. In order to improve life satisfaction, policies that are good and help to improve welfare of the people need to be continued and expanded. Government need to support NGOs especially in the provision of welfare services for them to play a more effective role. On the other hand, the ineffective programs must be discontinued or revised. Concerted efforts must be made to get rid of corruption, and promote transparency, fairness, and freedom of choice and speech as well as other human rights.

It has always been the goal of the government to improve the standard of living. Each country should give emphasis on those aspects that are most lacking and amenable to policy intervention. For instance, the provision of public goods and services, low cost housing, welfare services and cash assistance to the disadvantaged will undoubtedly lead to better standard of living which in turn enhance life satisfaction.

In view of the rising problems of depression and mental disorders, preventive strategies are important in dealing with the mentioned issues along with increasing the counselling or talks to brief people on what is depression? What are the symptoms of depressions? How to take care a depression family member or friends and many more? This would allow more people to be aware of the rising issues and take cautious steps to improve not only physical health but also mental health. On top of that, more counsellors should also be trained and more hotlines for counselling should be readily available.

Marriage has been found to lead to higher life satisfaction. Therefore, there is a need for more efforts in promoting marriage and family life. This requires collaboration not only from public but also private sector to ensure its success. While marriage increases life satisfaction, divorce or separation brings dissatisfaction. More counselling units or courses related to marriage are strongly encouraged.

The government should work in partnership with private sector to create more jobs and provide employment opportunities. It can also encourage more entrepreneurship and small medium industries to involve not only in job creation but promote economic growth of the country. However, there is a need to consider work-life balance where employees should be given sufficient time to interact with family and friends. Many workers are working long hours where this can be stressful and it prevents people from their social life and engaging in the activities they like. Hence, there is a need to foster work-life balance among the workers. Workers also need to be trained to do the work more efficiently in order to have more spare time. While it is the aim of all governments to raise the educational level, the education system must be market driven to ensure the employability of the graduates.

Women play an important role in the family and society. Efforts must be made to strive for gender equality, and to facilitate the women to combine their roles in the family and the work place.

There is a need to foster social interaction, support and networking. This can be done through community participation in various activities. Social media can also be used more effectively as an alternative means for interaction and networking. The family unit must be strengthened through various programs and activities. The culture of filial piety needs to be fostered. There is also a need to inculcate the culture of peace, kindness and respect for others.

Research on the wellbeing of the various sub-groups of the population must be accorded high priority in the research agenda, with the collect of data regularly. More comprehensive surveys which examine a country's life satisfaction from a broader perspective of macroeconomics, cultural, geographical and political perspectives need to be conducted. Longitudinal and panel study of three to five years is suggested where more in-depth analysis can be conducted. There is a need for further analysis of available data and utilization of research findings. Appropriate techniques must be used in the data analysis to provide more focused recommendations to policy makers.

7.6 Limitations of the Study and Further Research

This thesis is based on analysis of secondary data from Asia Barometer and the Gallup survey data (reported in the 2010 HDR), and hence the analysis is constrained by what has been collected in the surveys. The sample size for the Barometer Survey is only about 1,000 respondents per country, and this is relatively small for more precise estimation and analysis at the sub-national level. In the country level analysis using data from HDR, it is not possible to test the relative income hypothesis. Data on environment pollution and health from ERHNI (Environmentally Responsible Happy Nation Index) can be referred for further studies. There is a need to consider the imperfect rationality in future study. Economist tend to assume that individuals behaved rationally but Kahneman (2011) suggested that various heuristic behaviours¹¹ can caused irrationality which brought counter intuitive decisions.

¹¹ Heuristic behavior includes: Priming, cognitive ease, coherent stories, confirmation bias and more which can be found in Kahneman (2011) 'Thinking Fast and Slow'.

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LIST OF PUBLICATIONS AND PAPERS PRESENTED

Part of the findings of the research has been published in the following journal:

1. Ngoo, Y. T., Tey, N. P., & Tan, E. C. (2015). Determinants of life satisfaction in Asia. *Social Indicators Research*, 124(1), 141-156.

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