Socio Economic Determinants of Happiness

A Panel Study

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In The Name Of Allah, The Most Beneficent, The Most Merciful.

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“Dedicated to loving and living memories of my father”

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ABSTRACT

In this study we explore the determinants of happiness as well as analyze its relationship with economics, social matters and family factors with respect to policies. The gist of happiness can be assessed with stages of income levels of the nations and also with reference to different types of other variables that determine the behaviours of individuals directly or indirectly. We construct indices for Happiness, Economic, Social, Demographic, Environmental and Governance indicators through Principal Component Analysis (PCA). We compare the level of happiness among countries in different income categories that is, low income, low middle income, high middle income, and high income categories according to World Bank classification. The empirical investigation uses panel data of 56 countries for three waves of *WVS* for the years 1994, 1999 and 2004. The *PCA* is used to construct indices. For empirical investigation we used OLS, Pooled Regression model with common and Fixed Effect model and then GMM. We explored different level of happiness for all income categories. We have found that the correlates of happiness for different categories of income affect differently.

CHAPTER 1

INTRODUCTION

The American Colonies' Declaration of Independence takes it as a self-evident truth: the "pursuit of happiness" is an "inalienable right" comparable to life and liberty. In the late 1980s, Bhutan eloquently elucidated: "Gross National Happiness," as the principle guiding force by its fourth king, Jigme Singye.

1.1 WHY WE STUDY HAPPINESS?

Everyone has a number of goals during one's life span but the ultimate goal of life is happiness, as numerous authors argue (Frey and Stutzer, 2002). Undeniably, each one of us is in the pursuit of happiness. In economics, income is looked at as a suitable proxy for human welfare, although it is an incomplete proxy for eternity. Over time, the research on happiness claims that reported subjective wellbeing is a fitter measure instead of income for welfare. In psychology, individuals evaluate the degree of their experience that affects them positively or negatively. Psychologists, therefore, use a scientific term for explaining it. They call it: "Reported subjective wellbeing." There is a process to evaluate the extent to which one experiences ups and downs in one's life that affect happiness either directly or indirectly. The happiness, life satisfaction and subjective wellbeing are constructs used separately and connote precisely. But generally, these terminologies, such as life satisfaction, happiness and wellbeing are used equivalently in the literature (Frey, 2008 and Easterlin, 2001).

The idea of subjective wellbeing provides basis for a better insight into human wellbeing. Sound basis facilitates testing proposition and fundamental assumption of economic theory pertaining to human behaviour**.** The principle of utility is the foundation of the present work but it is important to explain happiness explicitly and know its meanings precisely at the outset. The principle of utility means the principle that either endorses or censures every action and reaction. This principle inclines to enhance or fade the happiness of those individuals whose interest is in question. In other words, the principle of utility focuses on those things that either augment happiness or decrease it among human beings. It not only refers just to the private actions or behaviours of individuals but it also captures the actions of every measure of government. Basically, utility is the property that leans to generate benefits, happiness, advantages, gains, goods or pleasure for the stakeholders. Conversely, it saves individuals from pain, discomfort, evil, dissatisfaction or unhappiness. If we are concerned with the happiness of society as a whole, then it translates into the happiness of the entire community, otherwise it would be considered as the happiness for an individual.

For the last few decades, there has been a growing concern about the definition of happiness. It has been suggested that utility should be defined in terms of happiness in economics. It has also been claimed that utility could be and should be measured. The whole advancement has been stimulated by a growing plethora of evidence based on real life observations and experimental inferences collected from laboratories. According to psychological analysis, consumers might not behave rationally for their consumption decisions for the lack of information on the available

choices. In revealed preferences theory, however, people are assumed to be well informed and to roughly discount their future also. Moreover, the subjectivity of utility theory provides the solid grounds to economists for having a better insight and studying individuals' wellbeing. Simply put, the *Subjective Wellbeing (SWB)* is an extensive concept as compared to the decision about utility. The experienced utility and procedural utility are included in *SWB*. The procedural utility is derived from the ordinary acts of engaging others in activities they prefer, while the individuals' experiences related to consumption or the events that occurred in the past are treated as experienced utility. That is why, more or less, everyone considers happiness as an ultimate goal of life. The fact of the matter is that we do not want anything else besides just giving us the possibility of making us happier (Powdthavee, 2007).

1.2 RATIONALE OF STUDY

There are various invaluable reasons for conducting research on happiness that economists could benefit from, in many ways. The bases of economic theories are behaviours of individuals that determine their choice bundles, preferences, and relative decision. Simply, economics is always concerned with the objective of maximization either some criterion function for consumer or producer. The primary and ultimate objective of individuals' lives revolves around the attainment of their own happiness. But the questions that need to be addressed are: in what manner productivity, population growth, unemployment, illiteracy, disparity, inflation, social evils and other institutional factors relating to governance and environmental degradation affect individuals' happiness?

Although happiness is considered as a universal human aspiration but to define and explain happiness is much tricky. Happiness has become impossible to pursue with gaining material possessions only. The Gross Domestic Product is often used as a proxy for measuring the wellbeing of individuals in a common paradigm. It has been mentioned by many that Gross Domestic Product takes no notice of the environmental factors that are prevailing in numerous countries of the world. It also closes eyes from those variations of wealth that are creating difference among poor and rich and all other elements which are influencing the individuals' happiness *e.g.* personal safety, public relations and psychological health (Fleurbaey, 2009, Layard, 2005, Dusgupta, 2001, Anheier *et al*., 2004). The myopic concept of happiness focuses only on economic growth that leads to an unsustainable way of life, whereas in reality individuals' happiness may get affected by their relations, environment and all other social and economic factors.

There are a plenty of intangible factors that can affect the wellbeing of individuals (McAllister, 2005). The immaterial factors consist of personal relations that affect the wellbeing (Helliwell and Putnam, 2004). The employment status also affects the satisfaction level of individuals (Layard, 2005). Layard (2002) also highlighted seven other factors that affect the level of happiness. The other important non-material factors are demographic and situational factors that emerge while analysing wellbeing (Hoorn, 2007). Helliwell (2002) uses multivariate regression to analyse the data of world values survey for 46 countries. The study concluded that there exist a strong and positive relationship between education and overall life satisfaction. This relationship disappeared, however, with the inclusion of individual and state variables. The importance of relative income was studied by Ferrer-i-Carbonell (2005). According to him, the

income of others is as important as our own while comparing ourselves with others. So reference group income and happiness of individuals have strong relationship. But Strulik, (2008) contradicts the Ferrer's (2005) results that the comparison with income of reference group is a weak determinant of happiness. The loss in wealth is less influential on happiness of those individuals who compare themselves with others than those who do not compare whatsoever. This implies that overall happiness would not change if income multiplies for several times (Layard, 2003). It means one time comparison between rich and poor may show that rich are happier than poor but this would hold for the time series data. Frey and Stutzer (2003) found that demographic and personality factors also affect happiness. The personal characteristics of individuals include education, marital status, age, gender, etc. According to the study among the same nation happiness does not increase with the increase of income among the same nation. But empirically, the happiness of individuals and per capita income are highly correlated across nation.

The evolving significance of happiness has encouraged social scientists to analyse human behaviour through different aspects of happiness. In the neoclassical economics, utility theory explains the level of utility (happiness) which one can directly obtain through the consumption of goods and services. According to economic theory, wellbeing is derived from the satisfaction of individuals' wants based on their preferences to become happy. The economics of happiness is an approach to assess welfare comprehensively. Self-reported surveys on wellbeing have long been used by psychologists to study happiness but economists ventured this arena recently. Early economists, Aristotle to Bentham and psychologists, Mill and Smith integrated the pursuits of happiness. More parsimonious definition of welfare evolved when economics grew rigorously.

Everyone is in pursuit of happiness that evolves in the realms of economics, psychology, and sociology. Initially, the economists dilated on happiness considering it their domain. It is just a half century back when the measurements of wellbeing, happiness or subjective wellbeing were introduced through self-reported surveys (2500 references by Veenhoven, 1993). There are plenty of notions for SWB that have been used by many studies. These notions are feeling of joy, absence of unpleasant emotions and dissatisfaction etc., generally these relate to wellbeing, individuals' happiness, overall life satisfaction or welfare and sometimes utility, which are interchangeable concepts. But there is an emerging concern in different studies regarding the subjectivity of happiness. This subjectivity depends upon the quality of life and standard of living (Elster and Romer, 1991, 1996, Blundell *et al.*, 1994).

The basic assumption in standard microeconomic theory is the rationality of individuals and their well-defined preferences. They work harder and harder to relax their budget constraints for the higher level of life satisfaction which leads to ultimate objective of happiness. It is important to ensure that this field of research depends mainly on empirical analysis rather than basic economic theories only. So the results of this research could be used in policies for the welfare of communities and nations. It is not only important for social policies but also for economic policies and has a very positive role while making public policies through the governmental institutions. The ideal world of happiness in one's life is surrounded by political scenarios, health facilities, quality of environment, economic and social securities, migration decisions, community policies, and family economics. These relationships are explained in Figure1.1.

1.3 OBJECTIVEOF STUDY

The foregoing discussion suggests that the available literature does not depict clearly the nature of relationship between happiness and other important variables at the micro level. Social variables including environmental factors have not been addressed comprehensively. One reason for the lack of clarity could be that attention has generally remained focused on examining the aggregate relationships. Therefore, there is a need to further explore all relevant variables methodically and comprehensively. For example, the happiness research has generally been based on surveys that ask, more or less, one pertinent question and judge overall happiness of individuals based on the answers as to what degree of happiness they were able to attain. In this study of happiness, our data source for happiness questions is World Value Survey (*WVS)*. The main data source of correlates of happiness is World Development Indicator *(WDI)*; however some of variables are taken from some other data sources for instance total crime from United Nations Office on Drugs and Crime *(UNODC)*, economic freedom from Economic Freedom Network, ecological footprint from Global Footprint Network and governance index from International Country Risk Guide *(ICRG)*. The gist of happiness can be assessed with stages of income levels of the nations and also with reference to different types of other variables that determine the behaviours of individuals directly or indirectly. Moreover, it should also be examined whether happiness can be related to good governance and public policies, such as environmental, social, and demographic policies for different countries. Similarly, it is important to determine as to whether such public policies relating to happiness is function effectively in developing as well as developed nations or they remain ineffective when it comes to implementing or practicing them.

Figure 1.1: IDEAL WORLD OF HAPPINESS

The primary objective of this thesis is to define happiness comprehensively as well as to analyse the relationship of policies related to economics, social matters and family factors on happiness. The specific objectives are as follow.

I. To construct indexes for Happiness, Economic, Social, Demographic, Environmental and Governance indicators through Principal Component Analysis (PCA).

II. To analyse and compare the level of happiness among countries in different income categories that is, low income, low middle income, high middle income, and high income categories according to World Bank classification.

III. To empirically estimate step by step cross-country analysis of economic, social, environmental, demographic and governance variables with happiness for each wave.

a) Happiness and economic variables.

b) Happiness and Social dynamics.

c) Happiness and Environmental factors.

d) Happiness and Demographic Issues.

e) Happiness and Governance concerns.

1.4 METHODOLGY

The empirical investigation uses panel data of 56 countries for three waves of *WVS* for the years 1994, 1999 and 2004. The *PCA* is used to construct indexes. Then we conduct the pool estimation for fixed effects model and for pooled regression model. Moreover, a dynamic panel model is used based on the Generalized Method of Moment (GMM) for one of our happiness indexes. That tackles the problem of endogeneity by the GMM methodology. It takes into account the time series dimension of data, non-observable country specific effects, and the inclusion of lagged dependent variables among the explanatory variables. There could be a possibility that all explanatory variables are endogenous.

CHAPTER 2

FRAME WORK OFANALYSIS

This thesis is organized as follows. Chapter 3, the literature review, is divided into six major sections with some sub sections, in an attempt to cover broad literature in the context of happiness. We divided this chapter in a way to capture all the developments that were made, over time, in the form of research on happiness. After discussing the concepts of happiness (section 3.1), we move on to psychologists' work (3.2.1) and then economists (3.2.2) under the sub-title of historical background (3.2). The very next section (3.3) explains methods that can be applied to measure happiness in a more technical detail. The methods of measurement, which are usually applied for empirical analysis of happiness, are explained in another section (3.4). The shortcomings of all the existing methodologies are discussed briefly in section 3.5. The empirical findings on happiness both from developed and developing countries is presented in section 3.6 that incorporates the role of happiness in different dimensions. The last section (3.7) of this chapter explains the links of happiness with economic variables.

Chapter 4 is assigned to the construction of happiness indices. There was an imperative need to explain happiness in a broader sense. We have, therefore, chosen 54 questions in regards to the state of happiness under ten different headings depending upon the varied behaviours of individuals (section, 4.1). A comprehensive discussion is presented in section 4.2 on the selection of questions that are expected to generate happiness in one's life. The detailed methodology of *PCA* is explained in section 4.3 of this chapter. The empirical results of

constructed happiness indices are examined in the section 4.4 and all the empirics of 10 happiness indices with respect to three income groups are explained graphically for the three waves of *WVS*.

Our concern is not only to deal the large dataset but also to consider other factors that affect happiness either economically, socially, biologically, etc. There are a number of studies that correlate the *SWB* with personality factors that indicate the interests of psychologists. Happiness with certain aspects of *SWB*: relational happiness, good health, enjoyment at job, fresh environment, stable economic status, economic freedom as well as love for homeland, etc. are important to understand SWB of everyone. In order to highlight this aspect, we devoted the entire chapter 5 for the "*Correlates of Happiness"*. This chapter has six major sections that encompass of some sub sections too. Section 5.1 introduces the chapter 5 while the section 5.2 explains theoretical methodology based on the simple utility function. It further explains how happiness is linked with simple utility function and this utility captures the other factors that affect happiness explicitly or implicitly. These affects are comprised of both private and public actions that produce benefits, advantages as well as anxieties. Pleasures, depressions, and happiness that are generated out of these actions for individuals themselves or for others are also looked at. Happiness depends upon both market goods and non-market goods whether tangible or intangible (trust, emotions, feeling of pain etc.). This study defines data on all explanatory indices in section 5.3. This section explains the selection of all the variables under five different indices that may affect happiness by individuals' behaviours and responses. The five explanatory indices are: Economic Index; Social Index; Demographic Index; Environmental Index; and Governance Index.

This study contributes to literature through defining happiness in ten different ways. Secondly, it also captures important variables that may affect one's happiness. The economic index consists of possible economic factors that can be related individuals' happiness. The selection of these variables under economic index is quite important as for as economics of happiness is concerned. Income increase connotes different meanings at nation level and at the individual level, as per the available literature on the subject. Though our primary focus is on the economics of happiness but it is not an isolated phenomenon that can be separated from the effects of other non-economic factors. Our second index pertains to demography and includes four demographic variables. These variables depict the health behaviors (life expectancy, fertility rate) and developmental process (urbanizations) as it correlates to happiness. Previous studies show strong relationship between SWB and physical plus psychological health. The indirect relationship of education on SWB through health has been observed by many studies on different datasets of the developed world (Bukenya, Gebremedhin, and Schaeffer, 2003 and Gerdtham and Johannesson, 2001).

Most of the work done by researchers remains focused on either economic factors or personal characteristics of individuals. The human actions, especially societal actions and reactions that determine the economic stability and good governance are usually not included in such researches. We, therefore, construct a social index that captured the maximal problems related to human conducts. Detailed explanation of this index is given in section 5.3.1.4. The environment and human activities are correlated since the birth of each individual but this interaction remains

out of sight of most of the researchers. To the best of our knowledge, this study considers for the first time four environmental factors that may affect happiness. This factor may be valued for the contribution this study makes in the existing literature on happiness. How we collected and maintained these variables is discussed in section 5.3.1.2 briefly.

The pursuit of happiness becomes a primary concern of individuals but how to attain and maintain happiness is treated as trivia. Without the interference of government and implementation of public policy, it is almost impossible to achieve happiness. The variables include like developmental characteristics, personal traits, work choices, religious activities, and reactionary attitude are based on public policies that mainly pertain to governmental aspects. One of the important correlate of happiness, therefore, is named as governance index based on ICRG data.

For empirical investigation this study uses panel data of 56 countries for the three waves of *WVS*. Section 5.4 consists of estimation procedure of this study. The study analyzes aggregate data for each wave through OLS technique. Additionally, we estimate the pooled regression model and for fixed effects model. The detailed methodology of fixed effect is given in this section with the mentioning of null and alternative hypothesis based upon the time invariant and income invariant effects. In this section, we also interpret our estimated results. These results are also justified with the past findings available in the literature. Two of the happiness indices face the problem of endogeneity, to tackles this problem we use the Generalized Method of Moment (GMM) for dynamic panel model in section 5.6.

Chapter 6 summarizes the whole discussion and draws some policy implications based upon our findings. The findings of this study may help the researcher and perhaps the policy makers whilst designing and analyzing public policy. For researchers, it may provide a new avenue for research in this arena. And for policy institutions it may work as a vehicle of awareness and provide direction to impacts of income, personal relationships, health, development, and environment on happiness.

CHAPTER 3

LITRATURE REVIEW

3.1 Concept of happiness

What is happiness? This question is probably as old as mankind itself. But economists do not even like this question due to its ambiguous nature. Sometimes, it is questioned as to what is the nature of happiness. It is also explored as to what are its conditions, experience and determinants. Or how it might be attained in terms of adequate income, having satisfying personal relationships, significant work, etc. There has certainly not been any consensus on the meanings of happiness. Its meanings are different for different individuals. It is open for everyone to define happiness. One of the ancient philosophers, Marcus Aurelius (*Roman Emperor,* 121-180) concluded that there are a very few things which make life happy. He says:

"*The happiness of your life depends upon the quality of your thoughts, therefore, guard accordingly; and take care that you* entertain *no notions unsuitable to virtue, and reasonable nature".*

Some individuals consider that the ultimate goal is nothing more than attaining happiness. But this idea about happiness is also disputed. For some theorists, it is not necessary that the only gaol in one's life is happiness. In accordance with the theory of Social Production Function, there are two main ultimate goals in everyone's life that all human beings seek to optimize (Lindenberg and Frey, 1993, Lindenberg 1986, 1990). The two gaols in one's life are social and physical well beings that depend upon behavioural confirmation, social status, stimulation,

affection and comforts. These five instruments measure those affect that influence ultimate gaols of one's life.

Responsibility, personal growth, purpose of life, suitable environment for everyone, self-directedness, and loyalty to other peoples are some of the values that are considered as most important for happiness (Ryff, 1989 and Lane, 2000). A number of experimental studies have attempted to detect the possible effect of positive and negative moods, emotions and feelings on happiness. This experimental literature also points out moods, feelings and emotions that effect decision making of individuals (Lyubomirsky, King, and Diener, 2005, Isen, 2000, Hermalin and Isen, 1999). The minor changes in the level of happiness may influence the thoughts of individuals on daily basis and positive affect of these changes accelerate individuals' and they are motived to help others. Those who are found to be happier have more pleasure and they also pay less psychic cost related to others (Isen and Levin, 1972). Happier people are found to be more creative. The degree of creativity influence by individual personal level of happiness. (Isen, Daubman, and Nowicki, 1987).

The American Colonies' Declaration of Independence takes it as a self-evident truth that the "pursuit of happiness" is an "inalienable right" comparable to life and liberty. The "Gross National Happiness" is considered as the principle driving force in Bhutan by its fourth king, Jigme Singye Wangchuck in the late 1980s (Ura and Galay 2004). This discussion concludes that all influences on life (and even afterlife) are inclusive in the notion of happiness, therefore, all that we do is pursuing for happiness. The secret motive for the most of individuals at all times is based on three key focal points: how to gain happiness, how to retain it, and how to recover if

lost (James, 1902). As in regards to the conceptual meaning, happiness is a presumed component of good life. It can mean all positive emotions, a meaningful life, pleasure, or a feeling of contentment, life satisfaction etc. In the broader concept, happiness is the state of being satisfied with one's life (Graham, 2004, Diener and Seligman 2004, Frey and Stutzer, 1999b). According to Rode (2008), simply happiness is considered in terms of two different magnitudes that are eudemonia and hedonistic notions. Happiness is defined by those effects that are positive in nature and also the absence of negative effects that lessen happiness. According to hedonistic notion happiness is defined as those effects which are positive and also the absence of negative one. But the eudemonia belief based on degree at which one is satisfy with his/ her life. Hedonic wellbeing deals with the experience of pleasure versus displeasure. It includes all judgments on the good and bad aspects of life. Well-being is not only reduced to physical hedonism, but also refers to the pleasure reaped from attainment of goals or valued outcomes in various other areas. In psychology, the researchers consider subjective wellbeing in three main areas: the occurrence of an affirmative mood, the lack of bad mood and, most important, life satisfaction.

Aristotle explains that individuals follow their desires slavishly because hedonic wellbeing is vulgar in nature. It means not all outcomes that anyone values yield wellbeing when he/she actually attains it. Apparently, they may produce happiness or they may be satisfied but some outcomes might not be "good" for someone else, therefore, hedonic wellbeing should not be identified with happiness. In contrast of hedonism, the eudemonia move guides the individuals to live for their own "daimon" (true self). Eudemonia phase occurs when people act in correspondence with deeply held values and are also fully engaged with them. Then, people experience what it is to be intensely alive and to be who they really are, which has been called

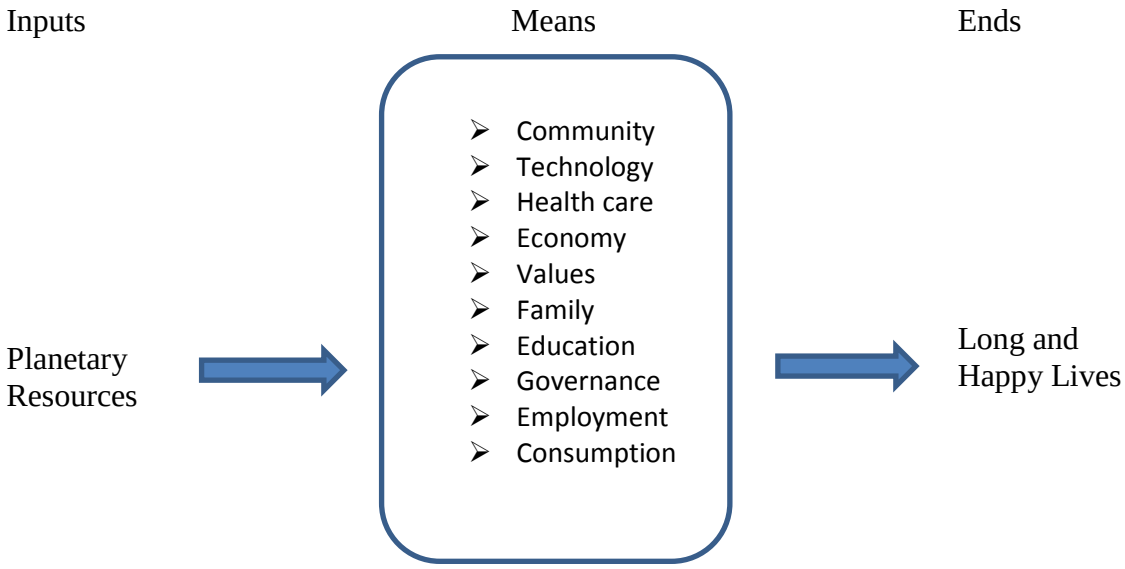
personal expressiveness (Waterman, 1993). It is closely associated with being challenged and making an effort, with personal growth and development. The derivative of good life (eudaimonia) is happiness as illustrated by Aristotle to produce satisfaction for the longer period of time. It is impossible to accomplish sustainable happiness for those who are trying to achieve it in purposive way. The advanced theory tells us that humans are unable to evolve happiness but they are able to survive and breed from their self (Rayo and Becker 2007; Camerer 2007; Camerer, Loewenstein, and Prelec 2004). Extensively, happiness is considered as an important aspiration in individuals life that everyone want to attain in almost each attribute of their lives during lifecycles "*Happiness research in economics takes reported subjective wellbeing as a proxy measure for utility"* (Frey and Stutzer 2002, 2004, 2005).

Several perceptions of happiness that depends upon economic, social, psychological or policy makers' perspectives are in used. But by the standard economic theory ordinal utility has been viewed as "unscientific" because of unobservable objectivity. On the other side the cardinal utility can not to be trusted of personal wellbeing. As cardinal utility measures those factors that based on tangible goods and services. Traditional work on utility theory has used an axiomatic approach, employing the techniques of revealed preference and cardinal utility to measure individual level of utility and social welfare (Slesnick, 1998).

By the years, however, there has been huge literature that make questioning on the validity of this axiomatic approach. Namely, even though utility is a subjective in nature then how it can be possible to measure it objectively that make it more doubtful (Thaler, 1992). Besides, these

materialistic wants are partially associated with personal wellbeing and to quantify derived utility from these wants at an individual level is not viable. Economically speaking, another part of utility is *SWB* in which practically it is alleged if individuals are capable of satisfying their preferences then *SWB* rises. The preferences that raise the *SWB* can be measured rational behaviour rather by asking people explicitly or to measure their physical states. So *SWB* is expressed the state of being happy by psychological concept. Similarly the *SWB* have positive externality like education or health that are related to life circumstances objectively according to policymakers (Rode; 2008).

Life, therefore, begins with some inputs and through certain means it ends with happiness.



Usually, economists do not like simple way of asking as to ‘what is happiness? To most of them, if not all of them, concept of happiness is not much different from life satisfaction, pleasure or

concept of welfare. According to Ng (1997), happiness means '*welfare*' while Oswald (1997) considers happiness as *'satisfaction or pleasure'*. More comprehensively, Easterlin (2001) explains the term happiness as subjective wellbeing, satisfaction, utility, general wellbeing, and welfare, which are interchangeable concepts. One of the renowned sociologists, Veenhoven (2005) works on happiness or life satisfaction in a comprehensive way. Commonly the definition of happiness is not the concern of economists as they remain focus on its empirical measures that based on questionnaires and ask people "how happy they are"? The questionnaire of *World Value Survey (WVS)* asked people about both happiness (how happy are you?) and life satisfaction (how satisfied are you with your life?).

The *Euro barometer* of the *European Commission* that measures its citizen' self-evaluation of life satisfaction and these data are often used as synonymous to self-reported happiness through economic analyses (Oswald, 1997). Inglehart and his collegues (2008) use the (that covering the average of seventeen years of *WVS*) index of *SWB* that captures the responses of questions related to life satisfaction and happiness. *SWB* is considered as a substitute of happiness by a few economists (Frank 1997, 2005; Layard 2005), relying on psychologists for its definition. This concept is more complicated in psychology research as its experimental work is just began in the mid of 20^{th} century. But psychologists are more precise in the use of expression of happiness than economists. According to Ahuvia and Friedman (1998) psychologists distinguish among:

(a) The cognitive element of 'life satisfaction'

(b) 'affection' as the affective component, and

(c) the state of general wellbeing and synthetic of long duration as *SWB* that captures both the affective and cognitive component.

3.2 The Historical Background of Happiness Research

In economics happiness is not a new field of research as some of us might contemplate. Political economics provides basis for it. In *The Theory of Moral Sentiments,* Adam Smith (1759) dwells on the notion of happiness and makes clear his belief that 'in what constitutes the real happiness of human life, all the different ranks of life are nearly upon a level.' He believed that "to deserve, to acquire, and to enjoy the respect and admiration of mankind are the great objects of ambition and emulation" and attainment of this was achieved through "the study of wisdom and the practice of virtue" rather than by the acquisition of wealth and greatness. Furthermore, for Smith, All constitutions of governments are valued only in proportion as they tend to promote the happiness of those who live under them. Ironically, Smith is often used role of governments in improving society by some invisible hand that begets general prosperity via personal avarice (McLaren, 2006).

The other early economists have also worked for happiness and have explained happiness with different aspects. Thomas Malthus (1766-1834) has enquired those causes that affect happiness of nation as whole in his essay "*An Essay on Principle of Population*" in 1798. According to him the causes that appreciate wealth of a state, tend to enhance happiness of the lower classes of that particular state. Wealth of nation may increase without increasing happiness and comforts of the

labouring part of that state. He indicated health and accessibilities over necessities are basic ingredients of happiness.

Bentham (1748-1832) did much of work to develop a notion for legislation on the basis of utilitarian approach in "*The principal of morals and legislation"* (1789). According to him right and proper en of government ensure the happiness of individual on a community base. The Bentham is recognized as inventor of happiness and for him happiness is just a pleasure and absence of pain. According to him, a legislator deciding how to vote on some proposed law should assess (perhaps with the aid of experiments) how much happiness or pain it would lead to for each individual. By adding these all up to get a social utility and then vote in the way that would maximize social utility. The principle of utility function implies that it would maximize the good of society and the purpose of morality is to promote good of society.

Sen (1998) critically discusses the behaviour of individuals that unmatched with economic theory based assumption of rationality: that the decisions of individuals are not completely rational and self-regarding as presumed. According to him this is concept of rational fools. The non-economic sources that may affect the wellbeing of individuals is ignored by this assumption of rationality about its economic agents. Smith's concept of wisdom and virtue is completely out of sight under this assumption. Human psychology is much complex showing that individuals are not always act rationally while making their economic decision. Simply the choices of individuals that are also made by them, does not lead to much gain. Sometimes these choices

mismatch with rational choice which are being conducted for similar preferences. Such reservations surround the neo- classical theory of economics for some time.

Easterlin (1974) reopened this debate of happiness and showed that happiness is missing when income of individual increases over the time (*paradox of happiness*).This paradox commonly is known as 'Easterlin Paradox'. Another pioneering example is '*The Joyless Economy'* (Scitovsky, *1976)* about this debate of happiness. However, such type of criticism did not get much credibility in the presence of works of different economists like Layard (1980, 2003, and 2005) and Sen (1998) and Kahnemann (2002). In economic theory this revival of curiosity about happiness is a central achievement as it is impossible for wealth alone to express all the changes that may affect wellbeing of individuals and ultimately overall happiness (Bruni, 2004). The increasing country's level of output and having high productivity did not affect the wellbeing of its people positively. Over a longer period of time in many *Western* countries real income has been rising but it did not accomplish same change in individuals' *SWB* (Oswald, 1997). In order to study happiness in a best possible manner, the answers need to be used that based on responses of questions related to happiness and life satisfaction of individuals. There are limitations to such statistics, but if the aim is to learn about what makes people happier, listening to what they say is a must. There exist different surveys that ask questions in regards to wellbeing and about those perceptions which individuals experience in various situations of their lives. But disastrously economists have been least concerned about these happiness surveys as compare to psychologists who use them extensively (Oswald, 1997).

3.2.1 Psychologist Concepts of Happiness

In psychology, the study of SWB is a fairly new topic dating back to the 1960s. Empirical research in this field reveals that economic variables have little effect on happiness and objective circumstances (like gender, age, marital status, and employment status) have quite modest relationships with subjective outcomes. Wellbeing is mainly related to non-pecuniary and intangible factors like dignity, self-esteem, freedom, personality traits, the quality of personal relationships and perceptions of one's family, job and health. In addition, adaptation appears to swamp the effects of changes in economic circumstances (and other objective circumstances) on happiness (Headey, *et al,* 2004). As a result, even if a person's economic circumstances improve dramatically; he/she will rapidly adapt and raise expectations of future circumstances, therefore that no gain in happiness will occur. Furthermore, a prevailing theory in psychology is the set-point theory, according to which each individual is thought to have a set point for happiness given by genetics and personality. Any life event such as marriage or loss of a loved one may deflect a person above or below this set point, but in time hedonic adaptation will return an individual to the initial level. Hence, as Kaman (1983) put it *"objective life circumstances have a negligible role to play in the theory of happiness."* According to this theory, any measure taken to improve economic or social conditions can have only a transient effect on wellbeing, because each individual will in time revert to his or her given set-point of happiness (Easterlin, 2003,2005, Headey, *et al*, 2004) .

3.2.2 The Economists Concepts of Happiness

In the viewpoint of economists life circumstances particularly growth of income are believed to have lasting effects on happiness. The prevailing theory: 'more is better than less' is based on the

concept of revealed preference expressed in utility terms. A major implication of this theory is that one can improve wellbeing by increasing his income, and that policy measures aimed at increasing the income of society as a whole lead to greater wellbeing. But as previously mentioned, economists recognize that happiness depends on a variety of circumstances besides material conditions; however, they have long assumed that if income increases substantially, then the overall wellbeing will move in the same direction; as if income is the most effective variable in terms of happiness. Other economists state that a typical individual has a utility or happiness function where wellbeing depends on a variety of pecuniary and non-pecuniary domains. The typical person is believed to have certain goals, or aspirations, and a current state of attainment in each domain. The overall happiness of the individual depends on the shortfall between aspirations and attainments in each domain, and the relative importance of each domain in the individuals' utility function (Easterlin; 2003). Economists have learned never to measure utility directly, but instead to infer it from behaviour. An exception to this generalization is a group of Dutch economists who went against the tide by persistently asking people about satisfaction with their material wellbeing (Easterlin; 2003 and Headey *et al*. 2004).

It has just been in the last two decades that economists have begun to develop an interest in psychological literature. In a way, they started to consider the effects of income, unemployment, inflation and institutions on *SWB*. An important motivation, for the recent interest, among economists in psychological theories and results relating to SWB, is a concern that the revealed preferences approach may be open to challenge. This approach depends on the assumption that peoples' preferences are well defined and exogenously determined about choices. If preferences are exogenous and relatively fixed then it can be inferred that increases in supply of goods and

services will increase utility. On the contrary, however, there is a counter theory proposing that preferences are, to a large extent, endogenous; meaning people change their preferences in response to what others have and want. If this is so, then one cannot reasonably infer that more goods and leisure, preferred at time t, will necessarily increase utility if acquired at time t+1 (Headey, *et al*, 2004). The economy in which a person consumes everything and the others are dying is efficient (Varian, 1992) i.e. the point where one cannot be happier without hurting another. The organizational structure of a nation and welfare of its people are not mutually exclusive, but are instead interdependent (Frey and Stutzer; 2002). The wealth alone does not explain changes in peoples' wellbeing and hence their happiness (Bruni, 2004). The belief that by raising a country's output and productivity people will feel better proved to be misleading. While real income has been rising in the Western countries for a long time, it had not been accompanied with a similar increase in peoples' SWB (Oswald, 1997).

Therefore findings of research in happiness provide a new avenue for human knowledge and that put a benchmark in the field of economics. Its first implication about happiness leads us away from concentrating on GDP that measures everything except that which makes life worthwhile, as Kennedy (1968) put it. A second implication is that the data pertaining to happiness has changed the focus of policy; it allows decision makers to develop a true cost-benefit analysis, bearing in mind the factors that really matter to people. Finally, happiness research is quite close to ‘revolutionizing economic and social policy,’ as mentioned by Oswald (Brookings Institution, 2004). It is considered a new strategy for development that tackles social as well as economic aspects and is used for informing policymakers. Currently the local bodies, institutions,

socialists, economists, and finally societies are focusing on the survey's data for the measurement of happiness.

3.3 MEASUREMENT OF HAPPINESS

In comparison of economists psychologists have been more concerned about the level of happiness and its measures. For many decades they spend time to know the details of those factors that affect life satisfaction considerably (Argyle; 1989, Diener *et al*.; 1999, Fox and Kahneman; 1992, Myers; 1992, Diener and Suh; 2000). According to them SWB or level of happiness is viewed as perception individuals about the degree of favourability for the whole life or any specific dominion of life. Publically such types of behaviour are inaccessible to observe, so partially it can be observed by asking straight questions about their feelings according to psychologists. But importantly then how can be SWB captured? Simple and comprehensive method to measure an individual's SWB by surveys. These surveys may design on single or multiple item questions depending upon the objective function of state of being happy.

3.3.1 Methods for Measuring of Happiness

Measuring happiness is well thought-out instrument for policymakers once designing policies regarding general public. In next section, we explained five global renowned approaches that measure happiness.

1. Asking People Global Evaluations of Individual Life Satisfaction

In this approach individuals are inquired for satisfaction as a whole for the life they had by direct question about satisfaction of life and level of happiness. There are two questions asked in the *WVS*. The first is about the happiness level by asking directly: "taken all together, how you

would say things are these days—would you say that you are very happy, pretty happy, not happy, or not at all happy?" The second question is concerned with the assessment of the satisfaction level of an individual on a scale from one (dissatisfied) to ten (satisfied). Individuals are biased in their judgements which make this approach less reliable. For example, reported SWB can be affected by the wording of questions, the order of the questions and scales applied. The advantage of this approach is that it is cost effective and available for a large number of countries via different periods of time (Frey and Stutzer; 2006).

2. Experience Sampling Method (*ESM*)

It is essential for participant of *ESM* to carry a tablet as to answer a number of questions promptly several times in a day or on days. *ESM* may include questions regarding the current state of participant happiness, nature of their interaction with others plus the past activities just before this survey. For large sample *ESM* is exorbitant although it lessens perceptive biases reported by respondent regarding past responses about wellbeing obtained from surveys.

3. Day Reconstruction Method (DRM)

DRM is an alternative technique of *ESM* that based on summary of daily episode or episodes of their feelings. The participants are supposed to summaries their daily episode in a diary and it is essential to fill up intensity about their feelings for every episode (Kahneman *et al*, 2004). Someone declares him/herself happy and enjoying life if an episode is said to have positive outcomes. But if the outcomes are negative then he/she are declared to be unhappy, hysterical, dissatisfied, desperate, frantic and frustrated etc. Overall happiness can be measured then through the aggregation of these prompted reports of individuals based on each episode which

they have experienced. To study further explanations of these two alternative methods see Kahneman and Krueger (2006).

4. The U-Index

This method is used for the mapping of feelings of respondent in comparison to prior mentioned methods for the measurement of feelings. This method is proposed by Kahneman and Krueger suggested this technique for the mapping of ones feelings in 2006. According to Frey and Stutzer (2006): "It is defined as the fraction of time per day that an individual spends in an unpleasant state. It relies on the observation that the dominant emotional state of most of the people during most of the time is positive. Hence, any episode when a negative feeling occurs is a significant occurrence."

5. Brain Imaging

It is one of the most sophisticated approaches of measuring happiness, as it relies on technical measurements. In this method brain of an individual is scanned subject to various activities that he/she performed. The whole exercise based on Functional Magnetic Resonance Imaging (FMRI). The FMRI trajectories the blood flow to brain of respondent by the use hypnotic changes that occur because of oxygenation of blood. It is more comprehensive and reliable method as it captures not only the feelings of individuals by words but also by their mechanical changes that occur in their brain. But due to highly technical nature it is not common in practice.

3.4 Measurement of Happiness in Practice

There are three main methods which are in practice for the measurement of happiness under surveys methods which are explained as under.

3.4.1. Happiness Planet Index (HPI)

This index has been introduced by *New Economic Foundation (NEF).* The HPI is a leading global measure of sustainable happiness. The HPI measures what matters the extent to which countries deliver long, happy and sustainable lives for the people that live in them. The index uses global data on experienced wellbeing, life expectancy and ecological foot print, as explained below to calculate the HPI. It is an efficiency measure that ranks the countries on how many long and happy lives they produce per unit of environment input.

Experienced wellbeing: If one wants to judge how others lead their life the simplest way to ask it directly from them. The recent report of *HPI* explains experienced wellbeing which is being assessed by a question that is called the "*Ladder of life*". The respondent imagines a ladder and each step of this ladder possess certain value. The'0' represents the lowest value that shows pitiable possible life however the highest value '10' tells possibility of best life.

Life Expectancy: The HPI includes the universally important measure of health– life expectancy at birth along with experienced wellbeing.

Ecological Footprint: The Ecological footprint is endorsed by *World Wildlife Fund (WWF)* as a measure of resource consumption and it is used by HPI. The NEF says: "The ecological footprint measures how much land area is required to sustain a given population at present levels of consumption, technological development and resource efficiency, and is expressed in global-average hectares". The global hectare (gha) is the unit of measurement for ecological footprint– a

hectare of land with average productive bio-capacity. By them, it is quite conceivable that people living in countries with a large ecological footprint could be happy even if it was the case that their lifestyles were unsustainable.

3.4.2. Gross National Happiness (GNH)

The term "Gross National Happiness" was first coined by the 4th King of Bhutan in 1972. The concept has a much longer resonance in the Kingdom of Bhutan. The 1729 legal code, the unification of Bhutan declares that "if the government cannot create happiness for its people, there is no purpose for the government to exist." In 1972, the 4th King declared GNH to be more important than GNP, and from this time onward the country oriented its national policy and development plans towards GNH. The Constitution of Bhutan (2008, Article 9) directs the State

> "To promote those conditions that will enable the pursuit of GNH. While there is no single official definition of GNH, the following description is widely used: "Gross National Happiness (GNH) measures the quality of a country in more holistic way than GNP and believes that the beneficial development of human society takes place when material and spiritual development occurs side by side to complement and reinforce each other."

It is important to clarify that GNH in Bhutan is distinct from the western literature on happiness in two ways: first it is multidimensional – not focused only on subjective wellbeing to the exclusion of other dimensions – and second, it internalizes responsibility and motivations explicitly. The GNH measure has been designed to include nine core domains that are regarded as components of happiness in Bhutan and is constructed through indicators, Which are robust and informative with respect to each of the domains. These nine

domains are selected on normative as well as statistical grounds. The nine domains are equally weighted, because each domain is considered to be relatively equal in terms of its intrinsic importance as a component of gross national happiness. Within each domain, two to four indicators are selected that seem likely to remain informative across time, had high response rates, and are relatively uncorrelated. The index weights the nine domains equally. The nine domains are shown in table 3.1.

Table 3.1: GNH's Domains

Sr.#	Domains	Number of Indicators
1	Psychological wellbeing	4
2	Health	4
3	Time Use	2
4	Education	4
5	Cultural Diversity and Resilience	4
6	Good governance	4
7	Community Vitality	4
8	Ecological Diversity and resilience	4
9	Living Standards	3
	Total	33

3.4.3. Happiness Index Constructed Through Principal Component Analysis (HP)

The principal component analysis is the method of reducing a large number of variables to a fewer variables by performing covariance analysis between the original variables. It is suitable for dataset in multiple dimensions. It is more appropriate when we want to measure the number of observed variables and wish to develop a small number of representative variables– principal components. The principal components account for the most of the variance in the observed variable. This method is more applicable when we have large data on number of variables and need to dispose of some redundancy in these variables. Here the redundancy means that the most of the variables are correlated with each other as those are measuring the same construct. So redundancy reduces the observed variables into smaller representative variables that are called principal components. It means principal component analysis is a technique in which we reduce our data into useful form by accounting for the relevancy of collected data. The resulting principal component may then be used for subsequent analyses. Technically, we say that a principal component is the linear combination of optimally weighted observed variables.

3.5 Merits and Demerits of the Measures of happiness and Data Limitations

In experience sampling method (ESM) the data are collected from the representative individual by asking immediate questions with the use of beeper and hand held computers. So in comparison to simple surveys *ESM* is much expensive, therefor it not in practices more commonly. (Frey and Stutzer, 2006).

The day reconstruction method (DRM) is cramped single question only. *DRM* is more sophisticated way to measure happiness by tempting respondent refined to think cautiously about

their feelings of happiness on a daily basis during each time period. Despite its nature of precision and refinement, the *DRM* is not in use commonly and still considered as a new technique (Frey and Stutzer, 2006).

The U-Index method is used to avoid the cardinality concern (Kahneman and Krueger, 2006), which is based on the dominant emotional state of most of the people who rely on negative emotions in the entire episode. The whole methodology moves around positive and negative episodes. "It means the occurrence of negative feelings in any episode is a significant occurrence" (Frey and Stutzer, 2006). So the U-Index ignoring positive episodes while mapping correspondence feelings of any respondent, therefore, it depends mainly on unpleasant episodes.

The brain imaging method is most proficient method for the determination of one being state of happiness than any other survey technique. The fact needs to be noted that it is not commonly used for being expensive not easy to apply it on a large scale (Frey and Stutzer; 2006).

The *HPI* is criticized just because of researcher false understanding regarding measurement of happiness. It just measures the ecological efficiency that can only support wellbeing. We know that *HPI* consists of three variables but rest of important variables are like family ties, political concerns, economic freedom, ethnic rules, institutional quality are for off this calculation. Most of the data of this index takes from other sources. In general *SWB* and ecological footprint are confrontational ideas to calculate level of happiness by many critics. As life satisfaction or level of happiness are subjective in nature and persona, social and public policies also impact happiness that should be included in the calculation of happiness. HPI is not much clear that whether it measures of happiness or efficiency of environment efficiency in a given country

(Wikipedia). The GNH methodology is only used for Bhutan on the basis of five-year plan strategies for happiness. Although it covers all the domains with 33 indicators that are having equal weight but it is still practiced only in Bhutan.

3.6 EMPRICAL FINDINGS ON HAPPINESS: EVIDENCES FROM DEVELOPED AND DEVELOPING COUNTRIES

In the last few years, economists have taken serious interest in the concept of happiness. The papers published in the *Economic Journal* in 1997, the special issue of the *Journal of Economic Behaviour and Organization* in 2001 and 2003, and an International Conference on "The Paradoxes of Happiness in Economics" held in Buconni University Milan on 21–23 March 2003 emerged as clear indications of the rising interest in this subject. In the older (e.g. Easterlin, 1974) and in the more recent literature one can discern a common empirical finding in many countries, according to which substantial increases in real per capita income do not correspond to equivalent increases in individual happiness. In fact, there is a negative correlation between real income and happiness which was observed by Easterlin (1974) initially, and Oswald (1997), Lane (2000) and Wright (2000) later on. These findings have puzzled, some of whom have called the phenomenon the 'paradox of happiness' (Bruni, 2002).

As one would expect, there are several justification to explain this paradox. One is based on 'subjectivist' approach to utility, whereby various non-economic variables that are included by several economists and these variables are essential for both the utility functions of people and ultimately their overall happiness (Frey and Stutzer, 2002). The economic variables can be

feelings, social stimuli, attainment of goal and purpose of life, freedom of choice and social capital (Scitovsky, 1976, Elster, 1998, Loewenstein, 1999, Putnam, 2000, and Veenhoven, 2000). Moreover this paradox further explain by one of conventional economic theory— the idea about relative income or relative consumption hypothesis (Duesenberry, 1949, Frank, 1985, 1999, Andrews, 1991, Veenhoven, 1991), and additionally the level of inequality (MacCulloch *et al*, 2004). It is clear for any observer that the above ideas are not new in economic literature but have been around for a long time. For instance, the idea of 'conspicuous consumption' which is related to relative income and it can be found in Rae (1834), Veblen (1899) and Keynes (1973).

The dilemma about the public opinion that more income is always preferable to less (there has been considerable debate in this field when elevated to the national level) is empirically demonstrated in the Latin America Public Opinion Project (LAPOP; 2011). They had conducted a survey for North and Latin America to know the perceived life satisfaction. Higher measures of life satisfaction found in the less developed countries of Brazil, Costa Rica, and Panama than in North America pose a stimulating dilemma to traditional economic theory. A cross-section survey data of happiness from one country generally produces significant positive estimates of income it holds for both developed and developing countries. So the income happiness slope is larger in developing or transition than in developed economies (Clark *et al*, 2008).

Later on, happiness definition based on social difference is also empirically explored by various researchers. In Europe and America, positive and negative emotions have opposite directions are often seen as contradictory but complementarity in these emotions have found for East Asian

societies. For instance, Ji *et al* (2001) proposed a linear or non-linear trend of happiness in the life and asked from participants to choose one of the graph that represent true picture of change. It is found that a nonlinear graph chosen by respondent of China, however, respondent of Americans choose a linear graph for this change. Bagozzi *et al*. (1999) investigate similar point that examines different associations between positive and negative emotions cross-culturally. They measure the degree to what extend someone have good or bad feelings. It is found that these two emotions have opposite direction for U.S (bipolar opposites) but have direct relation for Korea and China. The East Asians experienced these emotions in a more simultaneous fashion. In the same way American and Japanese were asked to report the frequency of different types of positive and negative emotions and moods. They categorize emotions in two types—interpersonally engaging (pleasant feelings shame, etc.) plus interpersonally separating (pride, anger, etc.).

Kitayama and colleagues (2000) found that people in independent cultures (Americans) may be motivated to maximize pleasant emotions and minimize unpleasant emotions, but people in interdependent cultures (Japanese) may be motivated to maintain a balance between positivity and negativity. It means the cultural differences and motivation are also important for the attainment of happiness. The study investigated 31 nations' cultures for the factors of social harmony and concluded that certain factors like self-esteem have very strong correlation with subjective wellbeing in European-American (individualistic cultures) than East Asian (collectivistic cultures). To predict the level of happiness the self-esteem and social harmony are further studied by Oishi and Diener (2001). They considered two groups, European-Americans and Asian-Americans and asked from participants to list five important goals according to their

priorities for the next one month. The participants then judged the attainment of their level of enjoyment; finally the participants evaluated their life satisfaction during the past one month. They concluded that achieved happiness has increased as an independent goal for European-Americans. But on the opposite, the happiness of Asians increased while their achievement of goals probably has been more interdependent with parent's happiness. The differences in actual emotions of individual may indicate the cross cultural differences that they experienced. For instance, the Americans are motivated to remember positive emotional experiences only (Oishi, 2002).

Most of studies on SWB analyse the relationship between peoples' income and their satisfaction, and find that income is not satisfactorily correlated with subjective wellbeing measures. In contrast, the correlates of consumption are hardly analysed although the results of income and SWB are representing the effects of consumption also. People in rich societies declare themselves to be happier on average as compared to people in poor societies (Diener and Biwas-Diener; 2002). However, according to Ahuvia (2002) this fact appears because of cultural transformations from collectivism to individualism and not related to higher levels of income. Moreover, in developed countries, economic growth has not been associated with increases in SWB over the past decades (Easterlin, 1995, Diener and Oishi, 2000, Diener and Biswas-Diener, 2002, Frey and Stutzer, 2002). Thus, SWB studies provide empirical evidence against the neoclassical tradition that relates consumption to wellbeing. However, SWB literature faces certain challenges in assessing the effect of consumption on wellbeing. The first challenge is related to income as a proxy for consumption and the second due to the observation that people adapt to situations of deprivation. The correlation between SWB and per capita income is no

longer significant when one moves from the developing to the developed economies, because income is able to satisfy primary needs but not higher-order like self-actualization (Veenhoven; 1995). However, if income exhibits this decreasing marginal utility, why do people not unambiguously decrease their commitment to work? But others argue that SWB depends on the level of aspirations versus self-realizations gap. The standards for comparison may be the experience of other people, past conditions, or ideal aspirations (Michalos, 1985, Inglehart, 1990).

It is difficult to understand public frustration and opinion through income measures alone. Income is insufficient explanation for happiness and it just sheds light on it. The happiness surveys can tell us much about how the dynamics of poverty and inequality affect wellbeing, as well as about many other elements of wellbeing which are not captured by income measures alone. It is important, though, to think of happiness surveys as complements to rather than substitutes for income based measures of progress. While happiness surveys can provide us with novel information and suggest new analytical approaches, they can also pose challenges when translated into direct policy recommendations. For example, at the same time that countries have grown wealthier over time, they have also made major improvements in other indicators, such as morbidity, mortality, and literacy rates (Deaton, 2003). According to Deaton, income inequality may indeed be important for health but this aspect of inequality is less important than other dimensions, such as political or gender inequality.

Denmark, Germany, and Italy experienced substantial growth in real per-capita income but a small increase in reported life satisfaction in the 1970s and the 1980s (Diener and Oishi 2000). According to data of Cantril's (1965) West Germany is less satisfied as compare to Egypt and Cuba when satisfaction plotted against the log of income. According to Blanchflower and Oswald (2008), Denmark and Netherlands report the higher levels of happiness as compare to Germany and Italy that report lower levels of happiness in the surveys of wellbeing. They analysed the data of 16 countries and concluded the countries that report higher level of happiness are the least hyper tense. This validates the differences in the measured happiness across nations. So the blood-pressure (hyper tension) might be an important factor for the happiness index or any kind of wellbeing measurements.

Yet if the direct policy conclusion from the 'Easterlin paradox' is that more money does not make people happier, then a related conclusion could be that long term gains in health and education also do not make people happier. Most development economists would find this extremely problematic. A prominent explanation for the Easterlin paradox is that norms and expectations adapt upwards at about the same rate as income increases. Thus after basic needs are met; more income does not make people happier. The extreme view of adaptation is the psychologists' 'set point' theory, which posits that all individuals have a set point of happiness, which they adapt, back to even after major events like winning a lottery or getting divorced. Easterlin's work conjectures that people adapt and recuperate much faster from pecuniary changes or shocks (upwards or downwards) than they do to changes in non-pecuniary factors like marriage or health. His data shows that individuals never adapt fully to significant marital or

health shocks, though the work of the German socioeconomic panel suggests that people eventually adapt the negative effects of divorce (Easterlin, 2003).

The evidence shows that the changes in objective conditions matter a lot while determining happiness. The objective conditions indicate that deprived people are least happy than wealthier one in a cross-sectional data in nearly all those countries where such type of surveys are conducted (Graham and Pettinato, 2002). The other things which are correlating with national income and directly affect happiness are health facilities/conditions, quality of governance, and basic human rights. The healthier people are always considering being happier, as they are more educated people, have good jobs, and are married (Clark and Oswald, 1994, 1996, 2003). The economic and all other types of insecurities, such as crime ratio, negatively affects one's level of happiness (Powdthavee, 2002). John Helliwell (2003) in a cross-country analysis explains that those who are experiencing the highest levels of wellbeing are not living in the richest countries of the world. In contrast, they experience highest level of wellbeing when they have strong and more effective social and political institutions and have high mutual trust among individuals but the low level of social evils, such as corruption. Pigou (1920) explained happiness in relative terms; the rich derive their satisfaction from their relative rather than absolute income. Their level of satisfaction would not be reduced if the incomes of all the rich were reduced at the same time. This has been to justification of redistributive taxation. Diener *et al.* (1993) conducted happiness analysis for the cross-section of 4,942 adults in the United States for the period of 1971–1981. It was concluded that there is a stronger relationship between income and happiness at the lower end of the income scale, and a weaken one at higher incomes that are well above

subsistence levels. Across countries, it was found that there is a moderate relationship between prosperity and life satisfaction.

It becomes obvious that the relative income matters in one's life. In the United States, the earnings of neighbours affect the levels of self-reported happiness. The higher earnings are coupled with the lower levels of happiness of neighbours, although the individuals' own income remains constant (Luttmer, 2005). The individuals across the United States and Europe have lower levels of happiness when the inequality is high, even controlling for individual income. As compared to the United States, the effect of inequality is stronger in Europe (Alesina and Di Tella, 2004).

One of the serious issues of wellbeing, which concern general population, is the effect of crime on peoples' welfare. It is generally agreed that crime always affects people's wellbeing in a negative way i.e. there is negative correlation between households' wellbeing and crime. In simple words, it is easier to be a victim when many others are also victims. It means there is interdependence in utility among crime victims living in the same geographical area. With respect to the influence of average characteristics of relevant others in the community, the unemployment or crime affect the reported life satisfaction at the household level directly, rather than indirectly (Manski, 1993).

The criminal damages have been studied by economists in terms of the economic costs on individuals and the society so far. The cost of murder, for example, can be measured by loss of earnings for victims and accumulated public spending on police and courts to increase the probability of criminal apprehension and conviction (Becker, 1968). While the link between criminal victimization measures and subjective wellbeing responses remains largely ignored by economists, the idea has been studied intensively by psychologists and partly by sociologists for decades. A common observation found in the psychology literature is that crime victims have been shown to suffer from a variety of significant and persistent psychological problems, which include depression, anxiety, fear, and post-traumatic stress disorder as well as feelings of hostility and personal violation (Atkeson *et al.*, 1982; Davis and Friedman, 1985; Kilpatrick *et al.*, 1985; Frieze *et al.*, 1987; Skogan, 1987; Burnam *et al.*, 1988; Sorenson and Golding, 1990; and Norris and Kaniasty, 1992). All these psychological symptoms are found among crime victims commonly.

According to Ross (1993) and Michalos (1991) fear and anxiety are shown to be negative association with an individuals' health subjectively. Fear and anxiety also affect the measures of subjective wellbeing and the overall perceived quality of life (Ross, 1993, Michalos, 1991). Michalos and Zumbo (2000) also concluded that the measures of fear and actual cases of victimization correlate negatively with measures of happiness and satisfaction with life as a whole. Recently, the similar finding in regards to the correlation between the reported subjective wellbeing and the victim of crime variable is also reported by Kingdon and Knight (2003). Females have different attitude towards crime related issues as compared to male. It is concluded that female respondents in different household surveys (522 household of USA in1984 and 181

household of Mexico in1993) while asked about crime evaluate the wellbeing in a different ways. They are more convinced that crime in their region has increased and to be more worried about being victimized (Giles-Sims, 1984, Lira and Andrade-Palos, 1993). With such attitude, females perceived more neighbourhood problems and to be less satisfied with their own and their familys' safety. They are less willing to walk alone in their neighbourhood at night as compared to males (Gomme, 1988, Sprott and Doob, 1997, Michalos and Zumbo, 2000). On the other hand, females tend to communicate more to each other about their experiences of crime, whereas generally males are unwilling to admit or talk about their fears relating to criminal victimization in their neighbourhoods (Stanko and Hobdell, 1993, Walklate, 1997).

Suicide rate is a good measure of life satisfaction because suicide is commonly considered as an ultimate assessment of life satisfaction. There is a direct link between subjective measures of life satisfaction and suicide. Those who are living below average measures of life satisfaction are far more likely to commit suicide. According to Koivumaa-Honkanen *et al.* (2001) concluded that the below-average life satisfaction were four times more likely than others of the same age to commit suicide. There was also a dose-response relation; males near the top of the dissatisfaction scale were 25 times more likely than other males of the same age to have committed suicide over the first ten years of the follow-up period (Koivumaa-Honkanen *et al,* 2001). The differences in suicide rates were the sociological challenge for those who considered that the nature of suicide depends upon the individual factors exclusively.

In contrast, Durkheim (1952) argued that every society has a definite aptitude towards suicide i.e. the characteristics of the society which are under consideration. There are certain factors that explain differences in suicide rates among individuals and communities. He established a sociological basis for the explanation of suicide, the possibility that psychopathic states and cosmic factors might have effects on suicide flowing through the structure of society and social relations.

The marriage is considered as a mutual contract in which two parties agree to share their common resources such as income and housing etc. Individuals also conduct the collection of productive activities that may include cooking, feeding, and rearing children (Becker, 1973, Friedman, 1986). It implies that one of the spouses must be occupied by labour market for the assigned work and they experienced favourable conditions for human capital accumulation (Becker, 1981). It shows division of labour leads to specialization within the family. However, Becker considered both the transferable and also divisible commodities within households. But over the time, there are certain concentrates on household commodities that are not divisible although can be transferred to raise utility levels. There are some nonmarketable household commodities which include partner's expression of love, care and other emotional attachments. These contribute directly to an individual's physical and mental health conditions holding other factors of life constant. The marriage appreciates social relations, which leads to a possible reduction in the risks that individuals face while suffering from illnesses. All these are related to both stress and loneliness of individuals in case of being single. It concludes that marriage have positive impacts on individual's health. The findings of medical literature have explained that the

rate of mortality is lower among married individuals as compared to singles (Gove, 1973, Hu and Goldman, 1990, Ross *et al*, 1999, Wilson and Oswald, 2002).

According to Gardner and Oswald (2004) interesting and substantial impact of marriage on health shows that the reduced mortality risk is so large that It can almost exactly offset the negative effect of smoking. It means that the subsequent effect of smoking can be neutralizing by marriage. The data of *General Social Surveys* of the United States and the *Euro barometer* Surveys were analysed by Blanchflower and Clark (2006) for some decades to analyze the relationship between age and wellbeing. According to the study wellbeing reaches to its minimum level at the age of 40s while controlling for the different birth cohorts. For the Western World, the U-shape hypothesis of wellbeing and age is similar for both males and females.

3.7 HAPPINESS AND ECONOMIC VARIABLES

Do the higher or rapid increase in income increases peoples happiness? If yes, then to what extent one experiences happiness if one's income rises? Several studies are agree that the impact of income on ones SWB is positive and also statistically significant but the quantitative effect are very small (Luttmer, 2005, Blanchflower and Oswald, 2004, Frey and Stutzer, 2002). It is obvious that higher income widens the individuals' as well as nations' consumption bundles. With more income one can enjoy more goods and services. If someone is not willing to have this high consumption despite having means, he/she has an option to neglect it according to his/her choice. It shows some linkages between income and happiness but the important aspect is the

measurement of this relationship. To analyze the true effect of income on happiness, it is essential to control all the other factors that influence the process of earning negatively.

One can earn more income by some additional work causing. disutility of labour – to increase working hours by reducing leisure time. When thinking about income, people often seem to focus only on its benefits but neglect its costs. If someone is concerned as to how additional income would decrease subjective wellbeing, he/she would spend more time in leisurely activities. In reality, this shift in the time use is unlikely to lead to much increase in experienced happiness (Kahneman *et a.l*, 2006).

It is a common perception that with the increase of income, people experience more happiness but theories of relative utility may not be in its favour. The relative utility holds on social comparisons or to adaptive expectations about past income. It concludes that raising the incomes of all may not increase long-term happiness on average. But on the other side, the absolute utility explains that with the increase of income each person can meet his/her additional needs, thus increasing average long-term happiness. The statistical confusion about absolute utility has risen due to these ambiguities of relative and absolute utilities. Hagerty and Veenhoven (2003) analyze the time series data of nine countries. The study concluded that there is a partial adaptation to new income over a period of two-year and there is no effect for social comparison across the countries. The increase of national income increases the national happiness but the short-term effect of increased income on happiness is larger as compared to the long-term effect.

The standard economic textbook explains that the budget constraint of an individual shifts outward when there is an increase in the income of that individual. This increase in income allows the individual to increase his own consumption that increases the utility level also. But in the period of 1972 to 1991, real GDP per capita of the United States was doubled while the levels of happiness remained constant. The real GDP per capita of Japan in 1987 is five times greater than that of 1958. It is more surprising in case of Japan that with such big change in real GDP per capita there was no increase in SWB. The data of *General Social Survey (GSS)* of the US indicates that the average happiness for a cohort is constant over a certain time period. It means in the lifecycle of cohorts, the happiness tends to remain stable even though incomes rise then fall over the life-cycle (Easterlin, 1999).

Happiness in the USA is increasing in one's lifecycle but this rise is quite small. It means the extra increase in the income does not contribute dramatically to the quality of people's lives. On the average, the reported levels of satisfaction in the European countries have risen very slightly in the 1970s. Those who were jobless remained less satisfied with life. The relative distress of unemployed people shows that they are also unhappy. The personal characteristics of individuals (marriage, gender, education, and employment, etc.) have positive links with the reported level of happiness. The happiness and age have a U-shaped relationship where the level of happiness is minimum around the age of 30's. The world data on suicide suggest that joblessness is a major source of depression and ones decision of being not alive. Unemployment evolves as the primary economic source of unhappiness (Oswald and Andrew, 1997).

This would create confusion about the role of income in individual's lives and also in societies. It would strike that there are some additional powerful factor that eliminates the effect of income on happiness. One of the additional factor might be relative-income that affects the level of happiness. This relative income hypothesis explains that when there is an increase of one's income (consumption) relative to his income standard (or norms), one experience greater happiness. McBride (2001) uses the subjective responses as the proxies of relative-income norms and finds that an increase in income affect *SWB* positively while the increase of the relative-income norms reducing the level of *SWB*. The intensity of these effects may change as the respondent's income increases, which implies that the effects of relative-income are much stronger for higher income levels.

The positive correlation has been observed between individual income and all measures of subjective wellbeing in a micro data. The behaviour of Income in wellbeing might be evaluated through social comparison or individuals' past habituation (adaptation). The literature is in consensus that the paradox points out the importance of relative considerations in the utility function, where higher income brings both consumption and status benefits to an individual. Comparisons can be made either with others or to oneself in the past. These economic models contain taxation, labour supply, economic growth, savings behaviour, wage profiles, migration decision, and consumption pattern. This study is also identified that how the outcomes of conventional theoretical models hinge on the key behavioural parameters. These parameters play a principle role in the empirical analysis of happiness data (Clark *et al*, 2008).

The rate of employment is an indisputable goal of economic policy and unemployment is considered as unfortunate event in individuals' lives. Unemployment exert social economic as well as health costs and the unemployed become social stigma. The joblessness creates the mental stress that leads to depression and anxiety. The unemployed have poor mental and physical health than employed. It has been established in numerous studies that the unemployed high mortality rate. So the unemployment is considered as misfortune for those who experience it. They may also feel themselves as a burden on the economy and society. The effect of unemployment on social wellbeing can be related with job. It is one of important domain of being happy.

According to Di Tella *et al.*, (2001) the reported wellbeing of individuals varies as levels of unemployment and inflation vary. When unemployment increases, the society face two problems: some people lose their jobs and the remaining in the economy become more fearful at the same time. The people of twelve nations of Europe and the United States reported higher level of happiness when the rate of inflation and unemployment were low. These rates affect reported satisfaction with life even after controlling for the personal characteristics of the respondents. The estimates of this panel study show that the individuals would trade off a 1 percentage point increase in the unemployment rate for a 1.7 percentage-point increase in the inflation rate. This would imply that the joblessness depresses reported happiness more than the price increase. Inflation, therefore, is less expensive as compared to unemployment.

The GDP per capita impacts the life satisfaction levels of the poorer than richer. The data of the poor countries of Europe (Czech Republic, Greece, Hungary, Poland, Portugal, Spain and Slovakia) validates that the GDP per capita have positive relation with level of satisfaction but it would not hold for its richer countries. Easterlin (1974) hypothesized that income growth in richer countries is not correlated with growth in happiness but this would observed in poorer countries. The micro data of twenty European countries for nearly seven hundred thousand respondents has been analysed. From this data set the relative strengths of the relationships of unemployment rate and the inflation rate with happiness are observed. It is concluded that 1% rise in unemployment is associated with 0.011 units decrease in life satisfaction. In the same way, single-point increase in inflation decreases the life satisfaction 0.0090 units. These correlates of unemployment and inflation on satisfaction are not negligible. Although the life satisfaction is not captured exactly by a simple linear misery function (misery index) defined on the sum of inflation and unemployment rates. One percentage point increase in the unemployment rate reduces wellbeing almost 1.6 times in European countries. The unemployment is more costly than inflation. Other interesting conclusion is that the old and less educated are more concerned about unemployment and put the highest weight to unemployment. In contrast, the high weight is given to inflation by young, educated and those who are still studying in school and universities (Blanchflower, 2007).

The data of subjective well-being of *German Socio Economic Panel (GSOEP)* has analysed by Andreas and Ratzel (2010) for the period of 1999-2006. The study found that diminishing marginal disutility of labor is showing the negative relationship between an additional hour of work and SWB. This implies that the hours of working have an inversely U-shaped impact on

wellbeing but that magnitude of this impact is quite small. Finally, it has been concluded that while controlling the disutility of labour may not lead to increase the impact of income on happiness.

Are happier people more productive in their paid work? The answer may be yes. Yet economists currently know little about the interaction of human feelings and labour productivity. Calder and Staw (1975) explained employees' motivation that they can experience during work. These motivations provide linkage between employees' monetary benefits and to the goals of the firm. The ideal incentive system in extrinsic motivation is definite payment of employees' work (performance). The monetary incentives become one of the goals of employees' performance, which provides a level of satisfaction i.e. independent of the actual activity itself.

According to Oswald, *et al.*, (2009) the motivations of work examine the interactions between human psychological forces and their productivity. There is a strong possibility that self-confidence may boost the motivation to work efficiently. This is more consistent that the mood and productivity are interlinked. It implies that emotions have powerful economic effects that accelerate productivity if individuals' mood and work move together. Somehow, the level of their happiness increased. This rise in happiness leads to greater productivity in a paid task. The effect is large and found equally for both male and female workers. The economists need to pay attention towards emotions as they leave a strong impact on economics and vice versa. There should be some powerful linkages between applied psychology and applied economics. The promotion policies of firm and the structure of internal labour markets focus on work

environment (happiness) as it enhances the productivity. This boost in happiness s to greater productivity in any economy and that might prompt greater wellbeing in countries.

Concluding Remarks

The extensive literature review provide basis for the construction of happiness indices and then to find correlates of happiness. From the literature it is clear that economic of happiness is not a new area of research but it remains out of sight of economists. Historical background in section 3.2 validates that happiness is not whispering first time, it ranging from Aristotle to Bentham. But in psychology it is quite new concept dating back to 1960's. After the evolution "Esterline Paradox" in 1970's, economist again entered in this field of research. There are different methodologies which can be used to quantify happiness as discussed in section 3.3.The empirical findings in section 3.6 and economic variables in section 3.7 provide us basis to select explanatory variables for the present study.

CHAPTER 4

CONSTRUCTION OF HAPPINESS INDICES

4.1 INTRODUCTION

Everyone is in search of happiness and failure of finding it can cause all kinds of frustrations and other serious psychological issues. Pre-eminently, it is too tricky even to define happiness: is it having what you want or wanting what you have? It is obvious that the correlations between one's own possession and having desire for possession do not spawn the same levels of happiness. To define happiness or to generate happiness variable, we used the dataset of World Value Survey (*WVS*). In this chapter, first, we explained the whole data set of *WVS* comprehensively.

The *WVS* is an international research project that investigates peoples' values and convictions and what changes occur over time in them. *WVS* also captures those impacts of social and political nature that occur in response to these changes. This is a worldwide survey that covers roughly 100 countries of the world and has been conducted by social scientist since 1981. It is the only source of empirical data on attitudes that covers 90% of the world's population. This survey measures broad topics about perception of life, family, work, traditional values, personal finances, religion and morals, the economy, politics and society, the environment, allocation of resources, contemporary social issues, national identity, and technology and its impact on society. It also scrutinizes the areas like support for democracy and gender equality, tolerance of

foreigners and ethnic minorities, national identity, importance of religion and degree of religiosity, the impact of globalization, attitudes toward quality of environment, choices for work, personal and social life, the role of politics, marriage, single parenting, child-rearing, diversity in culture, insecurity, and SWB. Specifically, the justifications of social evils ask from respondents whether and to what extent the acts like suicide, cheating on taxes, euthanasia, divorce, and abortion (see Table 4.10) are justifiable. Moreover, respondents are also queried about their attitudes toward the meaning and purpose of life, the demarcation of good and evil, and the religious behaviour and beliefs. Questions pertaining to the stability of the world economy and whether respondents were happy with their financial situation, and satisfied with own life is also asked. One of the important aims of respondent's life with respect to his/her homeland; whether he/she would fight in a war for his/her country, whether he/she would have confidence in various civil and governmental institutions is also the focus of *WVS*.

The findings of *WVS* are not only valuable for policymakers, but also for researchers and students for future perspectives seeking to build a civil society and democratic institutions, especially in developing countries. The work is also frequently used by governments around the world, and the international organizations and institutions such as the *World Bank* and the *United Nations*. The waves of this survey capture the intergenerational changes that are taking place in basic values to politics, economics and social life, religious beliefs, gender differences, ethnic values and family norms. These values are different for all generations in all societies due to economic growth taking place. To examine the consistency among these changes, the second 1990–91 and third wave 1995–97 of *WVS* were carried out. A fourth wave was carried out in 1999–2001 in 65 countries. A key goal was to obtain better coverage of African and Islamic

countries, which had been ignored in previous surveys. The most recent wave is the fifth wave that was carried out in 2005–07. The sixth wave was carried out during 2011–12 but its data are expected to be published in 2015-16.

Social scientists from all over the world participated in the designing, execution and analysis of the data of *WVS*. After a thorough analysis, the findings of this data were published. Each group of countries has an easy and immediate access to the collected data. The purpose behind this easy access is to provide a research ground for participating countries to capture social change in a comprehensive manner. More than thousand publications have been produced by *WVS* network in twenty different languages of the world. (http://en.wikipedia.org/wiki/World_Values_Survey).

The above discussions about *WVS* provide a solid ground to use these data for the construction of happiness indices. We have selected the questions according to the meaning of happiness. These questions cover the entire aspects of one's life satisfaction. These questions cover personal relations, choice of work, moral values, financial problems, religion and morals, the economy, politics and society, the environment, national identity and societal issues. The chapter is divided into three major sections. The detail selection of happiness questions is explained in section 4.2. It also discusses how we have divided sub-indices of happiness and the countries grouping on the basis of income level. In section 4.3, we explained the methodology for the construction of happiness indices, *i.e.* principal component analysis *(PCA).* This section also explains how the construction of happiness indices is carried out. Finally, there is a discussion on the results of the constructed happiness index in section 4.4. We elaborate the happiness indices in the context

of income groups (low, middle, and high incomes). The results of these income groups are also compared in this section.

4.2 DATA AND MEASUREMENTS

There are a number of words which usually substitute the word happiness, such as mood, attitude, behaviour and fortune etc. Simply, happiness refers to certain feelings and emotions that are experienced by someone in his/her life. The concept of happiness is also explained by behaviours of individuals as, for example, when we say that a person is happily married, it means that someone is cherished with his/her married life. The attitudes of individuals indicate whether they are happy with what they have, for example, with their lives and families. In this sense, happiness indicates contentment and satisfaction with what people have. But to interpret happiness in one word or through one phrase can make it more ambiguous.

There is a need, therefore, to explain happiness in a broader way. It is not one time phenomenon which expresses feelings and moods of respondents. In this analysis of happiness, we considered a series of questions from *WVS* for the 56 countries of the world on the basis of data availability (see appendix for list of countries). We have divided countries into three major groups: high, middle, and low income on the basis of *World Bank* definition. The study amalgamates the low middle income and low income groups because individually the two groups are too small for the purpose of analysis in the present context.

The *WVS* series was designed in a way to enable researchers to make cross-national, cross-cultural comparison. The morals and norms on a wide variety of topics can be compared from these data and that can also be used to monitor changes in values and attitudes across the globe. The five waves of the *World Values Survey* carried out in 1981-1984, 1990-1993, 1995-1997, 1999-2004, and 2005-2008 cover broad topics in their integrated file that includes perceptions such as life, family, work, traditional values, financial status, religion and morals, the economy, politics and society, the environment, allocation of resources, contemporary social issues, national identity, and technology and its impact on society. It is also considered that with which groups and organizations respondents were associated.

Questions regarding neighbours and ethnic affiliation of respondents were also asked. The most important consideration was whether the respondent felt that they had free choice and control over their lives. After the comprehensive reading of this dataset, we have selected 54 questions while keeping the concept of happiness in our mind. We considered those questions which are highly concerned with one's life satisfaction. These questions cover a number of areas, including but not limited to: importance of relations, concerns about neighbours, choice variables when having a job offer, environmental apprehensions, gender issues, patriotism and political importance, overall life satisfaction, impacts of social evils and religion.

A brief description of the component of happiness indices is given in Tables 4.1 to 4.10:

Table 4.1: Family Importance

Sr#	Questions	Responses
1	Family importance	1 = very important, 2 = important, 3 = not important at all
2,3….10	Child qualities: 9 aspects of qualities	-1= don't know, 0 = not mentioned, 1= important
11	To make my parents proud of me	-1= no idea, 1= completely agree, 2 = concur , 3 = disagree
12	Parenthood important for every child	-1= don't know, 0 = partially disagree, 1= partially agree
13	Country or region	Country codes

Table 4.2: Neighbour

Sr#	Questions	Responses
1	Neighbors: people of different races	-1= don't know, 0 = not cited, 1= cited
2	Neighbors: immigrants or foreign workers	

Table 4.3: Environment Apprehensions

Sr#	Questions	Responses
1	Protecting environment versus economic growth	0 = don't know, 1 = protecting environment, 2 = economy growth and job creation, 3 = other answer
2	In favor of environmental taxes	-1 = don't know,1 = agree strongly, 2 = agree, 3 = disagree, 4 = strongly disagree

Table 4.4: Gender Differences

Sr#	Questions	Responses
1	In periods of depression male have more job rights	-1 = don't know , 1= agree, 2 = neither, 3 = disagree
2	Women as a single parent	0 = disapprove, 1= approve, 2 = depends

3 4 5	Being a housewife is just fulfilling. Men are good political managers. Higher education is more important for men	-1= don't know, 1 = agree strongly, 2 = agree, 3 = disagree, 4 = strongly disagree

Table 4.5: Patriotism and Nationalism

Sr#	Questions	Responses
1	Importance of politics in one's life	1 = most important, 2 = partially important, 3 = least important, 4 = no important
2 3	Be willing to fight for country. How proud of your nationality	-1 = don't know, 0 = no, 1 = yes, 2 = depends

Table 4.6: Political Interest

Sr#	Questions	Responses
1	Interested in Politics	1 = very interested, 2 = somewhat interested, 3 = not very interested, 4 = not at all interested
2 3 4	Political actions: signing a petition Political action: active in boycotts. Political action: in favor of peaceful demonstrations	-1 = not known, 1 = have done, 2 = might be, 3 = not interested
5	Desirable position on political scale	1= left, 2 = 2,……..,10 = right

Table 4.7: Religion Importance

Sr#	Questions	Responses
1	Thinking about essence and rationale of life	1= regularly, 2 = occasionally, 3 = seldom, 4 = never
2	Religion denomination	1= Aglipayan, 17 = Christians, 42 = Jews, 49 = Muslims
3	Attendance at religious services	1= more than once a week, 2 = once in a

		week, 3 = once in a month, 4 = on holiday only, 5 = a year, 6 = seldom, 7 = never
4	What is the importance of God in one's life	1 = not at all,……,10 = imperative

Table 4.8: Life Satisfaction

Sr#	Questions	Responses
1	Feeling of happiness	1 = much happy, 2 = quite happy 3 = least happy,4 = unhappy
2 3	How much satisfied with personal Life Satisfaction with household's current financial situation	1 = dissatisfied, 2 = very little dissatisfied,……., 10 = satisfied
4	How much freedom you feel	1 = not at all , 2= not much, ……., 10 = a great deal
5	Most people can be trusted	-1 = no idea, 1 = mostly people can be trusted, 2 = need of careful behaviour
6	Social class (subjective)	1 = high class, 2, 3 = upper and lower middle classes, 4 = working class, 5 = poor class
7	Scales of incomes	1 = lower step, 2 = second step, ……., 5 = upper step

Table 4.9: Social Evils

Sr#	Questions	Responses
1 2 3,4	Claiming government benefits are justifiable Avoiding a fare on public transport is justifiable Cheating on taxes and accepting a bribe is justifiable	1= never permissible, 2= slightly justified,…….,10 = always justifiable
5… 10	Justifiable homosexuality, prostitution, abortion, divorce, euthanasia, suicide	1= never justifiable, 2 = slightly justified,…….,10 = always justifiable

Table 4.10: Freedom of Choice

Sr#	Questions	Responses
1	How much leisure is important in one's life	1 = very important, 2 = rather important, 3 = not very important 4 = not at all important
2 3	What is the first choice of unemployed person for a job What is the second choice of unemployed person for a job	1= handsome salary, 2 = job security, 3 = favorable work environment, 4 = doing something special, 5 = welfare of community

We have included various socioeconomic, demographic, religion, gender related and cultural questions regarding happiness/ life satisfaction to capture the true picture of one's level of happiness in a wider sense. These multidimensional questions make a web in which each thread is meaningful while constructing happiness index. There are always socioeconomic differences among the individuals and every one experiences different resources of endowments. So they always have different opportunities during their life spans. The way they are getting benefits from these resources by availing the opportunities are also different. While constructing happiness index, political and patriotic questions could not be ignored. There are many groups and subgroups in a population to generate their classification and categorization. These groups may exhibit differential living standards and cultural and/or ethnic values. The practices that prevail among certain ethnic groups may influence the life satisfaction of not only this group but also of other sub groups.

In family happiness index Table 4.1, we have included nine aspects of child qualities as children are the major component of family ties and happiness. In developed countries, children are physically abused by their caregivers. This frequent abuse leads to sever maltreatment for many children. According to Carter (2005) about 1·3 million children (aged 0–17 years) are in social-care facilities within 20 countries in Eastern Europe and the former Soviet Union and by Hunt (1998) they are physically and sexually abused by caregivers and peers in those institutions commonly. According to Gilbert, *et al.* (2009); maltreatment contributes to the children's mental health, drug and alcohol usage, justifying criminal acts from infancy to youth. In long-terms, the negligence of parents turns out to be highly damaging physically, socially, psychologically and sexually. The high income countries need to pay attention towards the investment in precautionary and remedial strategies from early childhood to reduce the high burden child mistreatment. Secondly in this index we have included those questions which strengthen parent-children relationship. Parents' characteristics, such as their educational levels, financial status and mental health affect the maltreatment of children often in high income countries. The parental risk factors can be modified by environment and community in the realms of income, education, socioeconomic inequalities and socio demographic characteristics in order to protect children from maltreatment (Berger, 2002, 2005, Ards, *et al*., 2001, and Sidebotham, 2001). Moreover, poor economic circumstances affect the quality of child-care programs negatively. This leads to health problems and social discrimination, which may diminish the ability of an individual to earn income (Fotso and Kuate-defo, 2005, and Reed, *et al.*, 1996).

The questions that relates to happiness of individuals with respect to neighbours are included as mentioned in Table 4.2. Competitive environment always affect the happiness of native as well

as immigrants. Racial segregation may cause social inconvenience among different races. Myrdal (1944) worked on racial relations and authored *"An American Dilemma"* in which he claimed that racial segregation reduces the quality of public services to blacks without hurting whites. According to Massey and Denton (1998), the residential segregation has been an instrument in creating a structural role. An increase in geographic concentration of deprivation and also the deterioration of socio-economic conditions in black communities in the USA occurred on the face of extreme segregation. Such racial isolation under harsh environment evolves attitudes, behaviours, and practices that may affect other life aspects too. Racial segregation practices force the black citizen of the USA to live in ghettos, remain as marginalized neighbourhoods and undermine their chances of success in the mainstream American society. A ghetto is the highly under-developed part of a city in which members of a minority group live, especially because of social, legal, or economic pressures.

The markets have had their own approaches based on the assumption of large number of resources and disregard for the environmental impact in the past. But resource degradation warrants re-examining both the theory and the practices of the past. The limited resources and high environmental costs shatter the assumptions of the past that there is a zero environmental cost and that the resources will always remain available in sufficient quantity. The human population and economic growth go hand in hand but their magnitude may differ. This growth exerts a pressure on natural system and the pattern of production, eventually disturbing consumption. The equilibrium point of demand- supply has become unsTable. The first question

in this environment index as mentioned in Table 4.3 is about trade-off between economic growth and environment. The environmental impacts which are generated by the utilization of natural resources are addressed in this thesis. The second question is based on the personal choices of respondents about the environmental tax, whether the respondents are willing to pay environmental tax to protect environment or not. There is, therefore, a need of tax reforms about the environment attune also with green growth reforms. This trade off between environment and economy relate to human welfare as any tax reforms enable us to not only enhance human wellbeing but also conserve natural resources. This will protect the environment from degradation too.

The Table 4.4 address responses of those questions which are based on gender difference happiness. According to Stevenson and Wolfers (2008), there is a relative decline in female happiness, creating a gender gap in happiness. In the 1970s typically women reported higher subjective wellbeing than men. The overall lives of women in the USA have improved over the past 35 years; however, women's happiness has declined in absolute and relative terms as compared to men. The study observes that this paradox has been found across various datasets of industrialized countries in response of gender gap among different demographic groups. This gender gap is leads to lower subjective wellbeing of women than men because there are certain socio-economic factors that make women to be less happy. In most societies, preferences are made in such a way that men avail more opportunities of education and jobs. Men are considered as better political leaders and have more rights to have good economic status in comparison to females. According to Putnam (2000) there are a number of important macro trends that worsen

females through decreased social cohesion. This decrease in social cohesion ends in depression. That is why females face the problem of anxiety and neuroticism (Twenge, 2000).

According to Bjørnskov, *et al.* (2007) there is a gender gap faced by females based on three dimensions of their lives: politics, economic empowerment, and social relations. The discrimination in politics has also affected individual happiness. Women report maximum happiness when less discriminatory policies are practiced in the society where they live. The gender equality, however, as a unitary phenomenon for happiness is not justifiable. There are a few other measures of gender inequality that are significantly related to well-being, while others do not affect happiness.

The questions based on nationalism and patriotism in Table 4.5 explain the behaviour of individuals towards their nationality. Individuals are more motivated to work and fight for their homeland if they consider their homeland better place for living. Good governance promote better standard of living with less insecurities. According to Ott (2010), a positive relationship between the quality of government and the average happiness in nations has been observed. This relationship, however, becomes bell shaped when there is inequality in happiness. A higher level of average happiness can be achieved with the improvement of the technical quality of government. It all depends on the performance of governments which strengthen its quality. A big government can enhance happiness only when its own governance quality is good. Ott (2010) also explains that when there is an improvement in technical quality of a government

from its low level to high, initially this improvement leads to more inequality in happiness among individuals but later on this inequality reduces.

Good governance is one of the important domains of Gross National Happiness (GNH). It supposedly ensures the happiness of individuals in given states. This index is just like that domain and the purpose of this index is to know the respondents' feelings and interests towards politics. To enhance the wellbeing of the nations, the quality of government is as important as its nature (democracy etc). In contrast to other indices of happiness, the governance focuses on all the sectors of the society. Consequently, all sectors of society affect the life of individuals, which comes forth through the cumulative efforts of government.

The religiosity is one of the main components in one's life. We have included four questions related to religiosity in religious happiness index in Table 4.7. Snoep (2007) has made a cross countries comparison for the United States, Denmark and Netherlands and on the data of *World Values Survey* (2000) and found that there is no correlation between religiosity and happiness unlike that found for the USA. But Opfinger (2010) found a U-shaped relationship between happiness and religious beliefs. Countries tend to experience high level of happiness when religiosity is either at peak or bottom. The intermediate levels of religiosity lead to less happiness. The reason behind such relationship is the network effects. It means the degree of religiosity measures the happiness of individuals. The religious people are happier if they live in accordance with their religious beliefs in the society and in case of atheists, religion does not play an important role.

The same results were found by Gundlach and Opfinger (2011) that explain the situation of countries with average levels of religiosity, especially the ones that expirence less happiness. The dgree of religiosity is much important as people are happier in the countries in which the level of religiosity is either high or low. In the countries at medium level of religiosity people expirence less happiness. The religious people are more happy in the religious localities or where religion is least important, that is, the atheists live happily. These stunning findings suggest to consider religious factors while constructing happiness index. So we have considered four important questions of religion which affects one's happiness in terms of religion.

According to Table 4.10 of section 4.2 the happiness which based on free choices includes three variables: how much leisure is important in one's life, what is the first choice of an unemployed person for a job and what is the second choice of an unemployed person for a job. In simple words, the trade-off between work and leisure should be on a balanced path. None of these affect negatively. Our choice index also considered the other two questions about the job preferences. The responses of choice index are based on those things which are most important while searching a job or having it. Either people prioritized income or leisure. They are more concerned about their personal likes/dislikes or much passionate for their work.

Summarizing all the discussion, happiness is not considered as one time phenomenon which can be affected by a single arrow's direction. Happiness is a vast construct with various aspects and numerous dimensions. To achieve happiness a nation has to move up a ladder. Each step of the

ladder consists of a set of variables. Each step has its own importance and also has many dimensions as discussed above. To neglect any one of them may take away individuals as well as nations from their basic goal of achieving happiness.

4.3 METHOD of CONSTRUCTING HAPPINESS INDEX

4.3.1 Preliminaries

Index is a statistical measure of data that combines a set of variables of similar nature into a single variable. The index may represent the phenomenon such as stock market performance, prices, productivity, employment, etc. Economic situations are tracked by economic indices from different perceptions. The Consumer Price Index captures the trend in prices for a basket of consumer goods and services over time in certain geographic areas. Similarly for any labour market the job index explains the labour market conditions and a stock market index shows investors' and other agents' sentiments about the corresponding stock market.

PCA is one the statistical methods which can be used in the construction of indices. *PCA* is a multivariate statistical method of reducing large data set by applying covariance analysis between the factors. It is best fitted for data set of multiple dimensions and reduces these data into a smaller number of dimensions. The *PCA* was introduced by Pearson (1901) but it is often endorsed to Hotelling (1933). Its use is appropriate when we want to convert a large number of variables into a manageably small number of artificial variables, called the principal components. A limited number of principal components can encompass most of the variation in the observed variable. This method is appropriate when we have large data for multiple variables and need some sack in these variables. In large dataset, most of the variables are correlated with each other

and tend to explain the same phenomenon. So redundancy reduces the pragmatic variables into artificial variables i.e. principal components, which explain the maximum variations in data. It means that *PCA* is a technique in which we reduce our data into useful form and also make the collected data relevant for statistical analysis. The resulting principal components may then be used for subsequent analyses. *PCA* is computationally easy and also avoids many of the problems associated with the traditional methods, such as linear aggregation, standardization, and nonlinear relationships of variables affecting socioeconomic inequalities (Vyas and Kumaranayake, 2006).

Technically, we say principal component is the linear combination of optimally weighted observed variables. Now for further measures, first, we explain how these weights on principal component are computed.

1. The PCA converts correlated components into uncorrelated components and indices. The prime objective of principal component analysis is the construction of a set of variables into new variables called principal components i.e $Y_j\ (j=1,2,\ldots\ldots,k)$. Each new variable is a linear weighted combination of the original variables, that is;

$$P_1 = a_{11}Y_1 + a_{12}Y_2 + \ldots\ldots + a_{1k}Y_k \quad \ldots\ldots\ldots\ldots (4.1)$$

$$P_2 = a_{21}Y_1 + a_{22}Y_2 + \ldots\ldots + a_{2k}Y_k \quad \ldots\ldots\ldots\ldots (4.2)$$

.

.

.

$$P_k = a_{k1}Y_1 + a_{k2}Y_2 + \ldots\ldots + a_{kk}Y_k \quad \ldots\ldots\ldots\ldots (4.k)$$

where P's are values on principal components from 1.....k, a's are the regression coefficient (weights) for observed variable k which is used in the construction of principal component, and Y's are the values of observed variable k. The weights or loadings of principal components are given by eigenvectors of the correlation matrix. These weights are also taken from covariance matrix if the original data are standardized.

2. The method of PCA can be applied by using values of $Y_j's$ in deviation form, that is, $y_j = Y_j - \bar{Y}_j$ (deviation from means) or by standardized variables $Z_j = {}^{y_j}/_{s_{yj}}$, which are measured as the deviation of $Y_j's$ from the respective means divided by the standard deviations. The values of principal component will be different depending upon the way the variables are used (original/deviation/standardized values). The principal components capture different sources of variations in the data set. The first principal component P_1 captures the largest possible variations in the original data having the constraint that the sum of squared of loadings is equal to unity. The second principal component P_2 is completely uncorrelated with P_1 and explains the maximum additional variations in the data but these variations are small in comparison to those computed by the first component. The third component accounts for the maximum that the first and the second do not account for and so on. Thus, the subsequent components are mutually uncorrelated and capture smaller but additional variations. So the fewer components are needed if the correlation among the original data is high.

3. There are three important conditions of loading factors that are satisfied by each principal components.

i. The principal components are mutually uncorrelated.

ii. The first principal component absorbs and accounts for the maximum possible proportion of the total variations in the set of all Ys. In the same way, the second principal component absorbs maximum of remaining variations in the Ys and so on for number of principal components.

iii. First, one has to compute coefficients (a's) from equations 4.1 to 4.k, then conduct some tests of significance to decide whether the computed coefficients are statistically significant or not. On the basis of proportion explained by the eigenvalues, one decides as to how many of the principal components (out of possible) be retain for further analysis.

4.4 EMPIRICAL RESULTS of HAPPINESS INDICES

4.4.1 Preliminaries

Following our discussion in section 4.2 and 4.3, we have estimated happiness indices for 10 categories, namely: family happiness, concern about neighbours, environment apprehension, gender differences, patriotism, political interests, religious concerns, life satisfaction, social evil justification, and freedom of choice. These indices are computed for the recent three waves of *WVS* for the periods, 1994-1998, 1999-2003, and 2004-2008. For each wave separate happiness indices are estimated for each of the three categories of countries, that is low income, middle income and high income countries. The computed values of theses happiness indices are presented in this section. Finally the results of these estimations for the three categories of countries are presented graphically in the following sub sections.

In the construction of all happiness indices we have used standardized value of selected variables (having zero mean and constant variance) as *PCA* is not scale invariant and original variables are often measures on different scale. All the indices are computed by *PCA* and eigenvalues associated with each component show the percentage variations. On the basis of these variation we have choose the first PC for the construction of all the indices of happiness which captures the maximum variations in all the cases. While remaining PCs capture minimum proportional variations which are negligible. The constructed happiness indices are now discussed one by one as follow.

4.4.2 Family Happiness

As discussed in section 4.2 (see Table 4.1), the family happiness index is based on responses in *WVS* in regards to family importance (Y_1), aspects of child qualities (Y_2 to Y_{10}), parents' pride (Y_{11}), importance of parenthood (Y_{12}) and region (Y_{13}). First component is selected on the basis highest eigen values which captures maximum variations. The variance (eigenvalues) associated with each component of family happiness explain the %age variation among all the variables. The normalized weights selected on the basis of eigen values are attached with family happiness variables. Therefore family happiness index is constructed as follow:

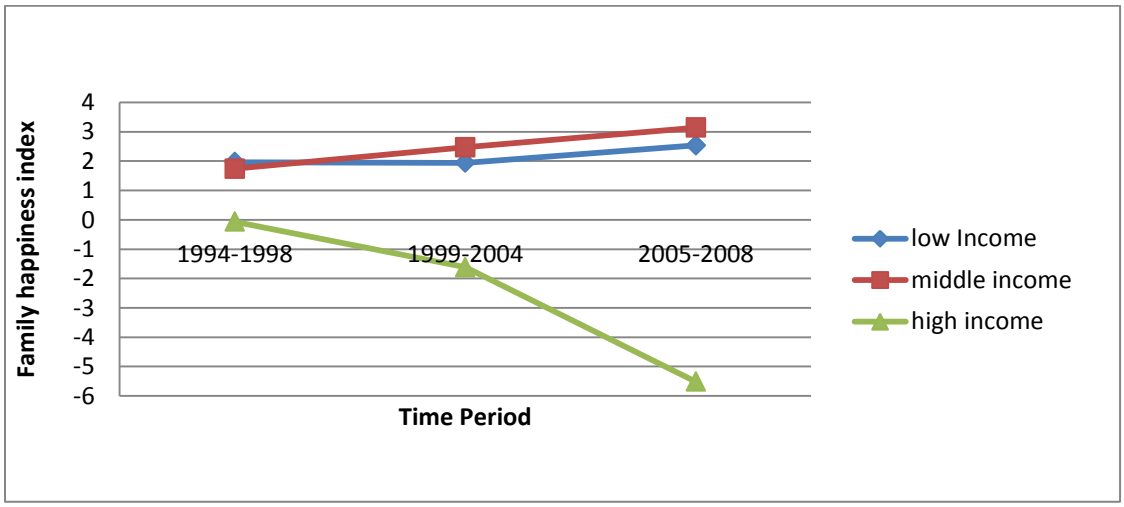
$$FAM\_PH^1I = 0.00750.182\ Y_1 - 0.2794\ Y_2 + 0.0168Y_3 - 0.3518\ Y_4 - 0.0061Y_5 - 0.0051Y_6 - 0.2092Y_7 - 0.0584Y_8 + 0.4367Y_9 + 0.1789Y_{10} + 0.4888Y_{11} + 0.4888Y_{12} + 0.1499Y_{13}$$

The mean values of family happiness index for three groups of countries and for the three waves of *WVS* are shown in Figure 4.1. The Figure shows that the level of happiness based on family

[1] FAM_HPI denotes family happiness index

relations is substantially higher in low and middle income countries as compared to the rich countries. It is also apparent from the Figure that in the low and middle income countries, happiness has slightly increased over the three waves of *WVS*, whereas a sharp declining trend is observed in the rich countries, especially between the two recent waves.

Figure 4.1: Family Happiness Index



The characteristics of parents and children are important in the determination of family happiness. Parents' economic, social, mental and educational statuses contribute to child grooming, moreover, child qualities enhance the parents' happiness. Failure to meet a child's basic physical, emotional, medical, or educational needs or to provide adequate nutrition, hygiene, shelter, or child's safety ultimately leads to maltreatment of children by their parents or other caregivers, which causes a major public-health and social-welfare problem.

4.4.3 Neighbours Happiness Index

The index of neighbour happiness based on responses in *WVS* in regards to neighbours of different races and neighbours as immigrants or foreign workers (see Table 4.2 in section 4.2).

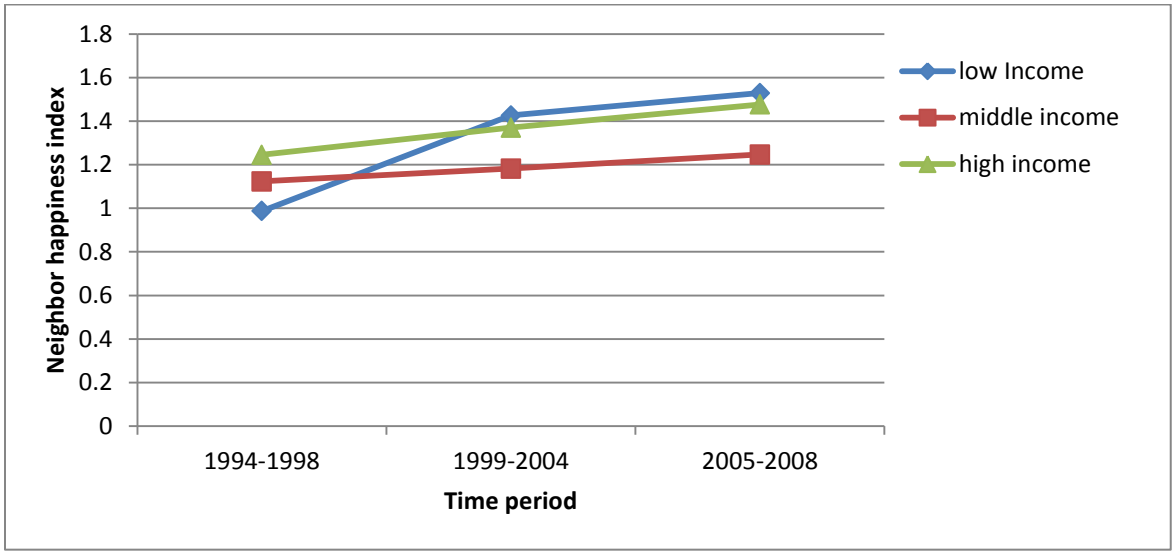
The computation based on *PCA* revealed that out of these variables the highest weight is assigned to different races (Y_{14}) following by neighbours as immigrants or foreign workers (Y_{15}). The eigenvalues explain variability between these two components of happiness related to neighbours. Percentage variation between neighbour's races and nationality are explained by their variances. On the basis of computed variances the normalized weights are assigned to each variables of neighbourhoods' happiness. The neighbour happiness index is constructed of as follows.

$$NEI\_HPI^{2} = 0.5\ Y_{14} + 0.49Y_{15}$$

In Figure 4.2 we have presented the results of neighbour happiness index for the three groups of countries and for the three waves of *WVS*. The figure shows that the level of happiness based on concern about the ethnicity of neighbours is substantially smooth but increasing in high and middle income countries as compared to the low income countries. It is obvious from the figure that in the high and middle income countries, happiness has slightly increased over the three waves of *WVS*, whereas a sharp jump is observed in the low income countries in the second wave. This shows that people in low income countries were paying less attention to neighbours' nature in first wave but in second and third wave according to our data selection they have shown more concern.

[2] NEI_HPI denotes to neighbourhood happiness index

Figure 4.2: Neighbour Trends



4.4.4 Environmental Apprehensions

According to Table 4.3 of section 4.2 index of environmental happiness that depends on responses in *WVS* in regards to trade-off between protecting environment versus economic growth Y_{16} and environmental taxes Y_{17}. The *PCA* highlighted that out of these two environment variables the highest weight is assigned to trade-off between protecting environment and economic growth following by environmental taxes. The normalized weights are attached with variables of happiness in regards to responses of environmental happiness to arrive at the following equation representing environmental happiness index.

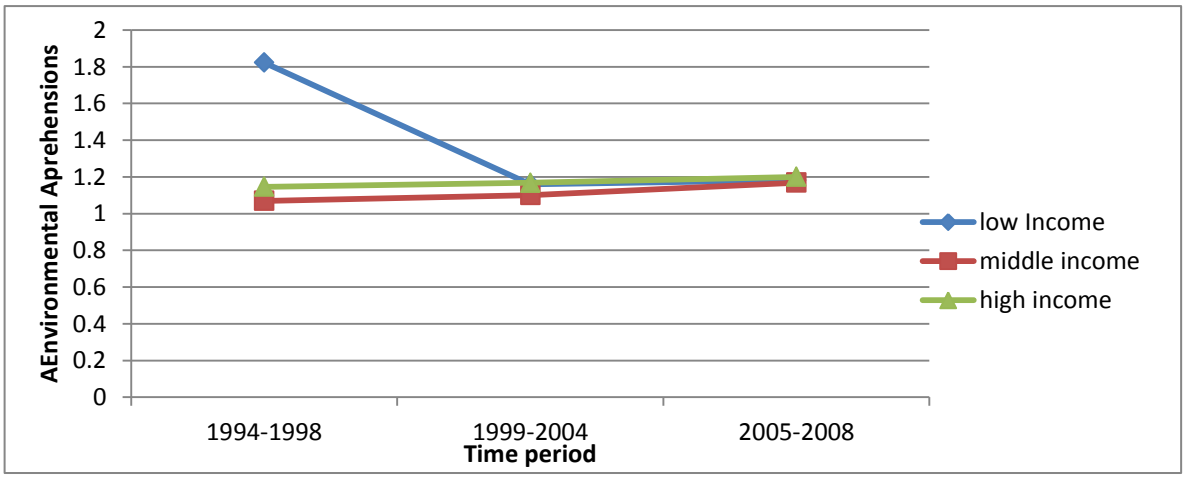
$$ENV\_HPI^{3} = 0.5\ Y_{16} + 0.49\ Y_{17}$$

The graphical representations of environmental happiness index for three groups of countries and for the three waves of WVS are shown in Figure 4.3. The figure shows that the level of happiness based on environmental apprehensions is symmetrically increasing in high and middle

[3] ENV_HPI denotes environmental happiness index

income countries as compared to low income counties. It is also apparent from the figure that in the high and middle income countries happiness has slightly increased over the three waves of *WVS*, whereas a sharp decline is observed in the low income countries in the first wave. But environmental happiness has increased between the two recent waves in low income countries as well. The reason for initial results for the low income shows that the people of low income countries were not much concerned about the environmental quality in first wave but in the last two waves they show more apprehensive about their environment. This shows that low income countries changed their attitudes towards quality of environment slowly and gradually with the increase in awareness and sensitization.

Figure 4.3: Environmental Happiness Index



4.4.5 Gender Differences

In section 4.2, the responses in regard to gender differences are discussed (see Table 4.4). The gender difference index is based on responses in WVS about job rights, woman as single parent status, being a housewife is just fulfilling, men are good leaders and higher education is more important for men. The computations based on *PCA* show that out of these variables the highest weight is assigned to job rights, following by woman as single parent status, being a housewife is

just fulfilling, men are good leaders and higher education is valuable for man only. The variability among these gender difference variables accompanied by percentage variation is computed by *PCA.*

On the basis of theses computed variances the normalized weights are assigned to variables of happiness that based on gender differences. The happiness index based on differences in gender is constructed as follows.

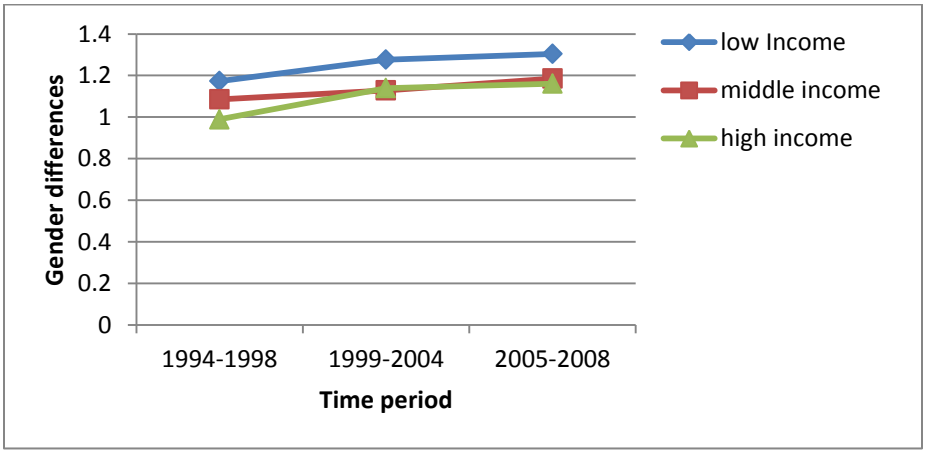
$$GER\_HPI^{4} = 0.2288\ Y_{18} + 0.1372\ Y_{19} + 0.1863\ Y_{20} + 0.2265\ Y_{21} + 0.2260\ Y_{22}$$

All the coefficients attached with each explanatory variable possess positive signs that ensures happiness based on gender discrimination is enhance by them.

The results of gender difference happiness index for the three groups of countries and for the three waves of *WVS* are shown in Figure 4.4. This figure shows that the level of happiness based on gender differences has been increasing in all three categories (low, middle income and rich income countries) over the three waves of *WVS* where countries experiences more gender inequality. It is also clear from the figure that the happiness based on gender difference is highest in the low income countries following by middle income countries but initially for high income countries the happiness relating to gender differences is slightly below these two income groups. Increasing trend is observed in the high income countries, especially between the two recent waves for this happiness.

[4] GER_HPI denotes gender happiness index

Figure 4.4: Gender differences happiness index



So the gender difference always remains a key focus in economics in all types of analyses because these differences create the economic (job right), social (no status of housewife and woman as a single parent), demographic (right of higher education) and political (male considers as good political managers) differences among individuals. This increasing gap in gender shows the countries remain practicing the preference gap between men and women.

4.4.6 Patriotism/ Nationalism

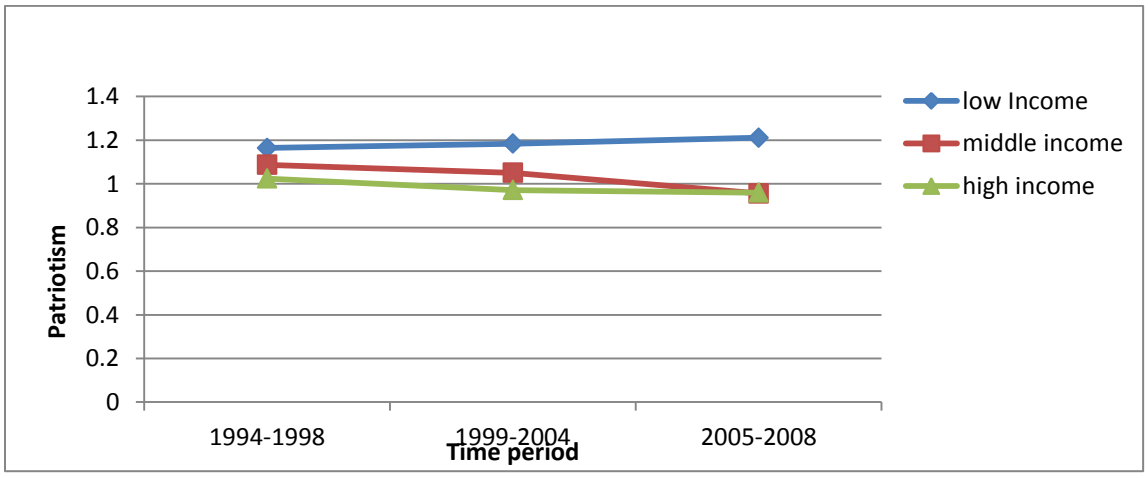
In Table 4.5 (section4.2), we have explained the responses of *WVS* in regard to importance of politics (Y_{23}), willingness to fight for the country (Y_{24}) and having pride being a national (Y_{25}). First component is selected on the basis highest eigenvalues which captures maximum variations. The variance (eigenvalues) associated with each component of patriotism happiness explain the %age variation among all the variables. The normalized weights selected on the basis of eigenvalues are attached with patriotism happiness variables. Therefore, we have constructed patriotism happiness index as follow.

$$PAT\_HPI^{5} = 0.7761\ Y_{23} - 0.5718 Y_{24} + 0.7957\ Y_{25}$$

The large positive weights of variable importance of politics (Y_{23}) and proud of own nationality (Y_{25}) indicate that these variables are positively related to happiness in regard to patriotism but the weight of second explanatory variable possess negative sign showing that willingness to fight for the country (Y_{24}) deteriorate this happiness index.

The mean values of patriotism happiness index for the three groups of countries and for the three waves of *WVS* are shown in Figure 4.5. The level of happiness based on patriotism is substantially higher in low income countries as compared to middle income countries and high countries. It is also obvious from the Figure that in low income countries happiness in relation to their homeland has increased over the three waves of *WVS*, whereas a gradual decline is observed in middle and high income countries especially between the two recent waves.

Figure 4.5: Patriotism Happiness Index



[5] *PAT_HPI denotes patriotic happiness index*

4.4.7 Political Interests

The political interests' index is based on responses of *WVS* in regards to interests in politics (Y1), signing a petition (Y2), active in boycotts (Y3), in favour of peaceful demonstrations (Y4) and desirable position on political scale (Y5) as shown in Table 4.6 of section 4.2. The computations based on *PCA* and first component is selected on the basis highest eigenvalues that captures maximum variations. The variance (eigenvalues) associated with each component of political happiness explain the %age variation among all the variables: interests in politics, signing a petition, active in boycotts, in favour of peaceful demonstrations and desirable position on political scale. These computed variances allow us to assign normalized weights to each variables of political happiness.

The happiness index based on political interest is constructed as follows.

$$POL\_HPI\ ^{6} = -0.0281\ Y_{26} + 0.3188\ Y_{27} + 0.2925\ Y_{28} + 0.3096\ Y_{29} + 0.1071\ Y_{30}$$

The positive coefficients of variable signing petition (Y_{27}) and active in boycotts (Y_{28}), in favour of peaceful demonstrations (Y_{29}) and position on political scale (Y_{30}) show that these variables positively correlate with happiness. However a small negative coefficient of first explanatory variable interest in politics (Y_{26}) show that the happiness is not much correlated with one's being interested in politics.

The Figure 4.6 shows the results of this constructed political happiness index for three categories of countries and for the three waves of *WVS*. The level of happiness based on political interests is

[6] POL_HPI denotes political happiness index

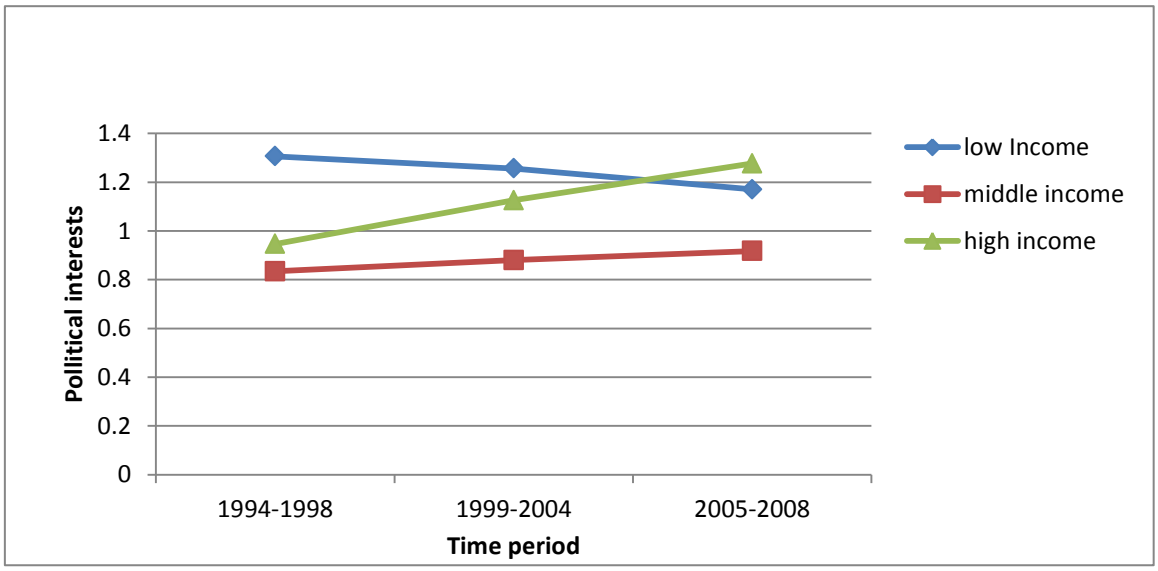
higher in high and low income countries as compared to the middle countries in this figure. It is also apparent from the figure that in the high and middle income countries, happiness has considerable increase over the three waves of *WVS*, whereas a sharp declining trend is observed in the low income countries, especially between the two recent waves.

The results of our computed index are in favour of good governance. If there would be bad governance, then people may take political actions like signing petitions, and also become active in boycotts against government. They attend political demonstrations peacefully and also want to take good position in politics. These results are more consistent for high and middle income groups, while for low income group, these concerns are in downward direction.

4.4.8 Religious Concerns

The responses of happiness with respect to religion are discussed in Table 4.7 (section 4.2) that are pertaining to the rationale of life (Y_{31}), religious denominations (Y_{32}), attendance at religious services(Y_{33}), and the importance of God in one's life (Y_{34}).

Figure 4.6: Political Interest

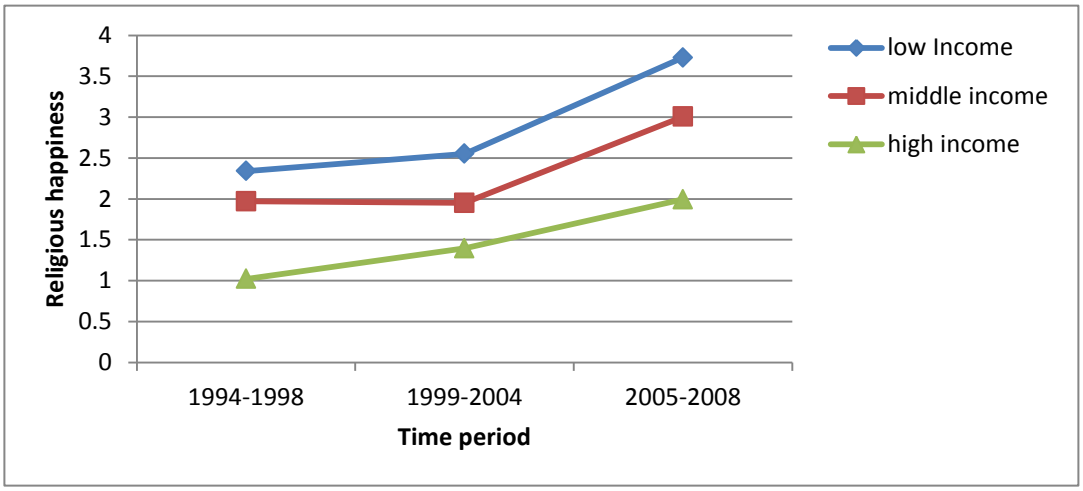


The weights of these variables are computed through *PCA*. The variance (eigenvalues) associated with each component of religious happiness explain the %age variation among all the variables: thinking about the rationale of life, religious denominations, attendance at religious services and the importance of God in one's life. These computed variances allow us to assign normalized weights to each variables of religious happiness. The religious happiness index is constructed as follows.

$$RI\_HPI\ ^{7} = 0.4751 Y_{31} + 0.1687\ Y_{32} + 0.5474\ Y_{33} - 0.1913\ Y_{34}$$

For three groups of countries and for the three waves of *WVS* the means values of constructed religious happiness index are graphically presented in Figure 4.7. According to this Figure the level of happiness based on religiosity is substantially higher in low income countries as compared to the high and middle income countries. It is also apparent from the figure that in all the three categories of countries the level of happiness has increased considerably over the three waves of *WVS*, especially between the recent two waves.

Figure 4.7: Religious Happiness Index



[7] RI_HPI denote religious happiness index

The data of European Social Survey has analysed (2003 and 2007) for three measures of religion: attendance at church, religious denomination, and regularity of prayer. These three measures of religion validate positive correlation between wellbeing and religiosity. The average level of religiosity in a specific region is positively correlated with the wellbeing of both religious and non-religious people. But presence of large number of atheists (having no religious denomination) reduces the level of happiness of the religious and the non-religious people alike. This spill-over effect is strong between religious and the atheist groups, however, a positive relationship is observed between personal religiosity and life satisfaction (Clark and Lelkes, 2009).

4.4.9 Life Satisfaction

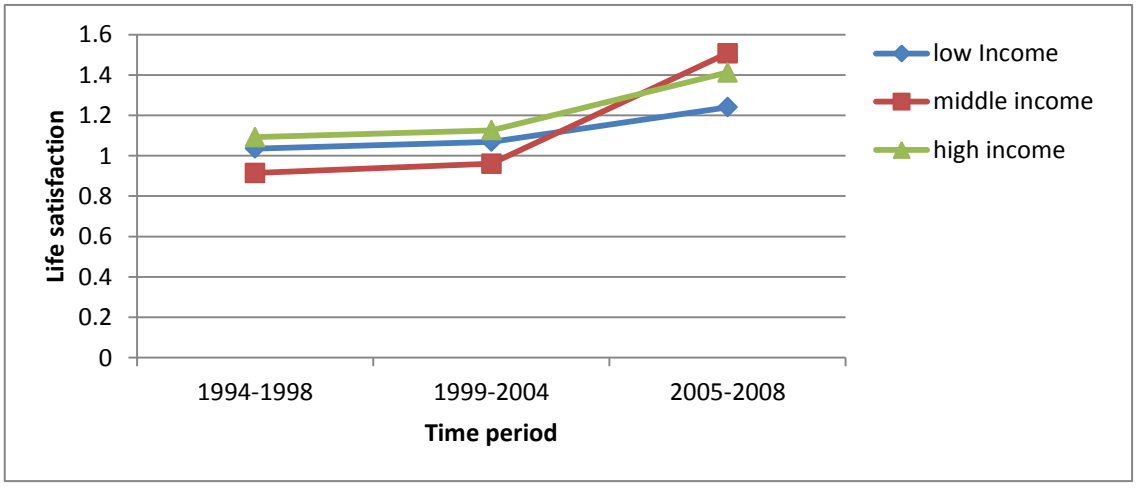
The life satisfaction index, as discussed in section 4.2 (see Table 4.8), is based on responses in *WVS* in regards to feelings of happiness (Y_{35}), satisfaction with personal life (Y_{36}), satisfaction with current financial situation (Y_{37}), feelings of personal freedom (Y_{38}), trust on other people (Y_{39}), social class (Y_{40}), and the scales of income (Y_{41}). Computation of life satisfaction index based on *PCA* and first component is selected on the basis highest eigenvalues which captures maximum variations. The eigenvalues associated with each component of life satisfaction index show the %age variation among all the variables of life satisfaction. The normalized weights selected on the basis of eigenvalues are attached with life satisfaction variables. The eigenvalues of happiness based on life satisfaction revealed variation among life satisfaction variables in decreasing order. The responses about being happy are used for the construction of life satisfaction index as follows.

LS_HPI [8]$= 0.1532\ Y_{35} - 0.1376\ Y_{36} + 0.2457\ Y_{37} + 0.2854\ Y_{38} + 0.3323\ Y_{39} - 0.0.0693\ Y_{40} + 0.1902\ Y_{41}$

The weights attached with variables of life satisfaction are normalized and their sum is equal to one. All the variables have positive coefficients except the coefficient attached with the variables satisfaction with personal life and social class. Both of them affect life satisfaction index negatively.

Figure 4.8 shows the trend lines for the mean values of life satisfaction index for the three groups of countries and for the three waves of *WVS*. The level of happiness based on life satisfaction is higher in high income countries as compared to middle income countries and low income countries. It is also obvious from the figure that in high and middle income countries happiness related to life satisfaction increases over the three waves of *WVS*, whereas a gradual increase is observed in low income countries, especially between the two recent waves.

Figure 4.8: Life Satisfaction Index



[8] LS_HPI denotes life satisfaction index

Our computed results uncover the increasing trend of life satisfaction among all income categories of countries. The degree of satisfaction is, however, higher among high and middle income countries as compared to the low income countries.

4.4.10 Social Evils Index

Social evil index is based on responses in *WVS* that are justifying claiming benefits from the government, avoiding fares, cheating taxes and accepting bribes. Similarly, homosexuality, prostitution, abortion, divorce, euthanasia and suicide were also recorded and analysed (see Table 4.9). The assigned weights of these variables are computed through *PCA*. Highest value principal component is selected to assign weights to these variables, claiming government benefits is justifiable (Y_{42}), that follow by avoiding fare is justifiable (Y_{43}), cheating taxes (Y_{44}), and accepting bribe is justifiable (Y_{45}). Homosexuality (Y_{46}), prostitution (Y_{47}), abortion (Y_{48}), divorce (Y_{49}), euthanasia (Y_{50}), and suicide (Y_{51}) of social evil justification index. The eigenvalues explain variations among these social evil variables that based on computed values of variances of these variables along with percentages variations. Social evil happiness index is computed as follow.

$$SE\_HPI^{9} = 0.182\ Y_{42} + 0.2318\ Y_{43} + 0.2281 Y_{44} + 0.1623 Y_{45} + 0.2531 Y_{46} + 0.2963 Y_{47} + 0.2881 Y_{48} + 0.248 Y_{49} + 0.2916 Y_{50} + 0.3202 Y_{51}$$

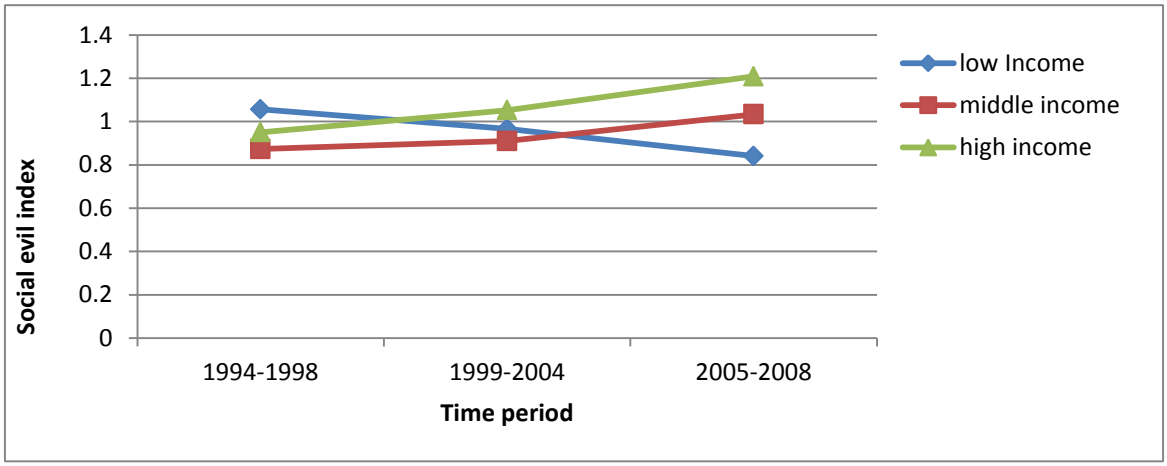
All the assigned weights have positive coefficients supporting that by justifying these social evils one gets greater value of the index.

[9] SE_HPI = social evil happiness index

In Figure 4.9 the mean values of social evil index for three groups of countries and for the three waves of *WVS* are shown. Trend of happiness based on social evil justifications are substantially higher in high and middle income countries as compared to the low income countries. It is also apparent from the Figure that in the high income and middle income countries, happiness index has increased based on social evil justification while among low income countries, the happiness indexhas sharp decline over the three waves of *WVS*. To claim government benefits and to justify suicide has an increasing trend in richer countries as compare to developing nations.

These trends, over time, are important to account for any changes in measurement that may affect responses to the happiness. The prostitution, abortion and divorce ratios are more justifiable among developed nations as people are more independent in their decisions. The personal lives of the individuals are more private and everybody has a right to live freely and make independent decisions. But the low income countries indicate downward trend in this index as there are strong family ties and higher religiosity that prevented vulnerable individuals from committing suicide or to have separation.

Figure 4.9: Social evil justification



4.4.11 Freedom of Choice Index

The choice between leisure and work is an important concern in one's life. According to Aristotle, *"We give up leisure in order that we may have leisure, just as we go to war in order that we may have peace".*

Freedom of choice index is based on responses taken from *WVS* as discussed in Table 4.10 of section 4.2. These variables are how much leisure is important in one's life (Y_{52}), what is the first choice of an unemployed person for a job (Y_{53}), and what is the second choice of an unemployed person for a job (Y_{54}). *PCA* is used to compute this freedom of choice index and the weight is assigned to freedom of choice variables on the basis of eigenvalues. The eigenvalues of freedom of choice happiness explain variations among three variables that are choice about leisure and work. The normalized weights are attached with these variables. The equation of freedom of choice happiness index is as follow.

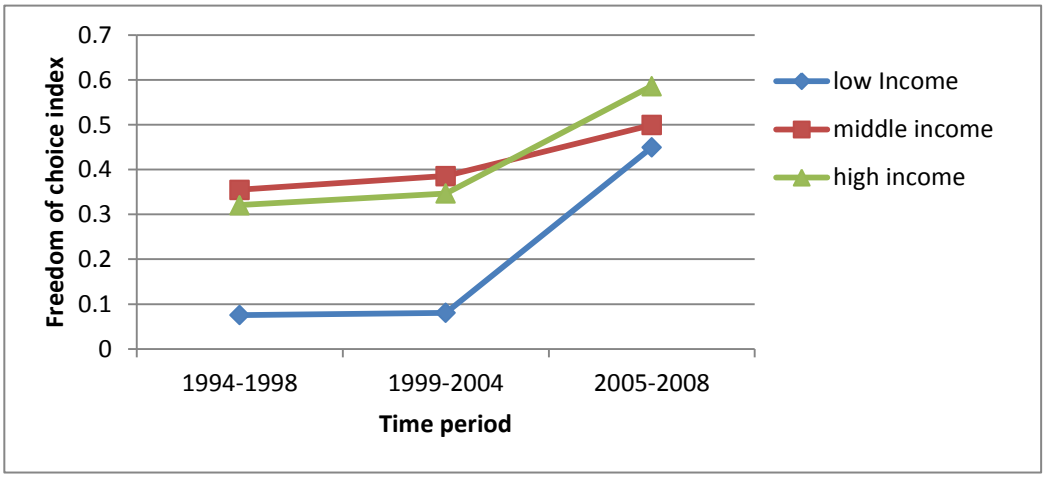
$$CHO\_HPI\ ^{10} = 0.0133\ Y_{52} + 0.4926 Y_{53} + 0.4939 Y_{54}$$

The positive signs of coefficients show that freedom choice index is enhanced by these choice variables. Since the sum of attached weights of three variables is equal to one, the index is homogenous of degree one for all the variables.

The mean values of the freedom of choice index for the three groups of countries and for the three waves of *WVS* are shown in Figure 4.10. The figure shows that the freedom of choice is extensively higher in high income countries as compared to middle and low income countries.

[10] CHO_HPI denotes freedom of choice index

Figure 4.10: Freedom of Choice



It is also clear from the figure that the low income countries have more rapid inclination towards freedom of choices, although the developing nations are much below the other two categories of countries in this respect. It is obvious that in the high and middle income countries, happiness related to freedom of choice has increased over the three waves of *WVS*, whereas substantial increase is observed in low income countries in the recent wave.

4.4.12 Country Level Analysis

The economists are interested in socio-economic, socio-culture and socio- demographic characteristics for individual level or aggregate analysis to explain self-reported happiness. Our main analysis is focused on aggregate data of happiness with respect to income groups but same income group countries may have different characteristics. Therefore we now briefly describe the 10 happiness indices with respect to each country for a deeper insight of happiness. The disaggregated data analysis at the individual level is elaborated here on the basis of statistics

presented in table A1 in Appendix-A. These disaggregated data at the individual level show relative position of country each with respect to the importance of various aspects of happiness within an income group. Similarly the behviour of different income groups' countries may be the same as locational factors have direct relation with happiness. The practices that prevail among certain ethnic groups may influence the life satisfaction of member of countries inhabited by these ethnic groups even though they may exhibit different living standards and cultural.

The review of Appendix-A reveals that the data of individuals' countries within an income group are more or less the same as at aggregate level of income groups with small variations in magnitude. The estimated happiness indices for 10 categories, namely: family happiness, concern about neighbours, environment apprehension, gender differences, patriotism, political interests, religious concerns, life satisfaction, social evil justification, and freedom of choice show individual country happiness with 10 different dimensions. For the first 23 countries (High Income Countries) the happiness that relates to family ties is declining over time, however, the magnitude of this family happiness is different for every country. Most of the countries (Australia, Canada, Finland, Germany, UK, and USA etc.) has observed sharp decline in family happiness but some countries show small decrease. From country 24 to 42 (Middle Income countries) the results of family happiness are mixed some of them (Colombia, Iraq and Mexico etc.) experience increasing trend while others do not show this trend. From the serial number 43 to 56 (Low Income Countries) the family happiness again reveals mixed trends yet Burkina-Faso and Egypt have quite high values. The concern about neighbours has increasing trend for the first 23 countries as they are much concerned with their neighbour either at individual or collective level. The happiness that relates to concern about neighbours for the next countries ranging from

Albania to Venezuela shows somehow little difference over time expect Colombia that has relatively noticeable change in values. From Bangladesh to Vietnam the concern about neighbours of some countries have stable value while others show declining trend over time.

The environmental happiness represents upward trend for almost every country of our sample but this behaviour of environmental apprehension is more consistent for developed and developing countries with few exceptions. In the second time period most of the countries have observed environmental factors but for Pakistan and Nigeria the situation is more critical with respect to environmental concerns. The gender difference happiness that gains from those incentives which are enjoyed differentially by male and female members of society has declined over the time sharply or slowly for almost all countries of our sample. The happiness that depends upon patriotism and political persuasions has smooth and gradual moves over time expect for developing countries that have more apprehension for their love to their home land and passion for politics. The rest of happiness indices: religious, social evil, life satisfaction and freedom choice have the causal trend as others have. Freedom of choice index based on happiness of those choices that are available for the selection of jobs. The religious happiness is declined for developed countries expect for the UK and Poland where it is increasing and for the USA it is relatively stable.

The most interesting and surprising trends has been observed in happiness that depends upon social evils commitment and overall life satisfaction. All the developed countries get happiness by justifying those evils which are socially prohibited. Those countries which lie in low income

category like Burkina-Faso, Bangladesh, Pakistan and Nigeria have less inclined towards such type of happiness. Different cultures have different social barriers of committing societal evils that is why we have different outcomes regarding cultural segregation. The results on life satisfaction index are consistent with the world view that high income countries have experienced more life satisfaction than other countries over time. There is no sharp or drastic change observed in high income and middle income countries expect Iran, Iraq and Macedonia. For less developed countries almost every country observing decline for in its life satisfaction and some countries, notably Moldova, India Morocco and Ukraine have seen rapid decline.

We have tried to know first what happiness is and also want to shed light on its relationships with the other aspects of life. The different dimensions of happiness are explaining the different aspects of happiness in one's life. . Every one responded in a different way for each question of survey while asked about the overall happiness. Some gave the importance to certain aspects yet others considered them less important and demonstrated that they were focused more on entirely different aspects, probably because of their own socio economic status. On a number of occasions, the feelings of being happy changed with moods and environmental indicators. The results of our happiness indices revealed in the same manners that in some indices of happiness the high income countries responded more while countries in other brackets responded less. The results and conclusions of our computed happiness index allow us to capture the effects of family ties, social relations, environmental apprehensions, quality of government, religion beliefs and available choice about employment on happiness. After completing the construction of the

indices of happiness, now we are ready to correlate these happiness indices with economic, social, governance, environment and demography variables.

CHAPTER 5

CORRELATES of HAPPINESS

5.1 INTRODUCTION

In the recent years, the measures of subjective wellbeing have been getting great attention by academicians and researchers, particularly in developed nations and this issue has been ignored by the developing nations perhaps owing to non-availability of required data. In the past six decades, an aggregate income measured by GDP has been mainly used to assess the happiness of a nation. Earlier research on this subject focuses on the relationship between happiness and income or economic growth. However, Fleche *et.al* (2011) argues that there is no clear empirical evidence, which discovered a positive impact of GDP on happiness. They further argue that there are many other significant factors of happiness rather than GDP alone. The possible justification for insignificant or no relationship between GDP and happiness might be that income has only a short-term impact on individual wellbeing. Omission of other confounding factors may be the important reasons for no relationship between happiness and income. We cannot ignore the significant role of income for the life satisfaction of individuals. There are, however, a number of other factors which are equally important for happiness (Helliwell, 2009).

Dolan *et.al* (2008), Winkelman and Winkelman (1998), Di Tella *et al* (2001), Helliwell (2008) and Lucas (2007) conclude that health, employment status, social contact and the quality of governance are the most important factors of life satisfaction or happiness. Apart from constructing index of happiness or life satisfaction it is also important to know those factors that

can affect level of happiness as one of the profound indicators of wellbeing. In addition to income, health, employment status, social contact, quality of governance, we proposed a broader and comprehensive range of economic, demographic, social, environmental and political variables as determinants of happiness.

The characteristics and correlates of happiness tell its nature. It means happiness has either relative or absolute nature with its possible correlates related to economic, social, environmental, demographic and governance-oriented variables. This relationship needs further critical and deep analysis after defining and identifying happiness. In this chapter, we dig out the relationship of happiness with some of the possible variables categorized as mentioned above. The chapter is divided into six sections. Section 5.2 describes the selection of explanatory variables under different categories namely the economic, social, environmental, and demographic and governance related categories. The detail as to how these variables can possibly affect happiness is discussed in section 5.3. All the correlates of happiness and the estimation procedures are discussed in sections 5.4. Section 5.5 elaborates the estimated results of fixed effect pool estimation in detail and how the different domains of life affect individuals' level of happiness. Whether happiness has any relationship with all explanatory variables or not is explained by estimated results. In the end, section 5.6 explains the estimated results of GMM technique for one of our happiness index i.e social evil index which is facing the problem of endogeinity.

5.2 METHODOLOGY

The utility theory provides foundation for the present work. It is important to give an explicit explanation of utility at the outset. Simply, the principle of utility means the principle which accepts or rejects every action or behaviour of individuals. Alternatively, utility tells about those things that either promote or oppose happiness. It does not only mean to capture the private actions or behaviours of individuals but it also refers to those actions that relate to government. Basically, utility is the notion that generates benefits, pleasure, advantages and ultimately happiness. On the other side, utility prevents from dissatisfaction, pain, evil, and unhappiness. Individuals are assumed to derive utility according to the utility function:

$$H_i = f(U_i(X_i))$$

where H_i is the level of happiness of individual i (i= 1…….I) from which he/she derives his/her utility, which is a function of economic and demographic variables, social indicator, political situation and environmental factors. The vector X_i consists of economic, demographic, environmental, social, political and governance related variables. That is, X_i consists of the entire set of explanatory variables that affect happiness either directly or indirectly. The details of these variables are as follow.

- Economic variables

  GDP, economic freedom, CPI, unemployment, gini coefficient, poverty, trade openness.

- Demographic variables

  Fertility rate, population growth, life expectancy, urbanization.

- Social indicators

  Net migration, population density, age dependency, and crime ratio.

- Environmental factors

  Biodiversity per capita, CO_2 emission, ecological footprint production per capita and ecological footprint consumption per capita.

- Political/ Governance situation

  Based on ICRG Governance related variables.

In economic index, we include income level, economic freedom, inflation, inequality, poverty, and trade liberalization for the analysis of happiness; moreover, all these variables are treated in positive direction. So any appreciation in economic index will enhance the economic status of individuals. Individuals are rational and their preferences are well defined presumably. They work harder and harder to relax their budget constraints for the higher level of life satisfaction which leads to ultimate objective of happiness. Per capita income and levels of happiness are expected to be positively correlated across the nations while the unemployment and inflation expected to have adverse effects on happiness. Income factor always remains under consideration for the determination of happiness but the other economic factors such as inequality, poverty, economic freedom, etc. can't be ignored. Per capita income provides, however, the basis for the measurement of inequality and poverty. The improvement in living standards and reduction in inequalities enhance happiness within a nation. Individuals would be happy within a nation and across the nations if they experience less income inequalities and more job opportunities combined with growth in GDP.

Economic freedom is based on five major areas that are composed of sub-indices (each one consisting of a number of items). Economic freedom, measures the overall freedom that refers to freedom from heavy taxation and facilitation of subsidies, efficient legal system and provision of property rights, money securities, free international trade, presence and functioning of efficient credit and labour markets and well defined regulations for entrepreneurship. It provides opportunities to individuals to enjoy voluntarily exchange of goods and services as well as personal and property security. One of the important variables in economic index is economic freedom, which has been explained in different studies (Gwartney and Lawson 2003, 2008). The impact of economic freedom on the economic growth cannot be overlooked. Some of the studies consider economic freedom as an indicator of welfare (Hall and Lawson 2011, Roy Choudhury 2010, Lawson and Clark 2010, Stroup 2008, and Haan*et al*. 2006). The positive effect of economic freedom on happiness has also been observed earlier (Veenhoven 2000, Ovaska and Takashima 2006).

For the computation of demographic index, we include four variables (fertility rate, life expectancy, population growth and urbanization) that capture the state of health and development of society. Better health facilities may provide good health that ensures happiness. It is expected that healthier individuals enjoy more happiness. In this respect, the public health services should be expanded in a way that reduces inequalities for health care programs. According to Frey and Stutzer (2002), good health not only implies happiness but happy individuals also become a source of further happiness. Rapid urbanization means more development in urban sector due to industrialization and hence better living standards. Usually,

in the urban sector, the provision of basic health facilities and educational attainment are much better than in rural areas.

To compute social index, we include four variables (net migration, population density, age dependency and crime ratio) that may affect happiness of individuals fully or partially. Decision to migrate is one of the determinants of happiness. The migration patterns between jurisdictions where conditions are different like economic, political and social setups motivate the individuals to migrate. It is based on a strikingly simple proposition about the behavior: if life is better there than here, people will tend to leave here and go there. Globally, the most consistent and important motivators of the migration decisions include the desire to improve one's standard of living and to avoid uncertainty of one's future. The crime and political freedom and environmental factors are also notable for migration decisions. Crime is one of social costs that not only damages individual happiness but also has an influential effect on society. In past, the losses from crime damages have been studied in terms of financial costs on both individuals as well as the society by economists. The loss in the earning of victims plus government spending on crime prevention and maintaining a functional judiciary as well as the costs of various crimes and murders hurt individual as well as society in all areas of human spectrum. Governments spend on court personnel and police to increase the chances of criminal apprehension and conviction (Becker, 1968). But psychologists are more concerned with direct costs of individuals' welfare and criminal victimization. They consider SWB of crime victims as a part of individuals' welfare. The SWB of criminal victims is significantly lower than the SWB of those who are not crime victims. The crime victims not only experience anxiety, frustrations, fear, and mental stress but also have feelings of aggression and personal obliteration (Knight 2003, Michalos and Zumbo, 2000, Ross, 1993, Norris and Kaniasty, 1992, Sorenson and Golding,

1990, Skogan, 1987, Burnam *et al*., 1988, Frieze *et al.*, 1987, Kilpatrick *et al.*, 1985, Davis and Friedman, 1985, Atkeson *et al.*, 1982). The quality of family structure is related to age dependency. As there are more dependents in a family, the overall quality of life of that family gets compromised. High population densities not only create economic problems but severely damage the society at large too. Social costs, therefore, are increased due to high population density. However, some studies found no relationship between happiness and population densities (Rehdanz and Maddison, 2005).

It is impossible to ignore the role of environment in one's life satisfaction. The interaction of environment and humans is as old as life but how the environment affects human happiness did not get much attention. The happiness planet index *(HPI)* is one of the leading global measures of sustainable wellbeing. Basically, *HPI* measures the sustainability of happiness and lives for the people. The *New Economic Foundation* (*NEF*) computes the *HPI* from life expectancy, experienced wellbeing and ecological foot print. In present study for the computation of environmental index, we considered four explanatory variables: biodiversity, CO_2 emission[11], ecological footprint production per capita and ecological footprint consumption per capita. Primary greenhouse gas CO_2 is emitted through human production and consumption activities. The CO_2 emission is measured in metric tons per capita and it captures the state of unhealthy environment. Ecological foot print is a standardized computation of human demand for natural capital that may contrast with ecological capacity of planet to regenerate. Biodiversity[12] refers to

[11] Carbon dioxide emissions are those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring.

different species that live in the world on different habitats. The high level of biodiversity is desirable by environmentalists because any loss in it can lead to economic losses to medicine, biotech industries and moreover economic losses in the agriculture sector. Welsch (2006) argues that the environmental conditions and prosperity change wellbeing over time. He observed a statistically significant relationship of air pollution with subjective wellbeing and found that this effect of air pollution considerably transforms into monetary value of improved air quality. The effects of noise pollution on happiness have been examined by Praag and Baarsma (2005) and the relationship between happiness and climate have been examined by Rehdanz and Maddison (2005).

A number of studies have validated that there is a strong correlation between happiness and democracy (Inglehart 1990, Barro 1999, Frey and Stutzer 2000, Inglehart and Klingemann 2000). In addition to economic performance and social equality, the political and institutional structures are also important for the determination of happiness. The technical quality of government matters a lot to flourish happiness. The improvements in the overall quality of institutions ensure the good governance that leads to the road of happiness; as the improvement in quality of government is a less controversial issue as compared to changes in rules of democracy. According to Ott (2010), in well governed nations, people experience high level of happiness and to increase their happiness, they improve the quality of government.

[12] GEF(Global environment facility's) benefits index for biodiversity is a composite index of relative biodiversity potential for each country based on the species represented in each country, their threat status, and the diversity of habitat types in each country. The index has been normalized so that values run from 0 (no biodiversity potential) to 100 (maximum biodiversity potential).

5.3 DATA AND CONSTRUCTION OF INDICES OF EXPLANATORY VARIABLES

We construct indices for economic, social, environmental and demographic variables before the application of regression analysis to determine correlates of happiness. The principal component analysis *(PCA)* approach is used to construct indices for the relevant explanatory variables, one each for each of the five categories. In our sample we have 56 countries which are classified into three major groups: high, middle, and low income on the basis of *World Bank* classification. We have happiness indices data for three waves of *WVS* (the first wave 1994-1998, the second wave 1999-2003 and the third wave 2004-2008). In low income we have 23 countries, in middle income group we have 19 countries and in high income group we have 14 countries.

5.3.1. Economic Index

The index of economic conditions is much important while working on economics of happiness. High income does not always ensure greater happiness at the aggregate level. The study, therefore, includes a number of variables in addition to per capita income that explains a nearly true picture of a country's economic status such as GDP, trade openness, inequality, head count ratio (poverty), inflation, unemployment, consumption, and economic freedom. The data for all the variables are taken from the *World Development Indicator e*xpect economic freedom, the data on which are taken from *Economic Freedom Network*.

EC= f(GDP per capita, EF, CPI, unemployment rate, gini coefficient, Pov, TOT)……. (5.1)

GDP means gross domestic product, EF is economic freedom, Pov denotes poverty, CPI is consumer price index, and TOT represents terms of trade. The economic freedom index measures the degree of economic freedom of countries for policies' effectiveness. The 42 variables included in this index of economic freedom have five major categories: size of government, legal system and property rights, free trade, sound currency, and other regulations that measure the degree of economic freedom. The economic freedom, therefore, is affected by economic crisis both in short term and long term, ultimately this affect reduces the prosperity of a country.

The eigenvalues explain variations among these seven economic variables that are based on computed values of variances of these variables along with percentages variations. The normalized weights are attached with economic variables. Economic index is computed through *PCA* as follow.

$$EC =$$

$$0.30\,GDP + 0.23\,EF + 0.30\,CPI - 0.041\,unempolyment\ rate + 0.29\,gini\ coefficient - 0.21\,POV + 0.21\,TOT$$

In this economic index the coefficients of GDP per capita, Economic freedom (EF), CPI, Gini coefficient and TOT have positive values while unemployment rate and poverty have negative coefficient values.

5.3.2 Demographic Index

There are a number of social surveys that have worked on demographic variables not only on country level but also at the household level. Social scientists carried out extensive work on the correlates of happiness related to demographic variables. Rich information has been found about the effects of demographic variables, such as urbanization, marriages, life expectancy, sex, occupation, fertility, population growth etc. on happiness. The present study considers fertility rate, life expectancy at birth, population growth rate, and urbanization rate as demographic variables in constructing demographic index, that is,

Demo= f (Fertility rate, population growth, life expectancy, urbanization)…… (5.2)

The fertility rate, population growth and life expectancy at birth are treated as health indicators in our analysis while urbanization relate to prosperity. The computation based on *PCA* show that out of these four demographic variables the highest weight is assigned to fertility rate following by population growth, life expectancy at birth and urbanization rate. The data of all these variables are taken from *WDI*. The demographic index index is constructed as follows:

$$Demo = 1.41 fertility\ rate + 1.32\ population\ growth\ rate - 1.06\ life\ expectancy\ at\ birth\ -\ 0.67\ urbanization\ rate$$

The weights attached to the variables of demographic index are normalized and their sum is equal to one. There are large positive coefficients of the variables fertility rate and population

growth in this demographic index while life expectancy at birth and urbanization have negative and relatively smaller coefficients.

5.3.3 Social Index

The determinants of happiness are not completely understood because sometimes researchers focus on economic impacts, and sometimes work for personal characteristics of individuals. It is not very clear that various human actions are involved in the attainment of happiness. The collective action, individual behaviour, characteristics of individuals and their social environment are as important in the determination of happiness as economic factors. Sometimes actions of society lead some people to commit suicide or the other way around negative reactions. Crime is one of the serious issues relating to the society and it effects happiness of individuals. This study includes four important measures pertaining to society while constructing the social index. That is,

SC= f (Net migration, Population density, Age dependency, and Crime rate)…….. (5.4)

The four measures are net migration, population density, age dependency (AD) and total crime (CR) that affect not only individuals' wellbeing but also society as a whole. The data of population density, age dependency and net migration are taken form *WDI*, while the data source of total crime is the *United Nations Office on Drugs and Crime* (UNODC).

PCA is used to compute social index, the variance (eigenvalues) associated with each component of social index explain the %age variation among all the variables. The normalized weights

selected on the basis of eigen values are attached with these social variables. Therefore social index is constructed as follow.

$$Socil\ Index = 0.44\ \ net\ migration - 0.34\ population\ density + 0.43\ age\ dependency + 0.46\ crime\ rate$$

The positive signs of coefficients of net migration, age dependency and crime rate show that social index is enhanced by these variables. The negative coefficient value of population density shows that social index decreases by it.

5.3.4 Environment Index

The efficiencies of countries are based on long and happy lives per unit of environmental inputs. So this study includes two important variables of Ecological Footprints[13]: Ecological Footprint production per capita (EFP), Ecological Footprint consumption per capita (EFC). The data on EFP and EFC are taken from *Global Footprint Network*. Besides these two variables, biodiversity (BD) per capita and CO_2 emission are also included in the construction of our environmental index. The data of BD and emissions are taken from *WDI*. The environment index is based on the following function.

Env= f (CO_2emission, Biodiversity, Eco footprint production per capita, Eco footprint consumption per capita) …… (5.2)

[13] A measure of how much area of biologically productive land and water an individual, population or activity requires to produce all the resources it consumes and to absorb the waste it generates, using prevailing technology and resource management practices. The Ecological Footprint is usually measured in global hectares. Because trade is global, an individual or country's Footprint includes land or sea from all over the world. Ecological Footprint is often referred to in short form as Footprint. "Ecological Footprint" and "Footprint" are proper nouns and thus should always be capitalized (Global Footprint Network)

The *PCA* highlighted that out of these four environmental variables the highest weight is assigned to emissions following by EFP, BD and EFC. Environmental index is constructed by the following equation.

$$Ev = 0.31\ emissions + 0.28\ EFP + 0.23\ BD + 0.17\ EFC$$

The large positive coefficients of four variables show that they all enhance the value of environmental.

5.3.5 Governance Index

The pursuit of happiness becomes a basic concern of nations. Individually, everyone tries to pursue it. But to achieve it, is not a simple matter. It can be considered joint venture between state and individuals. Happiness is considered advantageous and it cannot be attained without joint as well as concerted efforts. No one can even think of a welfare state without good governance. This study uses the data of "*International Country Risk Guide*" (ICRG) to capture the effects of good governance on happiness. This data consists of twelve variables: government stability (GS), socioeconomic conditions (SEC), investment profile (IP), internal conflict (IC), external conflict (EC), corruption (COR), military in politics (MP), religion in politics (RP), law and order (LAO), ethnic tension (ET), democratic accountability (DA), and bureaucracy quality (BQ).

Governance index = f (GS, SEC, IP, IC, EC, COR, MP, RP, LAO, ET, DA, BQ)…….. (5.4)

The computation based on *PCA* show that all the indicators of this index are assigned almost same weights. The governance index based on government stability is constructed as follows:

$$GV = 0.079\,GS + 0.08\,SEC + 0.08\,IP + 0.09\,IC + 0.08\,EC + 0.08\,COR + 0.08\,MP + 0.07\,RP + 0.08\,LOA + 0.07\,ET + 0.07\,DA + 0.08\,BQ$$

Interestingly the coefficients of all the governance indicators are positive and have approximately the same magnitude. This shows that the increase in the value of each governance indicator results in increase in the governance index by approximately the same magnitude.

5.4 ESTIMATION PROCEDURE

Empirical analysis has been divided into three parts. In the first part, we used OLS in cross-sectional regression models for empirical analysis for the 56 countries and for each of the three waves separately for the periods 1994-1998, 1999-2003 and 2004-2008. The objective of this regression is to compare results across the three waves. The results of these separate waves are presented in Tables 5.1, 5.2 and 5.3 respectively. These results will enable us to explain changes over the time in individuals' behviours regarding happiness. In the second part, we split the countries into three different groups on the basis of income in order to examine the results across the three categories. Fixed effect methodology is used for pooled cross country regression analysis. Lastly, we use GMM methodology for one of our happiness indexes: social evil index as it faces the problem of endogeniety. Each part of empirical analysis is briefly explained in the forthcoming sections.

5.4.1 Cross-sectional Regression model

Keeping in mind the above discussion and theoretical link between different happiness indices constructed in chapter 4 and other explanatory variables, we specify the following cross-sectional empirical model one each for each of the three waves.

$$HP_i = \alpha_0 + \alpha_1 EC_i + \alpha_2 EV_i + \alpha_3 GV_i + \alpha_4 Demo_i + \alpha_5 SC_i + \varepsilon_i \qquad (5.6)$$

The dependent variable is Happiness indices (HP_i) which include ten different happiness indices as explained in chapter 4. These indices are: family happiness index (FAM_HPI), neighbour happiness index (NEI_HPI), environmental apprehensions (ENV_HPI), gender differences (GER_HPI), patriotism (PAT_HPI), political interest (POL_HPI), religious concerns (RI_HPI), life satisfaction (LS_HPI), social evils index (SE_HPI) and freedom of choice index (CHO_HPI) as explained in chapter 4. The explanatory variables included in our regression model are economic index (EC_i), Environmental Index (EV_i), Governance Index (GV_i), Demographic index ($Demo_i$) and social index (SC_i)

5.4.2 Pooled Regression Model with Country-Group Fixed Effects

In the second step, we split the total 56 countries in three groups on the basis of income as classified by the *World Bank*. These groups are low income group, middle income group and high income group. Therefore, we have three cross sectional groups of (low income, middle income and high income) countries and three time periods (the first wave 1994-1998, the second wave 1999-2003 and the third wave 2004-2008).

The regression model is given by:

$$HP_{it} = b_k + \beta_1 EC_{it} + \beta_2 EV_{it} + \beta_3 GV_{it} + \beta_4 Demo_{it} + \beta_5 SC_{it} + \mu_{it} \qquad (5.7)$$

HP_{it} represents all happiness indices and subscript i represent the countries, t represents the three waves and k denotes the three groups of countries. In high income category we have 23 countries, in middle income category we have 19 countries and in low income category we have 13 countries. The term fixed effects is used owing to the fact that although the intercepts may differ across country groups, these are treated as fixed rather than random differences. Thus, the constant is treated as group specific (income groups in our analysis), that is the model allows specific constants for each income group. The estimators in fixed effect model are also known as "*Least Square with Dummy variables*" (*LSDV*) estimators that allow including dummies for each income group.

Thus, equation 5.7 can alternatively be written as

$$HP_{it} = b_1 D_{1it} + b_2 D_{2it} + b_3 D_{3it} + \beta_1 EC_{it} + \beta_2 EV_{it} + \beta_3 GV_{it} + \beta_4 Demo_{it} + \beta_5 SC_{it} + \mu_{it} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (5.7)'$$

where D_{kit} = 1 for the country group k, = 0 otherwise (k = 1, 2, 3)

5.5 EMPIRICAL RESULTS

5.5.1 Results of Ordinary Least Square (OLS) Estimation

As the regression model for one of our happiness indices (social evils index) has the problem of endogeinity, so we have regressed the remaining nine happiness indices on five explanatory

indices. In the first wave (1994-1998) of data, we have not found any significant effect of explanatory indices on three (family happiness index, life satisfaction index and political interest happiness index) out of the nine happiness indices. The results of the remaining six happiness indices are shown in Table 5.1.

Table 5.1: OLS Results of Equation 5.6 for the First Wave (1994-1998)

	Dependent variables →					
Independent variables ↓	Neighbourhood Happiness Index	Environmental Happiness Index	Gender Difference Happiness Index	Patriotic Happiness Index	Religious Happiness Index	Freedom of Choice Happiness Index
GV	-0.087 (-1.84)***				-0.566 (-2.50)**	0.236 (1.96)***
EC	0.222 (1.89)***			-0.161 (-1.87)***		0.122 (2.10)**
EV	0.274 (1.91)***		-0.179 (-1.89)***	0.113 (1.87)***	0.625 (2.16)**	0.183 (1.83)***
SC		-0.255 (-1.98)***				
DEMO		-0.147 (-1.88)***	-0.218 (-3.36)*	-0.838 (-2.39)**	0.652 (2.48)**	-1.23 (-2.41)**
			Diagnostic Test			
R2	0.561	0.360	0.185	0.419	0.184	0.223
F-TEST	0.981	0.995	2.18	1.84	3.68	3.43
Prob(F-TEST)	0.04	0.03	0.09	0.015	0.01	0.03

Note: The "t" vales are given in parenthesis. *, **, *** indicates significance at the 1%, 5% and 10% respectively

In the first column of Table 5.1 we have present the results of regression equation for neighbourhood happiness (NEI_HPI) on governance index (GV), economics index (EC) and environment index (EV). Other explanatory namely demographic index (DEMO) and social index are found to be insignificant. We find that governance index and economic index

negatively and significantly affect the level of happiness in terms of concerns about neighbours (NEI_HPI). The environment index (EV) is positively related to NEI_HPI. It appears that good governance attracts the immigrants from across jurisdictions to the neighbourhood which affect the happiness of natives negatively because of difference in culture, language and social constraints, etc. The economic index affects the neighbourhood happiness negatively due to the reasons like decrease of employment opportunities, insecurity in availing social safety nets and appreciation of prices because of demand increases etc. Any sort of competition between native and immigrants may shorten job opportunities and also affect other economic indicator for natives, particularly in the short run.

We have regressed environmental happiness (ENV_HPI) in column 2 of Table 5.1 and found that out of the five independent indices only social index and demographic index significantly (at 10% level of significance) affect the choice of environmental quality. The variables of social index (SC) are negatively related to environmental happiness because if the value of SC goes up then individuals show less willingness to pay for the environmental quality and are less bothered about natural environment. The variables of social index capture the effect of criminology and deprivation. So the criminal and deprived individuals are not motivated to pay for environmental quality. In the same way the variables which are being used for the construction of demographic index (DEMO) are also negatively related with environmental happiness. The greater the population the less willing are the individuals to save the environment because in this situation pressure to provide for the masses (the poor) and to facilitate quality of life enhancement leads to decrease in per capita willingness and people get more concerned towards income generation rather than pay attention to environmental quality.

In the third column of Table 5.1 the regression is carried out for the estimating responses of happiness based on gender differences happiness (GER_HPI). We have used five explanatory indices and found that environmental index and demographic index negatively and significantly (at 10% and 1% levels of significance respectively) effect the responses of happiness based on gender differences (GER_HPI). The environmental index negatively affects the happiness based on gender differences. Our demographic index is based on population growth and higher urbanization which here seems to accelerate the gender differences by creating competition. So individuals might be less happy with more gender differences as the population grows and urbanization increases.

We have regressed happiness based on patriotism (PAT_HPI) in fourth column of Table 5.1. The economic index (EC) and demographic index (DEMO) have negative and significant effects (at 10% and 1% levels of significance respectively). The environmental index (EV) positively affects patriotic happiness index at 10% level of significance. However demographic index negatively affects this happiness index i.e. higher fertility and higher life expectancy contribute to population growth. This growth creates the income and social disparities among society individuals and segments that make individual less happy with their homelands.

The regression equation for the happiness index based on religious beliefs and demonstrations (RI_HPI) is estimated and the results are presented in column 5 of Table 5.1. It is found that religious happiness is negatively and significantly related to governance index (GV). The country laws and regulation are placed superior than any religious beliefs and principals. So

stable policies of government always maintain law and order situation and some times it hurts religious activities. The environmental and demographic indices (EV and DEMO) have positive and significant (at 5% level of significance) effects on happiness in regards to the religious happiness. If individuals are being provided with more suiTable place to live, they concentrate more on their personal choices about religious activities. The positive coefficient of demographic index is pointing that religious people are more in favour of population growth. Their beliefs are common and they work in flock for religious denominations.

The freedom of choice index (CHO_HPI) is regressed against governance index (GV), economic index (EC), environmental index (EV) and demographic index (DEMO) in column 6 of Table 5.1. Freedom of choice happiness index is positively and significantly affected by governance, economic and environmental indices. The good governance always encourages the freedom of choices in individuals' lives. It is government credibility that provides freedom about the choices for all individuals between work and leisure. STable economy and quality environment affect the individual's choices positively as it is all about the behaviours which is determined by good economic and natural environment. On the other hand, the freedom of choice happiness index is negatively related to demographic index (DEMO). It means higher the number of individuals in job market, the narrow will be the range of available choice regarding work-leisure and job selection opportunities.

For the second wave of dataset we have regressed nine happiness indices on five explanatory indices. But, we have again not found any significant effect of explanatory indices on three

happiness indices (Neighbourhood happiness, gender difference happiness and political happiness). Secondly, we have not found any effect of one of explanatory indices out of five on happiness indices i.e. social index (SC) in this wave. The results of regression of the second wave are shown in Table 5.2. In this wave two happiness indices neighbour happiness and gender differences happiness of 1st wave are replaced by family happiness index and life satisfaction index. All other four happiness indices: environmental happiness, patriotic happiness, religious happiness and freedom of choices happiness provided the results similar to those found in the 1st wave presented in Table 5.1. The results of these indices do change in magnitude but not in signs.

In Table 5.2 we are interpreting the results of columns 1 and 4 only as rest of the columns are already interpreted for results of first wave. Family happiness index (column 1 of Table 5.2) is positively influenced by good governance. Stable economic and social policies regarding family setting enhance the family ties which lead to family happiness. Child rearing and caring policies motivate the individuals to focus on family bindings which are supported by institutional quality. The positive coefficients of economics index (EC) validates that stable economic status ensures the family happiness. Individuals are enjoying good economic condition and better focusing their family life. The demographic index (DEMO) has positive and significant effect on family happiness (FAM_HPI) in the second wave at 10% level of significance. The demographic index constitutes the good health variables (fertility rate and life expectancy at birth) and developmental variable (urbanization). It means the better family health, the happier will be the individuals better will be the living standard. In column 4 of Table 5.2 governance index (GV)

shows a positive and significant (at 5% level) effect on life satisfaction index (LS_HPI). This implies that people are more satisfied where there are quality institutes and a stable government.

Table 5.2: OLS Results of Equation 5.6 for the Second Wave (1999-2003)

	Dependent variables →					
Independent variables ↓	Family Happiness Index	Environmental Happiness Index	Patriotic Happiness Index	Life Satisfaction Index	RI_HPI Happiness Index	Freedom of Choice Happiness Index
GV	3.03 (3.11)*	0.173 (1.84)***	0.483 (3.11)*	0.328 (2.25)**	-0.985 (-2.90)*	0.269 (1.97)**
EC	3.15 (1.87)***			-0.022 (-1.89)***	1.76 (2.43)**	
EV						0.244 (1.64)
DEMO	5.26 (1.83)***	-1.60 (-2.89)*	-2.37 (-2.57)**		2.24 (1.85)***	-2.08 (-2.47)**
			Diagnostic Test			
R2	0.164	0.159	0.4678	0.076	0.169	0.141
F-TEST	3.40	5.04	4.103	2.19	3.52	2.86
Prob(F-TEST)	0.02	0.009	0.005	0.01	0.02	0.04

Note: The "t" vales are given in parenthesis. *, **, *** indicates significance at the 1%, 5% and 10% respectively

Surprisingly the economic index (EC) has negative and significant (at 10% level of significance) effect on the happiness pertaining to life satisfaction (LS_HPI) in thesecond wave. Sometimes economic status negatively affects the feeling of being happy. Stable economy may reduce the individual's happiness. One of the reasons for this response could be that the index for life satisfaction is mainly observed on simple question of one's state of being happy. If someone is economically strong even than he may be mistrusted by others and vice versa or he/she may feel lesst freedom in terms of social choices which he/she has to forgo in order to earn more.

For the 3rd wave nine happiness indices were regressed on thefive explanatory indices yet we have not found any significant effect of explanatory indices on three happiness indices (Neighbourhood Happiness, Gender Difference Happiness and Political Happiness) out of nine happiness indices. Secondly, we have not found any effect of one of the explanatory indices out of five i.e. social index (SC) on happiness indices. But importantly, the second and the third waves are resembled in terms of six equations that are regressed. It means six dependent indices and four explanatory indices are the same in last two waves (1999-2003 and 2004-2008). The results of regression of the third wave are shown in Table 5.3.

Table 5.3: OLS Results of Equation 5.6 for the Third Wave (2004-2008)

	Dependent variables →					
Independent variables ↓	Family Happiness Index	Environmental Happiness Index	Patriotic Happiness Index	Life Satisfaction Index	RI_HPI Happiness Index	Freedom of Choice Happiness Index
GV	3.03 (3.01)*	0.173 (1.84)***	0.483 (3.11)*	0.328 (2.25)**	-0.985 (-2.90)*	0.269 (1.96)***
EC	3.15 (1.89)***			-0.022 (-1.87)***	1.76 (2.43)**	
EV						0.244 (1.84)***
DEMO	5.26 (1.83)***	-1.60 (-2.89)	-2.37 (-2.57)*		2.24 (1.85)***	-2.08 (-2.47)**
			Diagnostic Test			
R2	0.164	0.159	0.4678	0.076	0.169	0.141
F-TEST	3.40	5.04	4.103	2.19	3.52	2.86
Prob (F-TEST)	0.02	0.009	0.005	0.01	0.02	0.04

Note: The "t" vales are given in parenthesis. *, **, *** indicates significance at the 1%, 5% and 10% respectively

All the six happiness indices: family happiness, environmental happiness, patriotic happiness, life satisfaction religious happiness and freedom of choices happiness have shown the same results as were found in the first wave and second waves and were presented in Tables 5.1 and 5.2. The results of these indices just change in magnitude but not in signs.

5.5.2 Pooled Estimation

In the second step, we used the pooled OLS estimation technique to determine the effects of three groups on the basis of income. This technique is better suited to analysis the dynamic changes in subject specific indices. The results of this regression exercise are presented in Table 5.4 and 5.5 for pooled regression with no intercept and for fixed effects models, respectively. Here we have regressed nine equations for nine dependent and five explanatory indices. One of our happiness indices i.e. Social Evil Index faced the problem of endogenity hence we have used GMM methodology for estimation and results of that, which will be discussed in the section 5.6.

5.5.3 Interpretations of Results of Pooled Estimation

The empirical findings of our estimations of pooled regression are quite satisfactory and almost supported by the literature which has been discussed in Chapter 3. All the independent variables considered in Table 5.4 have significant coefficients as indicated by the t- statistics. The economic index has a positive and statistically significant relationship with different dimensions of happiness (except for family happiness index (FAM_HPI). It means that economic variables can be related to individuals' happiness, thus the *SWB* and income of people are correlated. According to the results of governance index (GV) in row 1 in Table 5.4, all happiness indices have positive and statistically significant relationship with the quality of governance expect

religious happiness since RI_HPI has a significant yet a negative relation with GV. The governance index is significant at 1% level of significance for four happiness indices: FAM_HPI, LS_HPI, RI_HPI, and GER_HPI and just one happiness index, ENV_HPI, lies at 10% significance, and for other four happiness indices: CHO_HPI, NEI_HPI, POL_HPI, PAT_HPI that lie at 5% level of significance. Public policies enhance social contract and *SWB* generally. That is why when we estimated the governance index against each individual happiness index, the results showed that each of them has a positive and statistically significant effect on the overall happiness except religious index that has negative affect of good governance. The reason behind this result is the questions that are included in religious happiness index. The included questions of religious index and the variables of *ICRG* have negative relatioship. ["opposite directions" means what –negatively correlated?] The performance of government policies and efficiencies is associated with happiness of the entire society. The overall quality of government also determines one's life satisfaction. In this study, governance index captures the overall performance of government, therefore, it accelerates happiness (good governance) supported by literature (Helliwell and Putnam, 2004, Hudson, 2006).

Table 5.4: Results Pool Estimation of Equation 5.6 with Common Intercept

Independent Indices ↓ / Dependent Indices →	Family Happiness Index	Environmental Happiness Index	Neighbourhood Happiness Index	Political Happiness Index	Patriotic Happiness Index	Life satisfactions Index	Religious Happiness Index	Gender Differerce Happiness Index	Freedom of Choice Happiness Index
Intercept	0.07	0.09	0.10	0.07	0.08	0.04	0.07	0.22	0.59
GV	1.84 (2.97)*	0.16 (1.86)***	0.18 (1.947)**	0.13 (2.214)**	0.24 (2.5)**	0.26 (4.2)*	-0.67 (-3.1)*	0.23 (2.8)*	2.28 (2.2)**
FC		0.33 (2.7)*	0.32 (3.2)*	0.34 (4.1)*	0.40 (2.4)**	0.23 (1.8)***	1.10 (2.7)*	0.19 (2.4)**	3.03 (2.5)**
EV	-5.34 (-3.1)*				-0.34 (-2.5)**	-0.35 (-2.1)**			
SC		-0.32 (-2.3)**	-0.57 (-3.1)*	0.46 (3.2)*			-1.25 (-4.2)*		
DEMO	5.68 (5.6)*	1.16 (3.4)*	1.04 (2.9)*	0.91 (3.3)*	0.96 (3.7)*	0.79 (4.2)*	0.40 (3.6)*	1.26 (9.4)*	6.36 (1.9)**
Diagnostic Test									
R2	0.7651	0.5847	0.6218	0.6822	0.4678	0.4643	0.5766	0.5438	0.5492
F-TEST	12.46	68.28	80.18	104.67	41.53	40.74	10.46	78.3	1.48

Note: The "t" vales are given in parenthesis. *, **, *** indicates significance at the 1%, 5% and 10% respectively

In this study, economic index comprised of gross domestic product, consumer price, unemployment, gini coefficient, poverty, trade openness and economic freedom variables for each country and we have measured them in the desirable direction i.e. the increase in each will increase the level of happiness. Thus consumer prices, unemployment, gini-coeffecient and poverty are measured in reverse direction by multiplying the actual values by minus before they are standardized. Economic index contributes towards one's happiness in a positive manner. The results in row 2 of the Table 5.4 show that all the income groups and their respective happiness indices are positively correlated to economic status. This implies that any relationship between institutional quality and happiness are different between rich and poor countries (Bjornskov, Dreher, and Fischer, 2010). The reason might be that developed nations have already been subjected to certain level of the economic freedom. Any change, therefore, in this variable will bring little changes for individuals' happiness levels. Another critique also satisfies by these results is that only economic growth does not increase wellbeing (Esterlin, 1974, 1995).

Environmental index (EV) in Table 5.4 and row 3 indicates a significant relationship with the three happiness indices: family happiness (FAM_HPI), life satisfaction (LS_HPI), and patriotism happiness (PAT_HPI). But all three are negatively related to environmental index. People do value the amenity content of environment. On the other hand extraction from environment for increasing the quality of life and providing for the masses is also well established. But how pollution and bio diversity affect individuals' happiness and overall SWB is an important point to address for future research. Pollution is one of the important factors that affect happiness. The quality of environment is one of the important factors for the attainment of happiness but it remains out of focus. The high intensity of pollution has a damaging impact on the level of

happiness (Welsch, 2002, 2006). Our results are consistent with literature that any type of environmental degradation is damaging to happiness.

The risky societies always pay cost of survival socially, financially and also morally. We captured all the aspects of insecurities in one of our explanatory index (Social Index) that one might face. The results of this index are presented in row 4 of Table 5.4 and this social index covered crime, population density, age dependency and net migration. The crime, population density, age dependency are the major factors for the decision of migration. The results of our estimation are interesting as regards to social index. The three happiness indices environmental, neighbourhood and religious happiness indices (ENV_HPI, NEI_HPI, and RI_HPI) have negative and significant relation with social index except for political happiness (POL_HPI), which indicated a significant and positive relation with social index. The reason for this relationship between social index and political happiness index may be that the questions considered in the construction of political index are based on boycotts, demonstration, petition, etc., which may cause uncertain and unsafe situation for someone's happiness. The individuals are less happy in the deprived and unsafe areas. To live in an unsafe area, therefore, could be injurious to happiness. Living in a risky area could endanger one's life satisfaction (Shields and Price, 2005, Ferrer-i-Carbonell and Gowdy, 2007, Lel-kes, 2006). The socio economic status is also a determinant of victimization that leads to reduction in SWB of individuals. The losses in SWB depend upon the links between victimization and socio economic status. These links include current income and also expectations about financial status at present and in future (Peas, 2001).

Our estimated results of demographic index in row 5 of Table 5.4 are consistent with literature. This variable affects all happiness indices, that is, family happiness, environmental happiness, neighbourhood happiness, political happiness, patriotism happiness, life satisfaction, religious happiness, gender difference happiness and freedom of choice happiness (FAM_HPI, ENV_HPI, NEI_HPI, POL_HPI, PAT_HPI, LS_HPI, RI_HPI, GER_HPI, CHO_HPI) positively and significantly (at 1% level, except for the freedom of choice index which is significantly by demographic index at 5% level of significance). The demographic index consists of fertility rate, life expectancy at birth, population growth, and urbanization. The fertility rate and life expectancy are treated as health indicators. The urbanization indicates the movement across the geographical areas on the basis of development. There are always unobserved individual characteristics (personal factors) which reduce income effects after controlling for individual effects (Luttmer, 2005, Ferrer-i-Carbonell and Frijters, 2004). The physical and psychological health of individual seems to be highly correlated with happiness. The geographical location is also one of the determinants of a happy life. The evidence across different geographical locations shows that living in rural areas affects happiness positively while in large cities happiness gets compromised (Hudson 2006, Graham and Felton, 2006,Hayo, 2004, Dockery, 2003, Gerdtham and Johannesson, 2001). The important factor in these studies is that many of them control income effect to some extent, the effect of urbanization explains differently in terms of development. People move where more development is in progress which is usually an urban area.

5.5.3 The Results of Fixed Effects Model

The previous estimation methodology has a caveat that it is quite restrictive in terms of having common constant factor. The common constant method implies that there are no differences between the estimated cross-sections and it is useful under the hypothesis that the dataset is a priori homogeneous. Tests for homogeneity across all income groups and also across the selected waves was done by using *Wald* test. We hypothesized and proceeded in the following ways:

Coefficient Restriction Test

Across the waves: According to the hypotheses, there are some similarities across the three waves that must have the same constant term. So,

H_0: $\alpha_1=\alpha_4=\alpha_7$, $\alpha_2=\alpha_5=\alpha_8$, $\alpha_3=\alpha_6=\alpha_9$

H_1: At least two parameters equated in H_0 differ from each other

If the H_o does not hold, then there is no unobserved homogeneity. If $H_1$is accepted, it means that there are uncommon across the waves intercepts.

Across the Income Categories: Same hypothesis has been purposed for income groups, to test that either the α_i are equal to or not.

H_0: $\alpha_1=\alpha_2=\alpha_3$, $\alpha_4=\alpha_5=\alpha_6$, $\alpha_7=\alpha_8=\alpha_9$

H_1: At least one equality in H_0 does not hold

As explained above if the H_o is rejected it would mean that there is no homogeneity among country groups based on income. If H_1 is accepted, it would mean that there are uncommon

intercepts across the country groups. The results of pool estimation with fixed effect are presented in Table 5.5 and interpreted here.

The different happiness indices have different intercepts for each income group. The average intercept value of family happiness is 0.099 in second row and first column of Table 5.5 and the differential intercept value of three income groups is showing that low income countries are above this value while others are below as in first row 1 and first column of Table 5.5.

Table5.5: Pool Estimation of Fixed Effect

Dependent Indices →									
Independent Indices ↓	FAM_HPI	ENV_HPI	NEI_HPI	POL_HPI	PAT_HPI	LS_HPI	RI_HPI	GI_HPI	CHO_HPI
Values of Fixed effects	HI-C=-0.018 MI-C=-0.048 LI-C=1.055	HI-C=-0.038 MI-C=-0.014 LI-C=0.055	HI-C=0.016 MI-C=0.004 LI-C=-0.021	HI-C=-0.0009 MI-C=-0.017 LI-C=0.019	HI-C=0.098 MI-C=-0.015 LI-C=-0.086	HI-C=0.112 MI-C=-0.048 LI-C=-0.069	HI-C=-0.617 MI-C=0.316 LI-C=0.348	HI-C=0.048 MI-C=0.063 LI-C=-0.117	HI-C=2.958 MI-C=2.418 LI-C=0.160
Intercepts	0.099	0.059	0.113	0.062	0.139	0.099	-0.256	0.278	-0.330
GV	1.196 (2.295)	0.196 (1.875)	0.163 (1.89)	0.128 (1.79)		0.132 (2.54)	-0.245 (-1.85)		2.303 (2.46)
EC		0.3369 (2.825)	0.311 (3.10)	0.328 (3.73)	0.270 (1.99)		1.214 (2.80)	0.167 (2.22)	2.47 (2.16)
EV								-0.130 (-1.86)	-11.43 (-1.69)
SC	-1.500 (-2.233)	0.418 (2.478)	-0.530 (-2.78)	0.501 (3.03)	0.509 (3.44)	-0.360 (-2.82)		-0.283 (-2.35)	
DEMO	6.220 (3.264)	1.058 (3.216)	1.082 (2.88)	0.884 (2.93)	0.600 (2.09)	0.576 (2.29)	2.52 (4.97)	0.926 (5.317)	12.33 (2.82)
Diagnostic Test									
R2	0.527	0.592	0.622	0.683	0.48	0.49	0.53	0.65	0.45
DW	1.74	1.69	1.72	1.64	1.69	1.84	1.65	1.87	1.79
F-TEST	10.72 (0)	46.55 (0)	53.12 (0)	69 (0)	37.30 (0)	36.27 (0)	17.17 (0)	60.32 (0)	1.27 (0.0027)

The actual value of intercept of low income group is 1.154 (0.099+1.055). It means that the family set ups are more important in low income countries which implies that the happiness relating to relationships are more important there. The actual values of intercepts for the high and middle income country are 0.081 and 0.051 respectively. Yet the actual value is below the average intercept of family happiness for both the income groups.

The common intercept value for environmental happiness is 0.059 in row 2 of second column of Table 5.5 and the actual values of intercepts for middle and high income groups 0.045 and 0.021respectively which lie below the common intercept while low income intercept 0.104 lies above the common intercept (see second column and row 1 of Table 5.5). The reason might be that the developed counties already have very strong and effective policies for environmental quality, therefore, these questions of environment might not be of more concern to them. Low income group countries are more concerned about environmental happiness.

Literature supports that living in an unsafe and some sort of insecure area is injurious to happiness. Having concerns with the nature of one's neighbour is an important determinant of happiness while calculating the happiness in regards to neighbour for an individual as well as national level. The happiness in regards to neighbour shows that the common intercept value for neighbour happiness is 0.113 in row second and column 3 of Table 5.5. The actual intercept values of high and middle groups 0.129 and 0.117 lie above the common intercept value 0.113, is below the average intercept. It means all nations have concerns with their neighbours' nature but on the most top are the high income countries while low and middle income countries are below them.

The happiness relating to political views or awareness about political rights are expressed in political happiness index, the average intercept value of this index is 0.062 as in row 2nd and column 4 (Table 5.5). The low income intercept is 0.081 above the average intercept. The high and middle income groups intercepts are 0.053 and 0.045 laying in the neighbourhood of the average intercept value, which is not so distant from the average intercept (see row 1st and column 1 of Table 5.5). It means the political views and the awareness about the political system relate to the happiness of individuals. The political persuasion is one of the good indicators to determine happiness. The attitudes of individuals' preferences towards democracy and pro-market values are based on the choices of those individuals whose benefits are attached with such type of systems.

The love for one's own country and willingness to fight for it is one of the most important questions as for one's nationality is concerned. It is not as straight and simple as it looks. It determines how much one is happy with one's homeland and never wants to mislay it. For this happiness index, the average intercept is 0.139 (see row 2nd and column 5 in Table 5.5) while the differential intercept of low income group is below the average intercept, 0.053. The actual intercept of high income group is 0.237. But the middle income lies in the neighbourhood of the average intercept value 0.124, which is not so distant from the average value.

There have been a number of household surveys (*e.g. BHPS, GSS, RLMS and GSOEP etc.*) for many years that contained questions directly depicting one's life satisfaction. The World *Value Survey (WVS)* is much consistent pertaining to life satisfaction questions since its first wave

(1980) irrespective of sample size of waves. Our life satisfaction index is much simpler and clearer and the results of fixed effects are quite interesting. The average intercept is 0.099 as in 2nd row and 6 column of Table 5.5 while the differential intercepts of high income countries are much higher, 0.211, than the average intercept. This shows that the high income countries are quite satisfied with their financial situation and the overall quality of life. But the intercept for the middle income group, 0.051, is below the average intercept of this index. The low income group is much distant from this average value with the intercept 0.03. All actual intercepts of life satisfaction index highlight satisfaction ladder where high income countries have reached at the top of the ladder while low income countries are still struggling to climbed the initial steps in terms of their satisfaction level.

The average intercept value of religious happiness index is -0.256 in 2nd row and column 7 of Table 5.5. The differential intercept of high income countries is also in negative range -0.873.. This shows that the developed nations are far away from religious activities. The actual intercept value for middle income and low income groups are in the positive range 0.06 and 0.092 respectively. This shows that the religious activities are more efficient and prominent in low and middle income countries. One's beliefs about religion are an important indicator of happiness. One can not neglect it in his daily life. The degree of religiosity varies the level of happiness in one's life. Those who are out of circle, may be crumbling after facing the harrowing events of life. The religion is one of the most influential aspects of life because it creates meanings to life, motivates and helps believers to muddle through with hurtful events exclusively (Pargament, 2002).

The gender differences among humans have been studied in a variety of fields. Sometimes there are differences in educational achievements due to discriminating characteristics of prevailing law and culture. The leadership positions have predominantly been held by men. The gender-oriented barriers hamper bringing out unpaid women community workers and household labourer in the market. The average intercept of this index in our estimation is 0.278 as in 2nd row and column 8 of Table 5.5. Actual intercepts are in the positive range. The high income, middle and low income countries' actual intercepts are, 0.326, 0.341, and 0.161 respectively.

Time management and selection of work are the important determinants for the choices between labour and leisure. The job status affects ones level of happiness positively. The average intercept of our freedom of choice index is -0.330 (Table 5.5: 2nd row and column 9) while the actual intercepts of high income countries are much higher than the average intercept, 2.628. This shows that the high income countries are much satisfied with their jobs choices and work environment. The middle income group has also higher actual intercept value, 2.008, than the average intercept. However the low income countries have negative actual intercept. The actual intercepts of this index show that high income countries have more and stable choices for work and middle income group is closely chasing the high income group. But the condition is not good for the poor countries where they do not have even the choice between labour and leisure. Moreover, they are deprived of making choices if and when looking for a job.

All the explanatory indices affect ten happiness indices in the same way as discussed in the results of Table 5.4, only the magnitude of coefficient changes with same signs.

5.6 ENDOGENEITY

Endogeneity is one of the most major challenges in econometric analysis especially in social sciences. In general, we say that a variable is endogenous if it is correlated with the model error term. Economics is about the behaviours of individuals that are quite complex and vary from person to person. This may lead to biased results due to the presence of reverse causation or endogeneity. The identification of endogeneity issues is important to improve the quality of estimates.

5.6.1 Detection of Endogeneity

Before presenting regression results in which ten happiness indices are determined endogenously on the basis of economic, social, demographic, environmental and governance indices, it is important to ensure that none of the right hand side indices has endogeneity problem i.e it correlates with the error term of regression equation. Of the four on right hand side variables social index is suspected to have endogeneity problem. The crime, population density, age dependency and net migration variables are used for the construction of this social index.

For the detection of endogeneity for all income groups and across the selected waves for all happiness indices, the null and alternative hypotheses are:

H_0: No Endogeneity: $cov(explanatory\ variable, Error\ term) = 0$

H_1: Endogeneity: $cov(explanatory\ variable, Error\ term) \neq 0$

To detect endogeneity Huasman test of endogeneity is used, which proceeds as follows.

1. Run OLS regression of the variables suspected to have endogeneity problem on the set of instruments and extract the residual series.
2. Run the main regression equation including regression residual obtained above as an additional variable.
3. Test the significance of regression coefficient associated with the regression residuals mentioned above. Rejection of the null hypothesis (the coefficient equal to zero) implies the presence of endogeneity in the variable under consideration.

   The test results are presented in table 5.6. The set of instruments used is crime, population density, age dependency, net migration and lagged dependent variables.

Table 5.6: Values of t-statistics for Huasman Test of Endogeneity

Happiness Indices ↓	High Income	Middle Income	Low Income
Family happiness	1.13**	0.17**	0.02**
Neighbourhood Happiness	1.52**	0.96**	1.22**
Political	0.24**	0.81**	0.57**
Life satisfaction	0.70**	0.37**	1.29**
Religious Index	1.07**	0.39**	0.61**
Freedom of Choice	0.94**	0.72**	0.52**
Environmental Apprehension	0.31**	1.39**	1.20**
Patriotic	1.55**	0.16**	0.49**
Gender Difference	2.41*	1.89*	0.50**
Social Evil	18.18*	14.03*	9.4*

Note: The “t-statistic” significant and insignificant vales are given in parenthesis with * and ** respectively

The table 5.6 clearly reveals that we have just found endogeneity in two out of ten happiness indices (Gender Differences and Social Evil happiness indices). The values of t-stats are very small i.e insignificant and less than 1.67 so; no problem of endogeneity has found in first eight happiness indices.

To confirm the reliability of the endogeneity test we also apply Hasen on the basis of J-statistics. The values of probability of J-Stats are greater than 0.05 which means that the null hypothesis of the validity of instruments cannot be rejected at 5% level of significance. The results of J-stats are given in Table 5.7 for social evil and gender difference index respectively for all income groups.

Table 5.7: Values of J-stats for Hansen Test

Happiness Indices ↓	High Income	Middle Income	Low Income
Social Evil Happiness Index	1.93* (0.38)**	0.87* (0.34)**	0.74* (0.48)**
Gender Difference Happiness Index	0.56* (0.45)**	0.25* (0.61)**	

Note: The "prob(J-statistic)" vales are given in parenthesis with * and ** represents values of J-stats.

5.6.2 Results of Social Evil Happiness by GMM

The results of GMM estimations are given in Table 5.8 and 5.9 for social evil and gender difference index respectively. The estimation results in Table 5.8 expose that the government performance and social evils have a negative and significant relation for low and high income countries. If there is good governance, then the prevalence of social evils is weak. The good governance and institutional quality always detrimental to social evils. Effective governance

prohibits evils of society that may affect the happiness of people at both individual and aggregate level. The governance index negatively affects the level of social evil happiness in first row of Table 5.8.

The findings of demographic and economic indices show that both contribute negatively and significantly to social evils for all the country groups. The reason for this finding is that the economic stability can make people more stable in their behaviours and vice versa. Any inauspicious environment either economic or social will enhance the public justification for committing crimes. The coefficient values of economic index for high and middle countries are -0.04 and -3.81 respectively with higher levels of significance in the second row of table 5.8. The coefficient values of demographic index are -0.95,-0.81 and-0.91 for all thee income groups. The better health facilities ensure high life expectancy, high fertility, and low mortality, if it is absent then it will disturb the entire population pyramid. This means any disequilibrium in population structure encourages the social evil scenario.

Table 5.8: Estimated Results of Social Evil Index

	High Income group	**Middle income group**	**Low Income group**
GV	- 0.578 (7.77)*	-0.976 (3.63)*	-0.601 (1.17)***
EC	-0.044 (3.03)*	-3.884 (4.57)*	
EV	0.272 (4.16)*	5.999 (3.73)*	2.190 (2.15)**
DEMO	-0.958 (26.8)*	-0.818 (2.00)**	-0.911 (2.58)**
SOC	0.159 (9.40)*	5.894 (4.47)*	1.255 (1.73)***

DW	2.26	2.76	2.60

Note: The "t" vales are given in parenthesis. *, **, *** indicates significance at the 1%, 5% and 10% respectively

The environmental index is positively and significantly affecting the social evils happiness in the entire sample of our analysis irrespective of the income groups. The value of coefficient for high income group (0.272) is quite lower than other two income groups i.e. middle and low income (5.9 and 2.1 respectively). This means that if there is high footprint consumption per capita, bio diversity per capita, and more emission then there would be more justification of the dominance of social evils for getting happiness alternatively, irrespective of to the income level of countries.

The social index, however, has not only a positive but also a significant association with the social evils happiness index for the high and middle income groups. The social index captures all correlated problems of society that affect society negatively. It means that any increase in social problems will accelerate the social evil justification, therefore, the results are highly reliable. The results of low income countries provide an explanation on the negative relationship between social problems and social evil justifications. Individuals are always trying to justify the cheating, corruption, and bribery etc., although the social problems do not highlight much on an increasing trend. The reason might be the poor governance which includes bad law and order, poor judiciary, poverty, and hunger etc. They all have a number of their own justifications for the rampant evils in the society.

Now we apply GMM on gender difference index just for high and middle income countries as we couldn't find endogeneity for low income group. The estimation results of GMM techniques is presented in Table 5.9 that show the government performance and happiness based on gender difference have a negative and significant relation for middle and high income countries. If there is good governance, then the frequency of difference for the rights between male and female is weak. The institutional quality always tries to lessen the gender gap and ensure equal opportunity for male and female. Effective government always try to provide an equal opportunity to its individuals and encourage working freely and efficiently. The governance index negatively affects the level of gender difference happiness in first row of Table 5.9.

Table 5.9: Estimated Results of GMM for Gender Difference Index

	High Income group	**Middle income group**
GV	-0.445	-0.262
	(23.5)*	(14.3)*
EC	0.041	1.980
	(4.59)*	(6.11)*
EV	0.094	4.576
	(6.12)*	(7.55)*
DEMO	0.365	
	(6.09)*	
SOC	-0.006	-1.717
	(3.73)*	(8.65)*
DW	2.08	2.55

Note: The "t" vales are given in parenthesis. *, **, *** indicates significance at the 1%, 5% and 10% respectively

The findings of economic, environment and demographic indices show that all contribute positively and significantly to gender difference index for both income groups. The reason for this finding is that the economic stability can make either male or female depending upon who is

getting benefits more stable in their behaviours and vice versa. The coefficient values of economic index for high and middle income countries are 0.041, 1.98 respectively with higher levels of significance. The coefficient values of environment and demographic index for these income groups are presented in 2nd, 3rd and 4th rows of table 5.9 respectively. The better health facilities ensure high life expectancy, high fertility, and low mortality that accelerate more gender differences as having stable population growth. The social index has a negative and significant relation with the gender difference happiness index for the high and middle income groups. It means any social problem hindrance the happiness which based on difference among the gender. The results are presented in 5th row of table 5.9.

The purpose of this whole exercise of regression analysis was to know about those correlates of happiness that may enhance and damage one's life satisfaction in any way. Five correlates and ten happiness indices allow us to shed light on those variables that may accelerate happiness. Every income group has its own socio economic policies which are designed according to internal situation of different income categories. The results of our regression provide solid grounds to suggest such policies that are more functional for attaining happiness in all income categories and the policies that need more attention for its effectiveness. From the results it has been shown that in one income category socio-economic policies are less to contribute to happiness while in other categories those may work efficiently.

CHAPTER 6

SUMMARY and CONCLUSION

6.1 SUMMARY

The main objective of this thesis is to determine the determinants of different happiness indices. For this purpose we have constructed ten different happiness indices by using the data of three waves of *WVS*. The 54 questions have been selected from *WVS* for the construction of happiness indices that explain the state of being happy depending upon behaviours of individuals. After quantifying happiness indices, five correlates of happiness indices namely Economic, Governance, Social, Demographic and Environmental were constructed to analyse the impacts of these correlates on different happiness indices. In economics index we have included GDP per capita, economic freedom, poverty, CPI, and TOT. For the empirical purpose we gave positive direction to all these economic variables. Demographic index includes four demographic variables. These variables depict the health facilities (life expectancy, fertility rate, population growth) and developmental process (urbanizations) as it correlates to happiness. A social index that captured the maximal problems related to human conducts.The human actions, especially societal actions and reactions that determine the economic stability and good governance are usually not included in previous studies. It includes net migration, population density, age, dependency and total crime. In environmental index we have used four variables, ecological footprint production, ecological footprint consumption, biodiversity and CO_2 emissions. All these variables are in per capita form. For governance index we used the data of *ICRG* to capture the effects of good governance on happiness. This data consists of twelve variables: government

stability, socioeconomic conditions, investment profile, internal conflicts, external conflicts, corruption, military in politics, religion in politics, law and order, ethnic tensions, democratic accountability, and bureaucracy quality.

PCA is used for the construction of happiness indices and its correlates indices. *PCA* methodology helps and reduces large dimensions of data into smaller number of dimensions. In PCA we select that principal component which explains maximum variation among different variables. These variations are captured by Eigen values. Furthermore selected weights (Eigen vectors) are normalized then used to construct our desired indices by multiplying with their respective variables.

6.1.1 Explanation of Happiness Indices

The constructed results of family happiness index indicate that family happiness for low and middle income countries show an increasing trend in three waves of WVS. Family happiness declines for high income countries over the time. However, happiness indices for neighbourhood, environment, gender differences, religion, freedom of choice and life satisfaction are indicating upward trends over the three waves for all income categories. The happiness indices for patriotism and social evil justification found no major change across waves and across the income categories. Only political interest happiness for high income countries are indicating upward trends across the time rest of income categories are showing no major shifts. In this dissertation, we have assessed the meaning of happiness for all income categories. Every income category responded in a different way for all happiness indices. Some gave the importance to certain aspects (Ten Happiness Indices) yet others considered them less important

and demonstrated that they were focused more on entirely different aspects, probably because of their own socio economic status. On a number of occasions, the feelings of being happy changed with moods and environmental indicators. The results of our happiness indices revealed in the same manners that for some indices of happiness the high income countries responded more while other countries responded less. The happiness that one can derive form one's relations can be explained through the bondage between parents and children (Family Happiness) that leaves a positive impact towards happiness among middle and low income countries while this relation is not exhibited as increased in high income countries. The reason might be the characteristic of parents, such as their economic condition, low educational and mental health that affects children wellbeing adversely. Divorced mothers, poverty-stricken people, children suffering from an ailment and in the need of health care, and most importantly people faced with undesirable or odd circumstances leave a negative impact of the society they belong to. For parents with minimal financial means and less social support having children turns out to be a daunting challenge.

The neighbourhood happiness index has shed light on those concerns that relates to neighbours and this concern emerges as a strong issue in all income categories. The results of constructed happiness about the nature of neighbours uncovers that the high and middle income countries demonstrate very consistent behaviours over the time while the low income countries display inconsistent behaviours towards their neighbours over time. The decision about where we live depends on the economic and social environment as well as political stability. One makes this decision while keeping such factors in mind. It is a crucial issue for policy design to ensure

awareness about the selection of neighbourhood environments that may affect people's lives negatively.

The trade-off between economic growth and environment or the personal choices about the environmental tax are an important indicator for the determination of environmental happiness. We have found that the results of environment happiness are increasing in high and middle income countries with the exception of low income countries. The reason might be that the people from low income countries are not much concerned about the environment initially but over the time they realize the importance of environment.

Our considered questions in gender difference happiness index indicate that the middle income countries are on the symmetric path of increasing gaps but low and high income groups have asymmetric trends. The gender gap explains three dimensions of female participation in politics, economic empowerment, and social relations that affect the individual wellbeing. Overall, men and women are more satisfied with their lives when societies experience equality and social justice as well as found equal opportunities for male and female.

The political interests are affected by economic and social circumstances. For the high and middle income groups, the results recorded an upward trend in political interests, happiness however; for low income countries these concerns are in downward direction. It supports that they may have more challenges than political interests and more care about the basic needs provisions. Sometime, they are less aware of these political activities.

The responses of individuals; whether they want to fight for their country or how much they feel proud of their nationality is interesting as considered in patriotism happiness index. The positive and smooth behaviour of low income group has been observed against these questions of patriotism across all the waves. But for middle and high income, no increasing trend of patriotism was noticed over time.

The population is highly heterogeneous culturally and socially. The people live under the moral and ethnic laws of religion and society. The religiosity and happiness have a positive relationship and our beliefs are an important determinant of happiness. But the point which is important in religious happiness is the regularity in religious activities. The degree of religiosity is important factor in religious happiness. The people therefore, are happier in countries in which the level of religiosity is either high or low not at medium level. We have observed a positive and increasing relation of religiosity in the entire sample.

In our life satisfaction index, simplest analysis shows that the entire sample indicates an increasing trend of life satisfaction, however, the high and middle income countries are more satisfied as compared to low income countries. Our analysis is based on responses of the *WVS*, the simplest ways of estimating one's level of satisfaction or happiness that measures feelings of happiness, degree of life satisfaction, financial satisfaction and freedom of choice.

The social evil justification index results indicate that in developed nations people are more independent in their personal decisions and personal choices. The personal lives of the individuals are more private and everybody has a right to live freely and make independent decisions. The prostitution, abortion and divorce ratios as well as suicidal trends are more understandable in those societies. But the low income countries depicted a downward trend of this index as there are strong family ties that prevent people to commit suicide or to seek separation. There is always interdependence among the household decisions, Relations and close ties keep them away from negative behaviour and destructive decisions.

How we want to spend or allocate our time to work related activities and how much leisure time we want to enjoy are important aspects in terms of decision making. The decisions about work or preferences for work which are essential while choosing a job need to be addressed. The choice which one should make about the selection of jobs is important for personal happiness. The individuals are more concerned about their personal likes and dislikes for their careers. Those who made their own choices of work are always much committed towards their work. The low income countries have substantial increase in freedom of choice happiness index in recent two waves. The happiness based on freedom of choice index has also increased for middle and high income categories.

6.1.2 Explanation of Correlates of Happiness

Empirical analysis has been divided into three parts. First we used OLS in cross-sectional regression models for empirical analysis for the 56 countries of the world and for three waves separately for the periods 1994-1998, 1999-2003 and 2004-2008. The purpose of this regression is to examine the changes in individuals' behaviour regarding happiness across the waves. To study impacts of correlates on happiness indices across the income categories, we split the whole data into three different groups on the basis of income by following World Bank income classification. Fixed effect methodology is used for pooled cross country regression analysis. Finally, we use GMM methodology for one of our happiness indices (social) evil index as it faces the problem of endogeniety. Each part of empirical analysis is briefly explained in the forthcoming sections.

After overviewing our endogenous indices, we move to summarize the results of our exogenous indices: economic, social, environment, demography, and governance. The detailed description and construction of these indices has already been explained in section 5.2 of chapter 5. Our estimation procedure has also been discussed there thoroughly. Then the estimated results of fixed effect model allows us to avoid the problem of common constant factor implies that there are no differences between the estimated cross-sections. We have made comparison of common intercepts with actual intercepts across the income categories on the basis of fixed effect model results.

In OLS results across the waves we have found that the good governance affects neighbourhood and religious happiness indices negatively while it affects family happiness and freedom of

choice happiness index positively. The economic index affects family, patriotism, freedom of choice and religious happiness indices positively. On the other hand neighbourhood happiness is negatively affected by economic index in all the waves. The environment index positively affects neighbourhood, religious, patriotism and freedom of choice happiness indices positively while it affects gender difference happiness index negatively. Social index did not affect any of happiness indices in OLS regression for recent two waves. But in first wave environmental happiness index is negatively affected by social index. The choice difference, patriotism, gender differences and environmental happiness indices are negatively affected by demographic index, while demographic index positively affects family and religious happiness indices across the waves.

The results of pooled regression model show that all happiness indices have positive and statistically significant relationship with the quality of governance expect religious happiness in all the income categories. Governance index captures the overall performance of government and institutional quality; therefore, it accelerates happiness of individuals. The nature of government surely has an impact on life satisfaction either directly or indirectly. The democracy increases the welfare of population extensively. In democracy, people exercise their rights through majority opinion/vote to make political decisions as per their needs and choices. The quality of government has different dimensions that either relates to the transparency, integrity and efficiency of government or to its effectiveness, regulatory, efficiency, rule of law and lack of corruption. The individuals trust or mistrust both on public institutions such as police, judiciary, and banks etcetera also contribute to happiness.

Social index affects three happiness indices environmental, neighbourhood and religious happiness indices negatively except political happiness, which have asignificant and positive relation with social index. The vulnerable and unhealthy societies always pay high costs for their survival. These costs cover all attribute the human life, such as social, financial and also ethical or moral. Evidence suggests that living in an unsafe or deprived area injurious to happiness. In the social index, we endeavoured to capture possible aspects of insecurities that one might face on the way to attain happiness. The results of our estimation for this index are quite interesting.

Demographic index positively and significantly affects all the happiness indices in pooled regression model for three income categories.The evidence about different geographical locations shows that living in rural areas the life satisfaction is positive while in large cities it is negative. The demographic index has a positive and significant relationship with all dimensions of happiness for all income levels, but magnitude varies across the income groups. There are always unobserved individual characteristics (personality factors) that affect the happiness. It was claimed that the ambiguous results about income may be due to these unobserved factors, which were neglected by the economists for many years.

The economic index positively affected happiness indices for three income categories in pooled regression. But these effects were not higher for middle and high income countries as compared to low income countries. The SWB and economic stability are significantly correlated to all the income categories. The high and middle income countries are already more stable economically,

therefore any increase in this variable will bring little changes, but for low income countries the changing economic policies directly affect happiness of individuals of this income categories.

It is difficult to capture the environmental factors due to limited literature but we extricated them to a certain extent through pollution, bio diversity and eco footprints. That confines the natural environment and also climate change to some extent. The pollution damages one's life satisfaction and the environmental problems impact the happiness negatively. The study concludes that extreme weather is detrimental to SWB. So there would be a link between happiness and environment, which may be positive/ negative or other way around. The individual moods and behaviours may also get determined by the environment in which they live. We therefore, conclude that any environmental degradation would lead individuals to unhappiness.

The estimated results of GMM indicate that social evil happiness index is negatively affected by government performance in low and high income countries. The incidence of social evils is not much higher in the presence of good governance, Such type of happiness which depends upon justification of social is relatively higher in high income countries as compared to the poor countries. Economic and demographic indices affect negatively social evils for all income categories. The reason for such a finding seems to emerge through the economic stability or growth in economy since they can make people more stable in their behaviours and vice versa. The ill-starred situations in one's life incite them to justify their committed crimes.

Environmental index is positively and significantly affecting the social evils happiness for all income categories. High income category owes highest coefficient value than other two income categories i.e. middle and low income. Social index consists of those variables which affect society negatively if on progress. This implies that any increase in social problems will accelerate the social evil justification. We have found positive and significant relationship for high and middle income categories; however, for low income countries we observed negative relationship between social index and social evil justifications. Individuals have a number of their own justifications for the rampant evils in the society.

6.2 CONCLUSION AND POLICY RECOMMENDATIONS

This dissertation leads to important conclusions and also recommends some policy implications pertaining to happiness, and the factors that affect happiness directly or indirectly. Our first goal was to identify the determinants of happiness and create a web in which each thread of it explains happiness more comprehensively. These threads were our ten happiness indices and each thread carries importance for different income groups in one way or the other. The empirics of happiness indices suggest that happiness research is useful for economic policy. Even if happiness is not an ultimate goal of life, even though, it is the main concern of every individual. Although, we are not claiming that these are the final words on happiness and its definition but it surely opens new avenues to define and expand the overall idea of happiness both at the individual as well at aggregate level.

It can be ascertained as to how much we are happy in what we are doing, where we are living through and what choices we have made for our present and the future generations. What makes us happy and what takes away from individual and collective happiness. What needs to be explored further? Attaining happiness and sustaining it is bliss for the entire humanity. It can make this planet a better place to live in, prosper and enjoy the congeniality. There are a number of queries that one might come up with: what could be the relation between happiness and economic growth? How do unemployment, inflation, and inequality affect happiness? Is the deteriorating environment detrimental to happiness? How good governance and the institutional effectiveness can contribute to individual's wellbeing? A number of similar questions need to be raised and addressed through empirical research and findings that could eventually turn into policies that work. How do certain people experience a state of happiness in their lives while others do not? There are a number of factors that determine happiness. It was therefore, one of the most important tasks of happiness research to identify those conditions that may affect individual's happiness. It is commonly known that economics deals with behaviours of individuals. It was important therefore, to find the answers to establish as how we restrict economics of happiness to manipulate the economic factors on happiness only. We have found numerous other material and nonmaterial factors that play their role towards happiness and unhappiness of individuals and societies. Social relations and interactions within a family, political interests, social developments, and good governance can be named from many as an example of other allied factors. We also endeavoured to analyse personality characteristics, socio-economic status, demographic factors, cultural, and political factors for gauging their impact on happiness. We discovered that the overall behaviour of a society and government and their efficient interaction with masses enhance or hamper happiness. As happiness depends upon

both theoretical (utility measures) and experimental work, therefore, policies designed and implemented based on theory and experience both will be manifold rewarding and result-oriented towards attaining as well as sustaining happiness.

Happiness does not revolve around individuals only rather it depends on the fundamental constitutional arrangements and the effective functionality of specific institutions. The correlates of happiness, therefore, are milestones for the journey of happiness. They shed light to the fact that the public policies should be designed in such a way that every policy objective focuses on maximizing happiness. The description of suggested policies for happiness is as follow.

Economic policy: income was the only tool to solve all the economic problems in the past. Unemployment, poverty, inequality and economic freedom etcetera are the other factors that need to be dealt with while designing economic policies with the objective of attaining happiness. How and what type of financial support is required for poor? The factor of low income is quite important for the provision of financial support. Low income is the result of low wages or unemployment mainly causes poverty, both these factors need customized economic policies for tackling the issue effectively. Literature finds that in order to address the low income issue through financial support or social security would be an erroneous approach. Creating employment opportunities through carefully designed policies for both skilled and unskilled workforce could help the problem of low income.

Social policy: People usually take happiness in relative terms. They make social comparisons and set the preferences accordingly. They work in ways to attain the desired level of happiness

and then, adapt outcomes of their efforts habitually or gradually. But the social index supports that on the face of extreme distress if one may not appear having adaptive capacity then one will surely feel victimized. Therefore, while designing public policies, one should bear in mind that every human being is a social actor as well; and action or reaction of these social actors either harm individuals and society or help them, thus causing anguish or happiness to others.

Environment policy: It is a most neglected area, therefore discussed briefly in the economics of happiness. But it is also an open secret that our moods, feelings and attitudes mainly depend on environment and weather conditions. Over the time, people demonstrate more willingness to pay for environmental quality. The economic growth is always fuelled by environment costs. Now it is time to make environment policies in such a way that no environmental degradation occurs while having economic growth. Environment affects the choices and preferences of individuals that impact the economic setup directly and society indirectly.

Welfare policy: Education, health and employment discriminations among classes of society are the main concerns for a welfare state. It also deals with the negative effects of efficient economic policies and on the other side, focuses on the economic destitution that may be responsible for triggering the feelings of unhappiness. These correlates of happiness provide a sound basis for the evaluation of government policies and how government responds to public reactions.

Moreover, how governments allocate their resources and mange expenditures in an efficient way. All that governments do something for society and for people that live in those countries. It should be left to the governments whether more is better for people or less but government should put together policies and implement them on the basis of their effectiveness.

The policies should be made in relevance of income categories and implemented without any fear and favour to make society happier. There should be some implementable tax policy to protect natural and socio economic environments. To make tax reforms for each income group in such a way that comparison of happiness on the basis of income could be prohibited.

It may be suggested in the end that the present study opens new and important avenues for future research that could be explored with the existing panel datasets with more precision. Our findings may guide researchers and perhaps policymakers while designing public policies. They should be aware of the impact of income, relative income, gender compositions, economic and social laws, health, social developments, family and community relationships, employment status, and more importantly trust on institutions while analysing them in relation to their role and scope in regards to happiness.

Appendix A: Table A1

		1			2			3			4			5		
		Family Happiness			Neigbhour Happiness			Environmental Happiness			Gender Differences Happines			Patriotic Happiness		
	High Income Countries	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3
1	Australia	0.87905	-3.0475	-6.974	0.99703	0.89284	0.95723	0.76315	0.83596	0.90878	0.86964	0.82602	0.78239	0.78036	0.8493	0.91825
2	Canada	-2.0637	0.93014	-4.0747	0.96177	0.99756	0.99692	0.83392	0.76601	0.90182	0.83359	0.85611	0.81108	0.63428	0.34835	0.9202
3	Chile	0.88575	0.91451	-3.6714	0.98438	0.98788	0.96966	0.77412	0.76384	0.90349	0.83859	0.82088	0.65372	0.81394	0.31208	0.96345
4	Croatia	0.93364	0.98277	0.91877	0.99205	0.96765	0.97941	0.81245	0.79558	0.87645	0.83209	0.83401	0.84444	0.84797	0.82881	0.87684
5	Cyprus	0.93034	0.90889	-2.3864	0.97852	0.99616	0.96001	0.85575	0.91323	0.91573	0.71166	0.73779	0.78267	0.90709	0.85983	0.93534
6	Czech Republic	0.96635	0.90889	0.93034	0.97244	0.92766	0.97213	0.80949	0.82864	0.88068	0.87693	0.89861	0.92059	0.86393	0.87596	0.93327
7	Finland	0.9041	-4.7208	-10.346	0.98342	0.97825	0.97308	0.80297	0.86246	0.92195	0.87719	0.83966	0.80212	0.81171	0.87388	0.93605
8	France	0.9412	0.91382	-3.3635	0.73965	0.9908	0.95349	0.6623	0.44392	0.46852	0.84444	0.86424	0.88216	0.879	0.82249	0.90659
9	Germany	0.89478	-5.0779	-11.051	0.99936	0.97587	0.95238	0.78496	0.8816	0.97824	0.89656	0.84347	0.79039	0.90425	0.91721	0.93016
10	Japan	0.95454	1.0048	-10.756				0.9662	0.95566	0.85092	0.94317	0.9386	0.3707	0.899	0.8648	0.8438
11	Netherlands	0.93034	-2.5456	-6.0216	0.98926	0.97568	0.98803	0.36053	0.385	0.46505	0.73787	0.7616	0.7974	0.86676	0.87369	0.89192
12	New Zealand	0.8866	-2.585	-6.0566	0.99767	0.99544	0.9932	0.84233	0.8484	0.85447	0.89768	0.80044	0.70319	0.81911	0.84904	0.87897
13	Norway	0.89327	-5.5442	-11.982	0.98964	0.99106	0.99248	0.73803	0.82025	0.90246	0.89001	0.93292	0.97584	0.75461	0.83023	0.90584
14	Poland	0.85155	-0.7127	-2.2769	0.97044	0.97456	0.97868	0.87452	0.90064	0.92675	0.90813	0.75969	0.61124	0.8118	0.8694	0.927
15	Puerto Rico	0.84708	0.92864	0.88786	0.98853	0.99616	0.99235	0.74339	0.73871	0.74105	0.85331	0.84282	0.84806	0.77112	0.26882	0.51997
16	Russian Federation	0.96572	-0.682	-2.3297	0.98776	0.97515	0.96255	0.88068	0.6623	0.44392	0.84557	0.70805	0.57053	0.85983	0.86676	0.87369
17	Slovenia	0.91209	-3.2952	-7.5026	0.97537	0.97568	0.976	0.79558	0.85575	0.91593	0.85461	0.79624	0.73787	0.81865	0.87596	0.93327
18	Spain	0.8911	0.91256	-1.4487	0.99158	0.9855	0.99154	0.80465	0.82478	0.90201	0.87197	0.86626	0.8134	0.8405	0.40764	0.94825
19	Sweden	0.878	0.98214	-12.89	0.99833	1	1	0.77838	0.73332	0.91027	0.92059	0.91654	0.90309	0.78914	0.10847	0.89304
20	Switzerland	0.91306	-5.2492	-11.411	0.98883	0.97852	0.96821	0.85121	0.88088	0.91056	0.21341	0.52892	0.84444	0.86857	0.87379	0.879
21	UK	-0.0093	-1.685	-3.3607	0.49325	0.73965	0.98605		0.22898	0.45795	0.09198	0.40182	0.71166		0.44907	0.89813
22	Uruguay	0.88248	-2.0516	-4.9856	0.99283	0.99298	0.99314	0.81214	0.86417	0.9162	0.84561	0.77159	0.69756	0.82881	0.87684	0.92487
23	USA	0.8884	0.93034	-3.2332	0.99076	0.98926	0.98334	0.81641	0.75194	0.93155	0.88506	0.861	0.7616	0.77586	0.33666	0.92273

		1			2			3			4			5		
		Family Happiness			Neigbhour Happiness			Environmental Happiness			Gender Differences Happines			Patriotic Happiness		
	Middle Income Countries	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3
24	Albania	0.88905	0.91877	0.90391	0.98963	0.96528	0.99568	0.87163	0.82636	0.84899	0.89861	0.88482	0.89172	0.89741	0.39616	0.64679
25	Argentina	0.89537	0.92295	-2.1672	0.99641	0.99564	0.99858	0.82179	0.82836	0.91846	0.87307	0.86117	0.67945	0.83393	0.41926	0.94305
26	Bosnia	0.90614	0.92179	0.91397	0.96746	0.97265	0.99787	0.82064	0.76814	0.79439	0.81616	0.83478	0.82547	0.81467	0.6195	0.71708
27	Brazil	0.8816	0.77458	0.66757	0.9994	0.99322	0.98704	0.75152	0.84124	0.93096	0.82577	0.79533	0.76489	0.77577	0.84856	0.92135
28	Bulgaria	0.98884	-0.9651	-2.9191	0.97728	0.97411	0.97095	0.96942	0.93248	0.89555	0.8968	0.7864	0.676	0.89071	0.89362	0.89654
29	China	0.97694	0.97484	-4.1045	0.96864	0.97889	0.95987	0.83643	0.84639	0.82904	0.88569	0.85298	0.49329	0.78457	0.53583	0.83763
30	Colombia	0.71007	2.95214	5.1942	0.24876	0.37295	0.49713	0.20001	0.33095	0.46189	0.374	0.48827	0.60254	0.55184	0.28921	0.02657
31	Hungary	0.90791	0.88267	0.93034	0.96826	0.37295	0.98776	0.82856	0.88088	0.91323	0.83725	0.86424	0.88612	0.82304	0.93727	0.92179
32	Iran, Islamic Rep.	-0.1049	0.95247	-1.1622	0.99886	0.97617	0.92303	0.6817	0.44643	0.91697	0.61526	0.84327	0.38725	0.38046	-0.1332	0.89407
33	Iraq	1.79345	0.90209	2.68481	0.97259	0.95402	0.90421	0.65629	0.37414	0.93843	0.64462	0.7635	0.52574	0.39117	-0.1042	0.88651
34	Jordan	0.89844	0.95683	0.9276	0.96273	0.97304	0.96788	0.84147	0.80002	0.82074	0.89337	0.84802	0.8707	0.8695	0.4338	0.65165
35	Macedonia, FYR	0.92455	0.91148	-2.0704	0.96098	0.98136	0.9877	0.82616	0.82128	0.89117	0.85731	0.84727	0.67999	0.83167	0.29502	0.90896
36	Mexico	0.9011	0.8852	2.62643	0.98647	0.98647	0.99294	0.83061	0.79001	0.88469	0.87478	0.8523	0.72744	0.78101	0.27447	0.9048
37	Peru	0.96101	0.79422	0.62742	0.96393	0.958	0.95208	0.94065	0.93593	0.93122	0.88823	0.74843	0.60863	0.87252	0.90207	0.93161
38	Romania	0.9412	0.9481	-3.431	0.97213	0.9908	0.9285	0.81293	0.7889	0.91323	0.83887	0.86252	0.70868	0.85798	0.59284	0.92155
39	serbia	0.88267	0.91361	-0.0616	0.97941	0.96686	0.95931	0.87017	0.841	0.93329	0.87914	0.86002	0.69451	0.79436	0.35687	0.90709
40	South Africa	0.8913	0.90889	-0.5883	0.95001	0.95388	0.95464	0.74817	0.35233	0.89215	0.8204	0.81011	0.66791	0.7375	-0.0464	0.91797
41	Turkey	0.89672	0.90347	0.90009	0.96969	0.97656	0.97313	0.8178	0.36053	0.58916	0.88612	0.84235	0.86424	0.79158	0.22611	0.50884
42	Venezuela, RB	0.89672	0.90347	0.90009	0.96969	0.97656	0.97313	0.8178	0.36053	0.58916	0.88612	0.84235	0.86424	0.79158	0.22611	0.50884

		1			2			3			4			5		
		Family Happiness			Neigbhour Happiness			Environmental Happiness			Gender Differences			Patriotic Happiness		
	Low Income Countries	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3
43	Bangladesh	0.89538	0.97194	0.93366	0.9655	0.88835	0.85645	0.84541	0.79247	0.81894	0.74293	0.80896	0.77595	0.7787	0.29174	0.53522
44	Burkina Faso	2.86491	0.93595	4.79386	0.97504	0.97515	0.98483	0.79558	0.80465	0.82864	0.52892	0.69451	0.53946	0.89304	0.81911	0.8671
45	Egypt	2.84171	0.93595	4.74746	0.88999	0.92766		0.6693	0.34912	0.98949	0.61129	0.75952	0.46306	0.39224	-0.1664	0.95089
46	Georgia	0.94592	0.45488	-0.0361	0.9877	0.96765	0.9476	0.80307	0.84069	0.8783	0.80051	0.68991	0.57931	0.79407	0.83268	0.8713
47	Guatemala	0.71007	1.45522	2.20037	0.95388	0.958	0.9954	0.88088	0.91593	0.92952	0.70805	0.7616	0.73453	0.94825	0.85798	0.92921
48	India	0.92716	0.92806	-1.7304	0.94689	0.93763	0.93239	0.98304	0.99283	0.8089	0.90924	0.93124	0.39723	0.81996	0.40939	0.89155
49	Indonesia	-0.2609	0.93929	-1.4611	0.90787	0.94183	0.92615	0.66096	0.42018	0.90174	0.72926	0.85041	0.60811	0.42148	-0.0522	0.89513
50	Moldova	0.94111	0.92471	-1.4905	0.98718	0.97904	0.96433	0.79636	0.90449	0.92075	0.82606	0.85065	0.67579	0.83219	0.66119	0.9355
51	Morocco	0.46786	0.91945	0.01627	0.97179	0.98205	0.96152	0.65112	0.36655	0.93569	0.69918	0.82058	0.57778	0.55975	0.20473	0.91476
52	Nigeria	0.86585	0.87437	0.87011	0.97116	0.95564	0.9634	0.79605	0.36195	0.579	0.82562	0.79537	0.8105	0.82249	-0.1041	0.35921
53	Pakistan	0.64952	0.92308	0.7863		0.97473	0.48737	0.36677	0.40322	0.385	0.65224	0.81487	0.73355	0.58134	-0.181	0.20015
54	Philippines	0.90932	0.94092	0.92512	0.96788	0.97391	0.9709	0.76696	0.75056	0.75876	0.80156	0.77326	0.78741	0.76008	0.22316	0.49162
55	Ukraine	0.98277	-0.4969	-1.9765	0.98702	0.97504	0.96306	0.94064	0.90855	0.87645	0.89692	0.73779	0.57866	0.93727	0.92179	0.9063
56	Vietnam	-1.7989	0.91382	-4.5115	0.9463	0.95004	0.94255	1.63902	0.7633	0.87571	0.74873	0.83401	0.66344	0.55985	0.26384	0.85585

		6			7			8			9			10		
		Political Happiness			Religious Happiness			Social Evil Happiness			Lifes Satisfaction			Freedom of Choice		
	High Income Countries	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3
1	Australia	0.6768	0.74676	0.81673	0.7088	0.99858	-0.4721	0.44645	0.62483	0.80322	0.38239	0.52063	0.90086	-24.644	0.13492	0.72103
2	Canada	0.7402	0.6711	0.8093	0.73659	0.93837	0.47461	0.58514	0.42382	0.74645	0.32918	0.49238	1.02896	3.3139	0.10996	0.61402
3	Chile	0.77082	0.7598	0.90761	0.70974	0.83401	0.61193	0.41266	0.47962	0.75901	0.34372	0.49922	0.73999	26.2293	0.30505	0.2149
4	Croatia	0.71867	0.80127	0.87693	0.69726	0.88216	0.84444	0.51331	0.80021	0.84444	0.88779	0.51246	0.90086	26.2519	0.10858	0.16796
5	Cyprus	0.81691	0.88216	0.87794	-0.8705	0.84235	0.9168	0.61288	0.63559	0.71836	0.91027	0.9025	0.89473		-0.0512	0.17847
6	Czech Republic	0.73659	0.77743	0.73787	0.82225	-0.2167	0.88612	0.65203	0.7759	0.82993				26.2552	0.13857	0.27529
7	Finland	0.71454	0.77953	0.84451	0.7078	-0.3671	-1.1412	0.51571	0.65268	0.78964	0.7084	0.49702	0.91979	-24.629	0.10925	0.11692
8	France	0.87869	0.7974	0.82993	-1.344	-0.7496	-1.4603	0.82993	0.83725	0.85764	0.74038	0.55847	0.92229		0.11863	0.5427
9	Germany	0.64492	0.73502	0.82512	0.7192	0.82616	-2.2185	0.46861	0.62203	0.77544	0.56628	0.55847	0.57409	-24.627	0.13217	0.35635
10	Japan	0.8253	0.80651	0.77899	0.90748	-0.0464	-2.2797	0.57011	0.65478	0.7247	0.51164	0.64319	0.50268	-24.632	0.14802	0.18406
11	Netherlands	0.44306	0.88612	0.80836	-1.3934	-0.7993	-1.6101	0.80836	0.87693	0.81546	0.30893	0.68938	1.06984	-0.3554	0.14731	0.23597
12	New Zealand	0.71514	0.73744	0.75973	0.73559	-0.4612	-2.3342	0.60064	0.67387	0.74709	0.72267	0.47649	0.96886	26.1643	0.13574	0.58476
13	Norway	0.63701	0.72836	0.81971	0.6914	0.74245	-1.6137	0.42731	0.62833	0.82936	0.74268	0.4536	1.03175	-24.646	0.15622	0.43985
14	Poland	0.79425	0.83645	0.87866	0.22773	0.78397	1.25717	0.41509	0.54495	0.67481	0.50797	0.40668	0.60927	0.77878	0.12219	0.20609
15	Puerto Rico	0.75599	0.71859	0.73729	0.69528	-0.0631	0.73962	0.35164	0.3516	0.35162	0.38688	0.55885	0.47287	26.2059	0.09396	0.0023
16	Russian Federati	0.84466	0.82932	0.81398	0.81761	-0.0757	-0.9437	0.69948	0.71012	0.72075	0.56133	0.48417	0.63848	-24.587	0.2149	0.2932
17	Slovenia	0.77743	0.80833	0.83923	0.71915	1.10053	-0.8705	0.42162	0.61292	0.80421	0.30753	0.50603	0.19294	-24.615	0.14203	0.16291
18	Spain	0.80127	0.76823	0.83798	0.73549	1.20006	-1.344	0.58991	0.50854	0.80021	0.34754	0.59297	0.62575	26.2404	0.0835	0.41926
19	Sweden	0.65029	0.56635	0.80261	0.832	0.38949	-1.3934	0.57721	0.40768	0.87072	0.17797	0.50524	1.05095	-24.662	0.12847	0.16184
20	Switzerland	0.73733	0.77347	0.80961	0.70495	-0.65	0.07403	0.59511	0.70711	0.81911	0.67683	0.62111	1.0268	-24.631	0.15738	0.11596
21	UK	0.13478	0.47932	0.82386	0.13667	0.4146	-1.4366	0.24083	0.50837	0.7759	0.76285	0.35025	1.17544		0.14031	0.38831
22	Uruguay	0.75507	0.82972	0.90437	0.80544	0.84475	0.02377	0.48969	0.64229	0.7949	0.8009	0.53385	0.82265	26.2185	0.13333	0.15673
23	USA	0.68851	0.6384	0.81562	0.7292	0.72413	0.72219	0.48452	0.37863	0.72757	0.32252	0.53232	0.87858	26.2169	0.16232	0.49403

		6			7			8			9			10		
		Political Happiness			Religious Happiness			Social Evil Happiness			Lifes Satisfaction			Freedom of Choice		
	Middle Income Countries	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3
24	Albania	0.7788	0.87039	0.8246	0.67544	0.99628	0.83586	0.54527	0.4182	0.48174	0.30981	0.51981	0.41481	-24.51	-0.2095	0.04422
25	Argentina	0.76756	0.78506	0.85193	0.72279	0.99485	0.48669	0.49159	0.5024	0.72565	0.40261	0.56547	0.91027	-24.598	0.09291	0.26704
26	Bosnia	0.71124	0.73464	0.72294	0.72511	0.96834	0.84673	0.42461	0.33971	0.38216	0.28124	0.46666	0.37395	26.2154	-0.2281	0.08844
27	Brazil	0.71143	0.78523	0.85904	0.71079	1.595	2.47921	0.39598	0.57025	0.74453	0.7137	0.49734	0.93007	26.1936	0.35405	0.3118
28	Bulgaria	0.83348	0.8366	0.83972	0.8018	0.06884	-0.6641	0.74668	0.74151	0.73634	0.28597	0.64808	-0.0761	26.3139	0.09647	0.1247
29	China	0.00102	0.04635	0.53768	0.2646	1.57556	-3.0305	0.52754	0.476	0.59666	0.35845	0.48632	0.4445	-24.537	0.16485	0.07335
30	Colombia	0.6105	0.75996	0.90943	0.45304	1.39023	2.32741	0.25287	0.41774	0.58261	0.79019	0.36732	1.21306	0.7214	0.12335	0.16273
31	Hungary	0.72802	0.84444	0.84444	0.72794	0.86424	0.88216	0.65228	0.72697	0.74685	0.32098	0.43414	0.35211	26.2421	0.13678	0.03523
32	Iran, Islamic R	0.0643	0.11233	0.01626	1.74944	0.91323	2.58565	0.57932	0.50301	0.65564	0.24914	0.41038	0.57161	0.09867	0.13653	0.0904
33	Iraq	0.87137	0.82666	0.91609	1.83709	0.91253	2.76166	0.4546	0.33613	0.57308	0.29424	0.52823	0.85596	0.10848	0.09868	0.0601
34	Jordan	0.80608	0.73954	0.77281	0.77137	0.95738	0.86437	0.56098	0.47212	0.51655	0.30281	0.71696	0.50988	26.2748	0.04333	0.14611
35	Macedonia, FY	0.76744	0.8227	0.87314	0.71275	0.85478	1.84789	0.54708	0.62156	0.77214	0.47675	0.56791	1.4252	26.2563	0.15483	0.11913
36	Mexico	0.79564	0.72585	0.86795	0.69197	0.83807	1.34085	0.57435	0.36128		0.33956	0.55765	0.607	26.2834	0.12835	0.13266
37	Peru	0.82554	0.85707	0.8886	0.74072	1.32775	1.91477	0.62148	0.62854	0.63559	0.35753	0.55169	0.16337	26.2873	0.19756	0.15824
38	Romania	0.78769	0.7001	0.83126	0.73289	1.0051	0.24231	0.54646	0.58518	0.84224	0.29726	0.5211	0.87991	26.2633	-0.1747	0.13295
39	serbia	0.76125	0.73205	0.87957	0.69931	0.7974	1.73746	0.4706	0.40283	0.70177	0.59095	0.45049	0.73141	26.2508	0.08111	0.19962
40	South Africa	0.67644	0.70449	0.91393	0.57654	0.35096	1.73822			0.61288	0.25773	0.42142	0.85654	26.2373	0.20138	0.08834
41	Turkey	0.81655	0.74412	0.78034	0.69256	0.9079	0.80023	0.42574	0.3434	0.38457	0.33291	0.51691	0.42491	26.1945	0.11083	0.07984
42	Venezuela, RB	0.81655	0.74412	0.78034	0.69256	0.9079	0.80023	0.42574	0.3434	0.38457	0.33291	0.51691	0.42491	26.1945	0.11083	0.07984

		6			7			8			9			10		
		Political Happiness			Religious Happiness			Social Evil Happiness			Lifes Satisfaction			Freedom of Choice		
	Low Income Countries	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3
43	Bangladesh	0.82402	0.7989	0.81146	0.62514	0.82221	0.72367	0.25445	0.27629	0.26537	0.4264	0.68421	0.5553	26.2976	0.15401	0.0208
44	Burkina Faso	0.70449	0.88612	0.74685	1.32775	1.91477	2.79895	0.51331	0.73787	0.64689	0.04066		0.08133	0	0.22876	0.17569
45	Egypt	0.8122	0.67098	0.95341	1.42661	0.90335	1.94988	0.37376	0.29384	0.45368	0.24014	0.23824	0.23635	0.08097	0.11473	0.05182
46	Georgia	0.76235	0.80859	0.85484	0.68569	1.53077	2.37585	0.45001	0.52224	0.59448	0.24446	0.46053	0.0284	26.2352	0.13919	0.20635
47	Guatemala	0.83209	0.92059	0.93126	1.73746	1.73822	2.27025	0.5972	0.72075	0.72918	0.89789	0.60247	1.19331		-0.2148	0.07068
48	India	0.95353	0.86268	0.75881	0.70656	0.86857	0.57662	0.53508	0.76559	0.68463	0.43415	0.89056	0.12054	26.3556	0.15582	0.14978
49	Indonesia	0.8246	0.78683	0.86238	1.55763	0.76624	2.34902	0.45132	0.31548	0.58716	0.45635	0.52249	0.58863	0.11417	0.15436	0.03985
50	Moldova	0.76798	0.83676	0.89763	0.69924	0.95649	1.55708	0.55209	0.74531	0.72046	0.38045	0.42229	0.16709	-24.575	-0.2025	0.08585
51	Morocco	0.83451	0.86476	0.80425	2.17255	0.88947	3.45562	0.40455	0.30641	0.5027	0.28794	0.19071	0.09348	0.09479	0.07484	0.05235
52	Nigeria	0.74186	0.72795	0.73491	0.62691	0.70452	0.66571	0.33357	0.29166	0.31262	0.52886	0.5738	0.55133	26.2153	-0.1765	0.06046
53	Pakistan	0	0.8601	0.43005	0.33462	0.75243	0.54352		0.4521	0.22605	0.92562	0.21692	0.82681	26.3633	0.14519	0.0319
54	Philippines	0.71293	0.72721	0.72007	0.6341	0.7947	0.7144	0.37653	0.39943	0.38798	0.31717	0.44269	0.37993	26.2971	0.12802	0.04757
55	Ukraine	0.88366	0.87869	0.87372	0.82978	0.27371	-0.2824	0.929	0.82799	0.72697	0.50859	0.67357	0.22725	-24.554	0.34924	0.19276
56	Vietnam	0.85669	0.75794	0.95544	-0.1859	1.01827	-1.39	0.5082	0.40143	0.61497	0.35574	0.52705	0.64033	-1.5615	0.15422	0.08088

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