

# Don't Worry, Be Happy

## A Survey of the Economics of Happiness

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Happiness is a subjective measure of the quality of life in all its domains. Lately, the social and economic dimensions of happiness and its measurement have been the subject of some study. There are several factors that affect individual well-being, with income, employment, health, religion, marriage, education and workplace satisfaction being important determinants. Macroeconomic variables such as unemployment, poverty, literacy rate, life expectancy, inflation rate, crime rate and political stability also affect happiness. This article looks at the literature of the economics of happiness and is a survey of the relationship between happiness and several correlates of happiness. It aims to establish that analysing happiness from an economist's perspective can help choose between alternative public policies, and proposes an alternative valuation methodology for non-marketed goods and services.

### 1 Introduction

It is almost impossible to have an objective textbook definition of a subjective issue such as happiness. That is why less emphasis is given on what happiness is, and more on people's perceptions about happiness, correlates of happiness, and on understanding the processes that underlie happiness. Happiness can mean different things to different people. To Mother Teresa, happiness would be serving the poor, to Constance Chatterley it would be finding passionate love outside marriage, to the Count of Monte Cristo it was revenge. Further, happiness has two components—it is partly absolute and partly relative. Some fundamentals are to be met for a person to be happy. When basic necessities are met, relative position becomes important. An individual compares her position with that of other people as well as her own past situations, and so on.

“The greatest happiness for the greatest number” is a well-cherished goal in any society. The US Declaration of Independence in 1776 included “pursuit of happiness” as a right alike the right to “life” and “liberty.” In Bhutan, gross national happiness (GNH) is pursued as the central objective of development and as a concept more important than gross domestic product (GDP). The Canadian initiative to prepare a “Canadian Index of Wellbeing” and the French initiative to commission a report on measurement of well-being show the importance attached to happiness in different societies.

The search for a good life and happiness has a long tradition of discourse. Aristotle, Jeremy Bentham, John Stuart Mill and Immanuel Kant are notable philosophers who have dealt with the issue of happiness, its source and relevance. Psychologists and sociologists have also contributed to happiness research. Psychiatrists have investigated the link between unhappiness and depression. Economists entered the field of happiness research mainly after the pioneering works of Easterlin (1973, 1974). A number of studies have been conducted on happiness since then and a number of research papers have been published, along with a number of surveys of the literature of happiness.<sup>1</sup> These studies have been mostly conducted in advanced developed countries. Happiness studies that cover India as the geographical area are really very few. Articles on subjective well-being have come out in leading scientific journal *Science* but the number of research papers published in Indian journals on happiness is very few, Nandy (2012) being one of them. But none of the articles have a focus on economics, and this is an attempt to fill the gap.

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The rest of the paper is organised as follows. Section 2 concentrates on measurement issues with special reference to the GNH index of Bhutan. Section 3 is on the psychologists' position on happiness research. The set point theory postulated by psychologists doubt the efficacy of public policies to improve happiness, which is refuted by economists. Section 4 is on the well-known Easterlin paradox, its explanations and implications. Section 5 discusses the role that economics can play in happiness research. Section 6 identifies the correlates of happiness and observes their relationship with happiness. Section 7 is on the basic econometric issues in happiness economics. Section 8 reports on the happiness scenario in India and checks whether the relationship between income and happiness as postulated by Easterlin is actually observed. Section 9 observes limitations on the study, and concludes.

## 2 Measurement Issues

There are objective happiness measures in which certain technical procedures are followed to estimate the extent of happiness. Information about the actual real time experience of an individual at randomly selected moments is collected several times a day for many days. The U-index measures the fraction of time per day an individual spends in an unpleasant mood. The Brain Imaging Method uses magnetic resonance imaging to scan brain waves and identify what makes an individual happy or unhappy (Cornelisse-Vermaat et al 2006).

The Experience Sampling Method or the Day Reconstruction Method asks individuals to report about their satisfaction at different times a day. Researchers on happiness have concentrated on self-reported happiness, that is, the level of happiness as perceived and stated by an individual. Researchers have used happiness, subjective well-being, individual welfare, and life satisfaction interchangeably and relied on asking an individual about her level of happiness. This self-reported happiness is thought to serve as a proxy of individual utility. The question on life satisfaction/happiness is generally set in a way that the respondent can freely define well-being in her own terms. Though different respondents are expected to have different self-perceptions about happiness, the responses

are considered to be comparable as the factors that determine happiness are more or less the same. Several studies have asked whether an individual is satisfied with her life or not. Table 1 shows how the self-reported happiness question has been posed in different surveys.

Bhutan is special as it has been pursuing well-being as a national objective and a measure of government performance since the 1980s by coining the term "gross national happiness." Happiness is taken to be the ultimate, desirable societal goal. The calculation of GNH is broad in nature as it is not based on a single question on happiness, but on several questions on different domains of life.

The GNH index is composed across nine domains—well-being, cultural diversity, education, health, time use and balance, good governance, community vitality, ecological diversity, and living standard. Each domain contains a number of indicators. The indicators were selected on normative grounds and are equally weighted (Ura et al 2012). Such an index is superior to an income measure such as GDP as it is supplemented by several quality of life and sustainability indicators, such as the need for leisure, quality of employment, value of natural environment, and so on and emphasises the notion that increase in consumption or income does not automatically ensure an increase in happiness. The benchmarks set by the GNH index in Bhutan help development agencies to prescribe policies and track the performance of the country. The historical use of GDP as an indicator has justified policies that stress material progress without devoting proper attention to community, culture, environment, and the like. An indicator based on GNH is expected to produce a policy agenda that is different from that decided on the basis of GDP alone.

The constructed GNH index is a single number index, which is composed of component-wise indicators. The index number is estimated by surveying respondents with a questionnaire that contains questions of a subjective, objective, and open-ended type. The GNH index as a methodology is superior to a single question on happiness as it is multidimensional and constructed considering the local understanding of happiness. These numbers can be used for identifying region-wise, component-wise, and community-wise points of intervention, and for planning governmental activities.

## 3 The Psychologists' Position

Psychologists are of the opinion that understanding happiness should be preceded by understanding the process of adaptation. People cope with both good and bad situations they face in life. Every individual has her unique evaluations on expectations about life, values, and experiences, and different people respond differently to the same life situation. If expectations are promptly met, people feel happy. If expectations remain unfulfilled for a long time, people feel unhappy. How are expectations formed? This depends on the aspirations of the

**Table 1: Happiness Question Asked in Different Surveys**

Name of the Survey	Happiness Question	Response Options
The German Socio-Economic Panel	How satisfied are you with life in general?	Responses are categorised as a number ranging from one to 10, where one signifies completely dissatisfied and 10 means completely satisfied.
The General Social Survey (GSS) carried out in the US.	Taken all things together, how would you say things are these days—are you very happy, pretty happy, or not too happy?	Responses are categorised as very happy, pretty happy, or not too happy.
The British Household Panel Survey	How satisfied are you with your life overall?	Responses are categorised as a number ranging from one to seven, where one signifies completely dissatisfied and seven means completely satisfied.
The Eurobarometer Survey conducted in European Union (EU) member countries	On the whole are you very satisfied, fairly satisfied, or not at all satisfied with the life you lead?	Responses are categorised as very satisfied, fairly satisfied, or not at all satisfied.
The World Values Survey (Cross-national)	All things considered, how satisfied are you with your life as a whole these days?	Responses are categorised as a number ranging from one to 10, where one signifies completely dissatisfied and 10 means completely satisfied.

person concerned. Aspirations depend on perceptions about one's ability, past experience in life, one's relative position compared to others, personal traits, and many other factors. When aspirations are not met, people try to adapt to the situation. People revise their goals according to the present life situation. But the degree of non-fulfilment after revision of aspirations causes unhappiness, to be more specific, a degree of unhappiness. The discrepancy between current condition and the multiple targets set by the individual in different domains of life causes unhappiness. Different goals have different subjective weightage to an individual. Thus, which goal is met and which goal is not is important for the subjective well-being of an individual.

Early researchers in psychology searching for the cause of happiness followed a bottom-up approach. The major focus was to consider the influence of bottom-up factors such as external events, demographic factors, and so on, on happiness. But the external factors were not able to explain a significant proportion of variation in subjective well-being. Later, a top-down approach, where internal factors, that is, factors within an individual, such as personal traits, were given more importance. A literature survey on psychologists' position on happiness can be found in Diener et al (1999) and Ryan and Deci (2001).

Psychologists believe that an individual's adaptation to both good and bad life situations may be complete or incomplete. An individual reacts strongly to any new important life event and reactions dampen over time. Another recent life event takes the place of the previous event. A recent event has stronger influence on happiness than an event long past. Psychologists have often cited the Brickman et al (1978) study to claim that people adapt to both good and bad life events. Brickman et al (1978) found that people winning a lottery and thus getting significant monetary benefits in the previous year report a comparable happiness level to those who have not won a lottery. In terms of a bad life event, it was found that people suffering spinal cord injuries in the previous year are not as unhappy as expected to be and expressed a slightly lower life-satisfaction than others. People rapidly adapt to some situations, and slowly to some other situations. People adapt to moderate disability fairly quickly. Life satisfaction increases before and just after marriage but these effects are temporary, and finally people adapt to marriage. But whatever may be the situation, people adapt over time.

The extreme position on adaptation is the "hedonic treadmill" theory, which holds that people completely and rapidly adapt to all circumstances. The reversal to some baseline hedonic level of satisfaction after some temporary positive or negative movement of happiness has been termed the "hedonic treadmill." Every individual has a set point of happiness that is determined genetically and according to personality traits. Any life situation, good or bad, can only change the level of happiness temporarily. Over time, "hedonic adaptation" will bring the individual back to her initial set point level of happiness. Thus, life circumstances have negligible long-term effect on happiness.

Easterlin (2003) investigated the General Social Survey (GSS) data and obtained results that question the set point

theory. The health of an individual generally deteriorates the older one becomes, especially after a certain age. It was found from the GSS data that self-reported health status deteriorates as an individual gets aged. Easterlin argues that if complete hedonic adaptation is feasible, the average self-reported health status should remain almost flat over the life cycle. Divorce or widowhood has similar long-term depressing effects on happiness. The analysis of GSS data yields that marriage has a positive long-term effect on happiness whereas divorce/widowhood has a long-lasting negative effect. If adaptation to marriage is complete, married persons would not have stated themselves happier than unmarried ones. Complete adaptation to marriage would also mean people having unhappy marital lives would have given up desires for a happy marriage. But it is seen that the divorced and the widows do not adapt to life situations and still aspire for happy marriages. Easterlin (2004) concludes that disability and adverse changes in health reduces life satisfaction. If there is multiple and severe disability or other greater health adversities, people report a lower level of life satisfaction. These negative effects are permanent. Remarriage reverses the negative effect of dissolution. Some extent of adaptation to both good and bad situations is common, but in no way is the adaptation complete.

The set point theory raises questions about the efficacy of public policies to improve happiness. If set point theory is to be believed, it should follow that there is no public policy that can improve the level of happiness. Any policy may have some positive short-term effect that will taper off over time.

If adaptation is complete as is held in the set point theory, every individual should return to her initial level of happiness after any positive or negative event. But even if complete adaptation is possible, a long time is needed to return to the initial level of happiness after an adverse life event, which implies that a significant part of a lifespan is spent in suffering. If an individual suffers from an injury, it might happen that it takes around one-third of her lifespan to fully adapt to the adverse life situation and move back to her set point level of happiness. Thus, even if she completely adapts, a significant portion of her lifespan is spent in despair. Easterlin (2003) and Headey (2010) differed with the position taken by the set point theorists (Brickman et al 1978; Costa and McCrea 1980). They believe that complete adaptation is almost impossible or may take so much time that the corresponding damage will create an irreparable loss in one's life. If complete adaptation is feasible, people facing severe poverty for many years would have adapted to it. But this is not the case. People adapt but not completely. Thus, public policies can play an important role in improving happiness.

#### 4 The Easterlin Paradox: Is More Better?

Research on happiness economics has revolved around the well-known Easterlin Paradox, which portrays a paradoxical link between level of income and happiness. The paradox named after R A Easterlin became familiar after two of his pioneering works (1973, 1974). Easterlin, during empirical investigations, observed that at a particular point of time people

with higher incomes are on an average happier than people with lower incomes. However, average self-reported happiness remains almost constant over time despite growth in income. This cross-sectional and time series relationship is paradoxical as more money is supposed to bring more material benefits, more opportunities to meet desires, and thus expected to raise the level of happiness. As a rise in income is not accompanied by a commensurate rise in happiness, some pertinent questions arise. Should national policies pursue the path of growth as wholeheartedly as it is followed these days? Will happiness rise if the incomes of all people rise?

What was the empirical basis of the results? Easterlin (1973) studied 30 national population surveys from different countries and social systems and found that the positive relationship between income and happiness at a given point of time is universal.<sup>2</sup> He also observed that average happiness in the US in the 1970s was not significantly different from what it was in 1940s despite significant advances and a high rate of growth in income in this period. Easterlin (1995) quoted results conducted by other researchers to corroborate the result that income growth does not increase happiness. The studies cited were based on 45 happiness surveys between 1944 and 1977 in the US, annual data obtained from the GSS during 1972–91, life satisfaction data from nine European countries during 1973–89, and Japanese data during 1958–87. All of them confirmed the paradox found by Easterlin (1973, 1974).

Where lies the explanation of the paradox? It is because of the way an individual judges her own level of welfare. Individuals assess their material well-being not only in absolute terms, but also in relative terms, that is, relative to reference groups or relative to her aspirations.<sup>3</sup> One reference can be social comparison with neighbours, friends, relatives or people of a similar age, gender, race, religion, and so on. People could be happy in adverse situations if they find others in worse situations. Thus, happiness depends on income positively as more income means more material well-being. An individual with a higher income is placed higher on a relative income scale than others, and therefore enjoys higher social status. Happiness also has a negative relationship with the income of others. Every individual compares herself with other individuals. With an overall increase in income, a representative individual does not feel herself happier as her relative position in comparison to others has not improved. The negative effect of higher living norms with a general increase in individual incomes also comes into play. Another reference comparison can be the lifetime variant when a person compares her present happiness level with her best and worst situations so far. A person could be happy even in an adverse life situation if she has faced a more adverse life situation earlier.

Another explanation lies in the rise in aspirations as income rises (Easterlin 2001; Stutzer 2004). People state lower happiness levels when their income aspirations are higher than their current level of income. People who have faced financial constraints in the past have lower income aspirations. As income rises, aspirations rise, and an individual faces a higher probability of failing to meet her higher aspirations. As a divergence

between one's aspirations and actual provision of material goods exists, everyone tries to meet their aspirations. The self-defeating process continues. Over time, as aspirations rise, well-being falls due to the inverse relationship between subjective well-being and aspirations. If aspirations remain constant, a rise in income is sure to bring greater happiness. This effect is opposite to the positive income effect on happiness. Additional material goods bring temporary satisfaction, which has no permanent effect on happiness. With continued consumption of these material goods, satisfaction disappears, and an individual strives to meet higher aspirations. The process of hedonic adaptation and insatiable want makes an individual unhappy. Binswanger (2006) stresses two other effects to explain the paradoxical relation. The multi-option treadmill refers to an overabundance of options associated with economic growth that makes choice difficult. Thus people often make irrational and suboptimal choices. The time-saving treadmill refers to time becoming scarce as a growing number of options have to be met within a fixed time constraint even though time-saving technological progress has accompanied development. Eaton and Eswaran (2009) and Hopkins and Kornienko (2004)<sup>4</sup> observe that in richer societies consumers seek "status" through conspicuous consumption and spend a lot on consumption of Veblen goods to place oneself ahead of other consumers. As income grows, every consumer spends more on Veblen goods, decreasing consumption of private and social leisure and non-Veblen goods. With growth, as demand for Veblen goods increases, more productive resources are employed in the production of Veblen goods and activities that promote well-being are neglected. An increase in working hours, the crime rate, and environmental degradation over time can be other explanations for stationary happiness over time (Tella and MacCulloch 2008).

### The Role of Money

People always desire more money, even though studies show that this extra money often does not bring additional happiness. After a point, higher income brings additional pleasure, but only in the short term. It may often be the case that the positive effect of a rise in income on happiness is neutralised by the negative effect of hedonic adaptation of consumption and social comparison with peers. People may fail to recognise these effects. They may end up mistakenly allocating more time to earn more and thus neglect non-monetary domains of life such as family life and health. This neglect reduces one's well-being. Easterlin (2004) adduces results of a sociological survey where 1,200 respondents were asked to state whether they would accept a more rewarding job that would compel them to work longer hours and thus leave less spare time to spend with family. A large majority of respondents reported that they would accept the more rewarding job. Golden and Wiens-Tuers (2006) investigate overtime workers and found that working longer hours does not bring additional happiness. More earnings may make attainments in monetary domains easier, but suboptimal allocation of time in other domains of life will have a negative effect on happiness.

An individual's aggregate happiness is determined by happiness in different monetary and non-monetary domains, such as material living, family concerns, job, health, and so on. The gap between aspirations and attainments depends on how an individual adapts and how people compare their positions with peers. The process of adaptation and comparison differs between domains and across individuals. Every individual has a fixed amount of time to pursue her monetary and non-monetary goals. Thus happiness can be increased if more time is allocated to domains in which adaptation of consumption and relative comparison with peers is less important. More attention to family issues and health will unambiguously improve happiness. People often misallocate precious time in favour of monetary domains and at the cost of non-monetary domains. A disproportionate time is spent on working and earning higher income than on family and health concerns. A reallocation of time in favour of such non-monetary domains can improve happiness (Easterlin 2003). Extra works obviously fetch extra income, and working is deemed to be more rewarding than staying at home. But it may be associated with higher health risks, work-family interferences, feelings of depression, and the like.

If money alone cannot bring happiness over time, then is more better? Absolute income is important for every individual up to a certain level. As relative income becomes more important, every individual tries to improve her relative material position by consuming more. Thus everyone is found to be in a "rat race" of improving material well-being and they end up consuming over-optimal quantities. In this situation, society would gain if everyone reduces consumption. A consumption tax that will free resources from the consumer goods sector and make them available for social sectors can improve social well-being (Frank 1997). For the richer sections of the community, relative income has greater significance than absolute income. Thus a redistributive tax that reduces the income of all rich people at the same time will not reduce satisfaction but make resources available for more productive use.

Easterlin (2001) observes that an individual, at any point of her life cycle, believes that she was relatively unhappy earlier and expects to be happier in future. He reported the results of a survey in which respondents were asked to state their happiness level on a zero to 10 integer scale. They were asked to state their present happiness level, perceived level of happiness five years ago, and projected happiness level five years after. Respondents of every age group in almost every country reported their prospective happiness higher than their present happiness, and past happiness lower than their present level of happiness. Thus, though people report constancy of their present happiness over time, they hope for a better future and they rate the past worse in terms of happiness.<sup>5</sup> This was a second paradox that was obtained from investigation of empirical data.

This can be explained by considering the relationship between income and aspirations and how both of them change over time. When an individual is asked about her past happiness at a particular point of time, she makes the happiness judgment according to her current aspirations. The current aspiration level is obviously higher than the aspiration level in

the past, which was determined by past income levels. As aspirations rise with time, the individual feels the previous income level not sufficient to fulfil her aspirations. But the assessment of future happiness is based on one's current aspirations and anticipated future income. Thus a higher level of income is thought to be available to meet current level of aspirations and the assessment of future happiness is expectedly higher. An excellent theoretical and graphical explanation of this paradox can be obtained from Easterlin (2001).

## 5 Happiness and the Role of Economics

As mentioned earlier, the study of happiness has historically been researched by philosophers, psychologists, sociologists, and medical practitioners. Economists initially considered the subjective concept of happiness "unscientific." The utility theory relied on objective evaluation of human choice. The scenario has changed and the economics of happiness is now used to offer new tests for theories, frame public policies, resolve theoretical issues in economics, and to effect refinements in welfare theory.

### 5.1 Inflation vs Unemployment: What Weight to Assign?

Economic policies have to deal with right trade-offs between variables such as those between unemployment and inflation. Both higher unemployment and higher inflation decrease happiness (Ruprah and Luengas 2011; Tella and MacCulloch 2008). Thus policies that can reduce inflation and unemployment simultaneously can augment happiness. British economist A W H Phillips, while dealing with the theory of inflation, formalised the Phillips Curve, which expresses a negative relationship between the unemployment rate and the inflation rate. This inverse relationship is graphically represented by a downward sloping curve. The downward sloping curve implies that a reduction in inflation rate will automatically mean an increase in unemployment rate and vice versa.

Then what should a public policy aim at? Would it try to reduce inflation at the cost of unemployment or reduce unemployment at the cost of inflation? Happiness economics can give some clue. The marginal rate of substitution between inflation and unemployment provides an answer, and can determine the cost of unemployment in terms of inflation for a given happiness level. Happiness studies have shown that macroeconomic variables such as inflation or unemployment are both "bad" and depress happiness. But it is found that unemployment depresses happiness more than inflation does (Tella et al 2001).

Tella et al (2001) assume that happiness linearly depends on unemployment and inflation and investigated the happiness data of 12 European countries over 1975–1991 to study the costs of inflation in terms of unemployment. This was measured by observing variations in happiness as inflation and unemployment varied. They found that if unemployment rises by 5%, the inflation rate should fall by 8.5% to keep the average happiness level constant. It might be the case that people consider unemployment effects both societal and personal, and put more importance on unemployment compared to inflation. Even an employed person may be apprehensive of

being unemployed in the near future and may have a sympathy for those who are unemployed. Similar results are obtained by Oswald (1997), Ruprah and Luengas (2011), and Wolfers (2003). Thus, happiness research can suggest how to choose the right weights that need to be placed on unemployment and inflation in arriving at the right trade-off between the inversely related variables.

### 5.2 The (Non)-Existence of Voluntary Unemployment

Though work does not provide utility, people work as it brings in income. Persons who cannot obtain a job remain unemployed. The classical view on unemployment believes in the existence of voluntary unemployment, whereas the Keynesian theory argues in favour of the existence of involuntary unemployment. People choose to remain unemployed as they feel the wage compensation not enough to take on the hardship of work, and prefer to remain unemployed and receive unemployment benefits. Thus there are two different views on unemployment. Happiness economics can throw some light on this debate. It has been found in empirical studies that the unemployed have a significantly lower level of happiness than the employed. An unemployed individual, even when she receives the same income as an employed person, is less happy (Clark and Oswald 1994; Winkelmann and Winkelmann 1998).

The case of the UK, where the unemployment benefit is quite high, proves the point. It is argued that the generous financial support in the UK often prompts the unemployed to stay out of the job market. But it is found that the unemployed have a significantly lower level of happiness than the employed. If unemployment is voluntary, the unemployed should be as happy as those who are employed when other variables are controlled for. Clark and Oswald (1994) find that the jobless face twice the mean mental distress of those with jobs. The difference in happiness between the employed and the unemployed is also statistically significant. Theodossiou (1998) observes that unemployed individuals are more anxious, more depressed, and less happy than workers who are very lowly paid. These results highlight the predominance of the involuntary nature of unemployment.

### 5.3 Valuation of Non-marketed Commodities

The two main approaches to valuation of non-market goods and services are the revealed preference (RP) and the stated preference (SP) methods. The RP method is to passively observe people taking decisions in real world settings. The willingness to pay (WTP) for a non-market good can be inferred from information on market transactions for a related private good. In SP, a hypothetical market is created and people are asked what value they wish to place on a proposed change in an amenity or the maximum amount they would be willing to pay for the same change.

An alternative approach to such valuation is observing the effect of a change in the provision of a non-market good on happiness. People are sometimes asked to state their level of happiness along with their perception about non-marketed commodities, such as water quality and air quality. Sometimes

respondents are not asked to value non-market commodities, but knowingly or unknowingly offer responses that move systematically with the change in the level of provision of the non-market commodity. Using these responses, the trade-off between income and the level of non-market commodity can be estimated. This approach of valuation of a non-market commodity is known as the Life Satisfaction Approach of Valuation.

It uses two correlations. First, the correlation between self-reported happiness and the level of the non-marketed commodity, which gives the marginal utility of the non-marketed commodity. The second correlation is between self-reported happiness and income, from which the marginal utility of income can be estimated. These two marginal utilities can be used to obtain the marginal rate of substitution (MRS) between the non-marketed commodity and income.<sup>6</sup> This yields an approximate marginal monetary valuation of the non-marketed commodity. As the indifference curve over income and the non-marketed commodity is measured directly, equivalent variation or compensating variation can be computed for non-marginal changes in the non-marketed commodity. This approach of valuation to estimate WTP has been widely used in recent years, such as in the case of airport noise (Van Praag and Baarsma 2005), greenhouse gas emissions (Beja 2012), air pollution (Welsch 2002, 2006; MacKerron and Mourato 2009), terrorism (Frey et al 2009), weather and climate (Rehdanz and Maddison 2005), and by many other researchers.

The life satisfaction approach of non-market valuation, similar to contingent valuation, is direct compared to RP methodologies of valuation as it relies on survey responses. The approach avoids use of hypothetical scenarios, as used in contingent valuation, and thus not prone to unreliable responses and strategic behaviour. The approach can avoid the unfamiliar task of directly placing monetary values on the non-marketed commodity by survey respondents.

### 5.4 Refinements in Welfare Theory

It is tempting to use the happiness function as a possible approximation of the social welfare function. The objective might be to maximise the happiness function. The ultimate welfare policy should be to improve the happiness level of people. If low income is due to unemployment, the policy to improve happiness should provide for proper employment opportunities, not higher incomes. The welfare effect of government policies can also be evaluated using the happiness function. A government expenditure policy is often evaluated in terms of its cost, but it should be evaluated in terms of its effect on happiness. The effect of policies such as taxation or government expenditure on happiness can conclude whether such activities match people's preferences (Frey and Stutzer 2010).

## 6 Determinants of Happiness

The most cited factors that affect self-reported personal happiness are economic issues, family concerns, and health status. The insecurity due to a poor financial condition is thought to be the primary factor behind unhappiness. The relationship

between income and happiness has been extensively analysed. Some other important relationships between income and happiness are worth mentioning. Frey and Stutzer (2002a) observe a non-linear relationship between income and happiness. There is sign of a diminishing marginal utility of income, that is, a unit increase in income results in a less than proportionate increase in happiness at higher income levels. International comparison of happiness when international difference in cost of living is controlled for by exchange rate and purchasing power parity reveals that the average happiness level in rich countries is higher than the average happiness level of people living in poor countries, but not proportionately higher (Diener et al 1995). The difference in income across countries results in a difference in average happiness, but once a threshold level of income is reached, a further rise in income has small effect on subjective well-being. Oswald (1997) investigates if money can buy happiness by studying cases of suicides or attempted suicides. If money could buy happiness, suicides would be a low-income phenomenon, but it is not so.

### 6.1 Unemployment

The theory of labour supply is based on the assumption that work gives an individual disutility whereas leisure provides utility. But unemployment reduces happiness both for the affected individual and for society as a whole. A high rate of unemployment increases income inequality, crime rate, brings harsher work conditions, economic insecurity, and so on. Thus unemployment reduces utility for persons already in employment, which is not merely due to loss of income. Unemployment is also associated with a rise in mental distress and anxiety, loss of confidence and self-esteem, higher psychological strain, reduction in consumption, and unhappiness. Unemployed individuals are more mentally depressed, more prone to alcoholism, commit suicide more often and are subject to lower life expectancy. Well-being studies have found that the unemployed are less happy.<sup>7</sup>

Among the employed, self-employed individuals report lower mental distress and are more happy (Oswald 1997) as they have more freedom and less hierarchical pressure at their place of work.<sup>8</sup> Part-time workers are less happy due to the obvious reasons of job uncertainty and less income (Powdthavee 2005). Studies have found that unemployment has the largest negative influence among significant determinants of happiness (Frey and Stutzer 2000). It has a more depressing effect on men than women as women may aspire less for a job than men (Blanchflower and Oswald 2004; Frey and Stutzer 2002a); younger and older people suffer less than middle-aged persons if they are unemployed (Frey and Stutzer 2002a); educated women who are unemployed report significantly lower levels of well-being as they have a higher level of aspirations. The young suffer least in losing a job as they have a greater chance of obtaining a new job (Clark and Oswald 1994). Studies have tried quantification of the adverse influence of unemployment. A 1% increase in general rate of unemployment reduces life satisfaction by 0.028 units when life satisfaction is measured on a 4-point scale (Tella et al 2001). Tella and MacCulloch (2008)

estimate that a 1% increase in unemployment rate can be compensated by a 4% rise in unemployment benefit to keep happiness constant.

Like income, is the effect of unemployment also relative? Is the pain from unemployment less when an unemployed person observes a general scenario of unemployment? Do the miseries of an unemployed person increase when she observes that others are generally employed? Clark and Oswald (1994) found that the unemployed suffer less when the reference group population is generally unemployed. A sign of partial adaptation to an unemployment situation is seen as persons unemployed for a long time show less mental stress than people who have lost their job recently. Persons suffering from unemployment several times in their lifespan are less unhappy than those unemployed for the first time. A high unemployment rate in an economy or region depresses happiness for both the employed and unemployed (Kalyuzhnova and Kambhampati 2008; Tella et al 2001, 2003). This may be due to the fear that one may face unemployment in the near future or higher unemployment may result in higher taxation of the employed as the government has to fund a greater unemployment benefit, or due to an expected increase in crime rate, and so on.

### 6.2 Health

One of the most important factors explaining variation in happiness is health status. Both self-rated health status and estimated health parameters have been used as explanatory variables in happiness studies.<sup>9</sup> Whatever may be the way in which the health variable is included, the result is unambiguous. People with poor health are less happy and people having better health status report higher life satisfaction.<sup>10</sup> Blanchflower and Oswald (2008a) observe the happiness data of 16 nations and find that people of happier nations report a lower level of hypertension, and Graham (2008) and Oswald and Powdthavee (2007) find obese people are more depressed and less happy. Cornelisse-Vermaat et al (2006) find that persons having a high body mass index (BMI) score perceive their health as poor and report a lower level of happiness. Gerdtham and Johannesson (2001) estimate the health status both as self-rated and as a dummy variable for overweight in terms of a BMI over 30 and find that persons rating their health as poor and overweight are less happy. Binder and Coad (2011) and Freedman et al (2012) find disabled persons to have lower happiness. Brereton et al (2008) find that respondents who had to visit their doctor two or more times a year are less satisfied than those who had no visits throughout the year.

### 6.3 Education

Higher education can ensure economic prosperity through better employment and higher income. Education may bring success in the marriage market, health, and other variables. On the contrary, higher education may raise aspirations and a highly educated person may have more unmet goals. More educated individuals are generally found to be happier in happiness studies.<sup>11</sup> Whereas Binder and Coad (2011) and Peiro (2006)

did not find education to be a significant explanatory variable of happiness, Cunado and Gracia (2013) find education as having a positive but decreasing effect on happiness. This is important, as education can affect happiness through income, the explanatory power of the education variable may diminish.

#### 6.4 Religion

Religious consciousness helps an individual to adapt to adverse life situations. Stronger religious belief and spirituality is expected to insure people against the hazards of life. Religious people can cope better with difficulties and negative shocks of life than non-religious ones. Religious belief and dependence is associated with mental health benefits (Gartner et al 1991). Religion offers a collective identity. Religious experiences provide a sense of meaning during crises.

Studies investigating the relationship between religion and happiness have come up with fairly consistent results. Irrespective of faith, happiness studies have found that religious people are happier than non-religious ones, that is, people expressing lack of faith or less faith in god. Among Christians, people attending church are happier (Helliwell 2003). People spending more time on religious activities report a happier state of mind. Studies have found that happiness is related with church attendance, strength of one's relationship with the divine (Pollner 1989), prayer experiences, and the devotional and participatory aspects of religiosity (Ellison et al 1989). Brown and Tierney (2009) find religion to have a greater effect on happiness for men compared to women, Mookerjee and Beron (2005) observe that fractionalisation within a religious group reduces happiness.

#### 6.5 Marriage, Children, and Family Relations

Marriage is advantageous and mutually rewarding for several reasons. Sociologists focus on monogamy, psychologists emphasise emotional support, security, love and companionship, economists emphasise division of labour, specialisation, and financial benefits as a couple can live as cheaply as a single person. Marriage encourages healthy practices and thus ensures physical well-being. The benefits of marriage are observed as married people generally state higher satisfaction levels than single persons, and widowed or separated persons.<sup>12</sup>

What evidence do happiness studies offer regarding marriage and marital happiness? Helliwell (2003) finds that married women and married men report similar levels of life satisfaction and there is no evidence that one gender gains more than the other due to marriage. Powdthavee (2009) finds one partner's life satisfaction positively influences the life satisfaction of the spouse. Couples having good communication between themselves have greater marital happiness (Othman 2012), and spouses reporting higher difference in happiness are more likely to divorce (Güven et al 2012).<sup>13</sup> Second and subsequent marriages give less marital happiness than the first, and children who have seen their parents divorce are less happy (Blanchflower and Oswald 2004).

Children in a family may provide a greater sense of family cohesion and thus increase happiness. But rearing a child may be stressful, can cause psychological strain, and may decrease

the level of happiness. Whereas Kalyuzhnova and Kambhampati (2008) have found that families with children are happier, Binder and Coad (2011) and Powdthavee (2005) observe that increase in family size results in a lowering of quality of life and happiness. This may be due to a decrease in per capita expenditure. Phelps (2001) found that an extra child makes the allocation of time for childcare more difficult for a mother and it gives diminishing marginal utility to a woman.

#### 6.6 Age

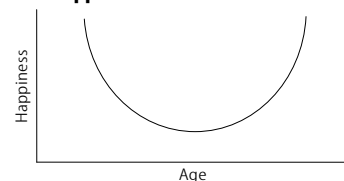
A number of happiness studies have found a U-shaped relationship between age and happiness,<sup>14</sup> as shown in Figure 1. The U-shaped relationship claims that as age increases, the level of happiness decreases, reaches a minimum, and then rises as age rises. The existence of a U-shape is confirmed when the data takes a quadratic form in age and is deduced from the combination of a negative coefficient of the age variable and a positive coefficient of the age variable, as included in the regression equation. Blanchflower and Oswald (2008b) find that the U-shaped relationship holds even when the omitted birth cohort effects are controlled.<sup>15</sup> Blanchflower and Oswald (2004), Jiang et al (2011) and Oswald (1997) find that the minimum level of happiness comes around the late 30s or early 40s. There are several explanations for the U-shaped relationship observed between age and happiness. The U-shaped relationship of income-related aspirations with age implies that experienced individuals can better adjust their aspirations according their life situations so that a wide gap does not emerge (Ovaska and Takashima 2006; Stutzer 2004). An inverse U-shaped relationship between mental well-being and age implies mental distress reaches a maximum in middle age (Clark and Oswald 1994). The process of adaptation to circumstances prompts individuals to give up some aspirations and enjoy life (Blanchflower and Oswald 2004). Alesina et al (2004), and Realo and Dobewall (2011) do not find such a U-shaped relationship in their studies.

Happiness studies that find a relationship between age and happiness also yield some other important results. Frey and Stutzer (2000) and Ovaska and Takashima (2006) find older people are more happy, and Oswald (1997) finds retired people are also happier. Blanchflower and Oswald (2008b) observe data for a number of countries and conclude that the U-shaped relationship holds for both men and women and the turning point of the happiness function for women comes at an age below that for men. Frey and Stutzer (2002b) have found that happiness is lowest at around 43 for men and at around 40 for women in the UK.

#### 6.7 Gender and Race

Happiness studies have not found consistent results on gender-specific differences in happiness. Whereas Binder and Coad (2011), Cunado and Gracia (2013), and Easterlin (2001) find no

**Figure 1: Relationship between Age and Happiness**





difference in happiness by gender, Blanchflower and Oswald (2004), Brereton et al (2008), Hartog and Oosterbeek (1998), Jiang et al (2012), and Oswald (1997) find women are more happy than men. Though women receive less income than men, even for the same work, they may be happier than men as they may have a lower level of aspirations. The Stevenson and Wolfers (2009) study investigates us data and finds that despite dazzling improvements in several indicators for women, such as working opportunity, female wage, control over fertility, educational attainment, and reduction in gender discrimination and disparity, the happiness of women has declined absolutely and in comparison to men. An increase in working hours when they are calculated as the sum of work performed in the home and outside, a deterioration in social cohesion due to more women in the working force, and lack of mobility for women may be plausible explanations. On the other side, men may have benefited more from an improvement in the conditions of women, and thus the relative scenario of women may have deteriorated in comparison to men.

Racial differences also explain variation in happiness. Minority races are found to be less happy. It is seen that blacks are less happy than others (Blanchflower and Oswald 2004; Easterlin 2001; Powdthavee 2005), and foreigners in a country are less happy than nationals (Frey and Stutzer 2000; Stutzer 2004).

### 6.8 Environment

Environmental conditions affect well-being. It is expected that respondents staying in areas having high air pollution or poor water quality will express lower well-being. Objective pollution parameters or the perceived level of pollution explain variations in happiness. Cunado and Gracia (2013), and Welsch (2002) have found pollution variables to affect happiness. Climatic conditions were found to affect happiness by Brereton et al (2008) and Rehdanz and Maddison (2005). Our environment is facing continuous degradation, and concern over it in terms of loss of biodiversity affects happiness, according to Ferrer-i-Carbonell and Gowdy (2007).

### 6.9 Institutional and Other Factors

An effective, accountable, stable government can ensure the rule of law, and control corruption and crime. The performance of the administrative machinery, especially of the police force, is important for effective governance. Frey and Stutzer (2002a) find that efficient governance has a positive influence on well-being. Asadullah and Chaudhury (2012) observe that the confidence of citizens in the police affects well-being positively. Democratic rights and extent of local autonomy affect happiness positively (Frey and Stutzer 2000), as in a democracy people have the right to direct political participation and political decisions are taken according to the people's wishes and sentiments. People who are victims of crime or live in crime-prone areas report a lower level of happiness (Kalyuzhnova and Kambhampati 2008; Powdthavee 2005).

Macroeconomic variables such as inequality, level of urbanisation, and infrastructural development affect well-being. Urbanisation may be associated with environmental degradation,

an increase in crime rate, and a deterioration in the social contract and reduce happiness (Gerdtham and Johannesson 2001). Infrastructural improvement (Asadullah and Chaudhury 2012), a more equal society (Alesina et al 2004), an increase in life expectancy (Ovaska and Takashima 2006), and greater participation of women in parliament (Mookerjee and Beron 2005) have positive influences on happiness.

## 7 The Happiness Function and Its Measurement

It is assumed that reported happiness can adequately measure well-being where well-being is a latent variable. This can be modelled by an econometric happiness function of the form

$$H_{it} = \beta_0 + \beta_1 X_{it} + \epsilon_{it}$$

where  $X_{it} = X_{1t}, X_{2t}, X_{3t}, \dots, X_{nt}$  are known variables that capture socio-economic, demographic, environmental, and institutional characteristics for individual  $i$  at time  $t$ . There can be two variants of the happiness function. In a micro approach, the happiness function uses individual happiness as the dependent variable, whereas in the macro approach, aggregate or average happiness is taken as the dependent variable.

Psychologists and sociologists have often treated responses to the happiness question as cardinal and used ordinary least square (OLS) method in the regression analysis. Economists assume ordinality of life satisfaction answers. When the answer to the happiness question is treated ordinally, the dependent variable is an ordered variable and logit or probit estimation techniques are generally used.<sup>16</sup> Responses to happiness questions are interpreted cardinally<sup>17</sup> in some studies (Cunado and Gracia 2013; Freedman et al 2012; Jiang et al 2012) that allow application of OLS, or treated ordinally and analysed by logit or probit models (Brown and Tierney 2009; Gerdtham and Johannesson 2001; Guillen-Rayó 2011; Peiro 2006; Powdthavee 2005; Ruprah and Luengas 2011; Theodossiou 1998). When ordinality of happiness scores are assumed and ordered latent response models are used, fixed individual traits are not satisfactorily taken into account. This is addressed in panel data models that control unobserved time-invariant individual fixed effects, such as personality traits (Ferrer-i-Carbonell and Frijters 2004; Senik 2005; Winkelmann and Winkelmann 1998). Studies by Ferrer-i-Carbonell and Frijters (2004), Cunado and Gracia (2013), Frey and Stutzer (2000), Knight et al (2009), and MacKerron and Mourato (2009) have demonstrated that the issue of ordinality or cardinality is immaterial as application of OLS or limited dependent variable models yield more or less comparable results, thus proving robustness with regard to methodologies. Whatever may be the model used, it is assumed that causality runs from explanatory variables to the dependent variable, and not the other way around.<sup>18</sup>

Most of the happiness studies have used individual-level variables to investigate explanatory variables of happiness. Asadullah and Chaudhury (2012) and Helliwell (2003) use both individual and aggregative variables to explain happiness. Among individual-level variables, the variable age is included as age in most of the studies as a regressor to check the U-shaped relationship between age and happiness (Blanchflower and

Oswald 2008a; Guillen-Rayó 2011). The diminishing returns of income on subjective well-being are tested by including per capita GDP and per capita GDP as regressors (Ovaska and Takashima 2006). Kalyuzhnova and Kanbhampati (2008) use an interaction term capturing respondents' employment status with the level of unemployment in the region, Frey and Stutzer (2000) use an interaction variable as the product of dummy variables for personal characteristics and the index for democratic rights to observe the influence of direct democracy for persons having the same socio-economic characteristics. Tella and MacCulloch (2008) use an interaction of environmental pollution with age of the respondent to know whether the young are more hurt by environmental degradation.

When a happiness function is used for valuation of non-marketed goods and services such as air pollution and climate change, the above stated happiness function is generally rewritten as

$$H_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 P_t + \beta_3 Y_{it} + \epsilon_{it}$$

where  $Y$  is the income indicator and  $P$  is the pollution variable. In this equation, expected  $\beta_3 > 0$  as people receiving higher income generally report higher well-being, and expected  $\beta_2 < 0$  as a lower level of pollution will result in a higher level of self-reported happiness. Thus the *MRS* between income and the pollution variable can be derived as

$$MRS = (\delta H_{it} / \delta P_t) / (\delta H_{it} / \delta Y) = -(\beta_2 / \beta_3)$$

The *MRS* uses two correlations—the first is the effect of pollution on happiness and the second is the effect of income on happiness. It measures the trade-off between change in income and the change in pollution that will keep the happiness level constant. In monetary terms, the *MRS* is the amount by which an individual is to be compensated for one unit increase in pollution so that the level of happiness remains unchanged.

## 8 The Indian Scenario

There are some studies that have investigated the time trend of happiness of Indian respondents by analysing World Values Survey (wvs) or Gallup World Poll data (Easterlin and Sawangfa 2010), or studies that compare India with other countries (Diener et al 1995). But to date studies having cross-sectional evidence of happiness of Indian respondents are rare. Brinkerhoff et al (1997) examine responses of two village-level samples in India. More than 50% of respondents in each village express satisfaction with their life and a very small proportion of respondents report utter dissatisfaction, though people in these two villages faced hardships. Biswas-Diener and Diener (2001, 2006) survey pavement- and slum-dwellers and sex workers in Kolkata and find them expressing satisfaction in different domains of life though they face stressful economic conditions. This may be due to the lower level of aspirations that these respondents may have, or satisfaction generated within the family, or because of the availability of socially protective measures. Lakshmanasamy (2010) uses primary data consisting of 315 respondents from two divisions of Chennai Corporation, Chepauk and Triplicane, to observe the relationship between

income and happiness. The responses to questions on happiness and well-being are coded in three categories. These two measures are found to have a high and significant correlation. The ordered probit results show a positive effect of both absolute and relative income on happiness, but a proportionate shift in relative income does not change happiness. An examination of several other regressors used in the regression analysis reveals that school-educated respondents are less satisfied than college-educated respondents, that public sector workers are more satisfied than private sector workers, that the retired are more happy than the employed, that age is positively related with happiness, and that the nuclear family reduces happiness.

The wvs is a large-scale, cross-national survey carried out at different time periods with a large number of questions on perceptions and attitudes. The surveys were conducted in six waves—during 1981–84 (wave 1), 1989–93 (wave 2), 1994–99 (wave 3), 1999–2004 (wave 4), 2005–07 (wave 5), and 2008–10 (wave 6).<sup>19</sup> All these surveys contained questions that asked respondents about their level of happiness and level of life satisfaction. The question on happiness asks, “Taking all things together, would you say you are very happy, quite happy, not very happy, or not at all happy?” Table 2 shows the responses obtained in different wvs conducted in India. It is seen that in the five waves when wvs data are available, more than two-thirds of the respondents reported themselves as very and quite happy.

**Table 2: Happiness Level of Indians Stated during World Values Surveys**

Wave Number	Feelings of Happiness in Percentages in Different Waves of WVS					
	Total Respondents	Very Happy	Quite Happy	Not Very Happy	Not At All Happy	Don't Know
Wave 6	1,581	38.2	42.6	14.5	4.5	0.2
Wave 5	2,001	28.9	46.4	21.6	2.7	0.3
Wave 4	2,002	25.3	47.6	20.9	4.5	1.7
Wave 3	2,040	29.9	46.0	19.8	2.8	1.5
Wave 2	2,500	23.8	48.2	24.0	3.6	0.4

Source: www.worldvaluessurvey.org.

The wvs also contains a question on life satisfaction. The question on life satisfaction asks, “All things considered, how satisfied are you with your life as a whole these days?” and the responses are coded from 1 to 10, where 1 means completely dissatisfied and 10 means completely satisfied. As shown in Table 3, the mean life satisfaction score reported by respondents showed a diminishing trend during 1990–2001, but increased marginally later.

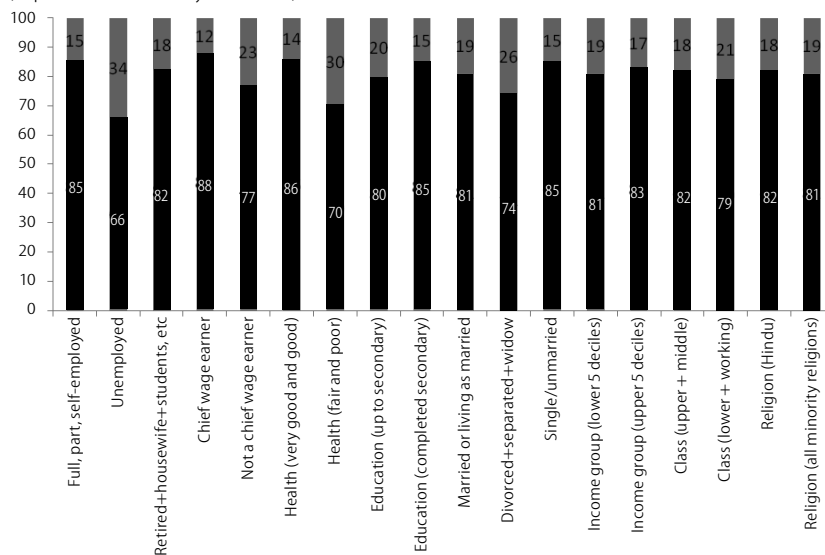
**Table 3: Mean Life Satisfaction Score of Indians Stated during World Values Surveys**

Wave Number	Average Life Satisfaction Scores in Different Waves of WVS		
	Total Respondents	Mean	Standard Deviation
Wave 6	1,581	5.08	2.74
Wave 5	2,001	5.80	2.35
Wave 4	2,002	5.10	2.23
Wave 3	2,040	6.50	2.64
Wave 2	2,500	6.70	2.28

Source: www.worldvaluessurvey.org.

The latest wvs data on Indian respondents shows that, like many other studies, the employed are more satisfied than the unemployed; the main wage earner in a household expresses

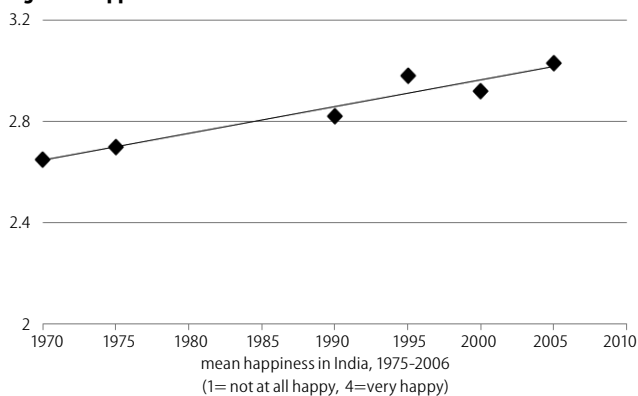
**Figure 2: Factors Influencing Happiness of Indians**  
(As per World Values Survey Wave 6 data)



■ % of respondents in each category stating very happy and rather happy.  
 ■ % of respondents in each category stating not very happy and not at all happy.

more satisfaction than others; the married are more happy than the divorced, the separated and the widowed; respondents who perceive themselves as healthy are more happy; and respondents with at least a secondary level of education are more happy than those who are less educated. Respondents of lower social classes having less income are almost equally happy as their richer counterparts. Probably these people have lower level of aspirations and feel satisfied with their present standard of living. An interesting observation comes from the last two columns of Figure 2. It is seen that respondents from minority religions are as happy as Hindus. It can be inferred that minorities do not feel themselves alienated and that the secular structure of India provides some protective tools for them.

**Figure 3: Happiness Trend in India**



Does the Easterlin Paradox apply to India? Comparable data from all available sources were taken into consideration to observe happiness trends in 24 countries during 1946–2006 (Inglehart et al 2013). The available data for India which calculates mean happiness during 1975–2006 shows a clear trend of rising happiness over time. This is shown in Figure 3. Thus the relationship between income and happiness observed

in the US does not hold in the case of India. As a developing country with a low per capita income, people may have greater concern over absolute income than relative income, and as absolute income increases over time, people express greater happiness. Happiness may be more sensitive to absolute than relative income.

**9 Conclusions**

There are some limitations of self-assessed happiness studies. In self-reported happiness surveys, it is considered that an individual is the best judge of her level of happiness. But there is a possible source of bias in these responses. An upward bias in the responses is quite possible as the respondents might be prompted to offer a socially desirable response. It is obvious that stating more happiness is a socially desirable response and respondents can avoid looking bad to the interviewer. Respondents may make little mental effort to answer, may even miscalculate while answering a happiness question. It can be argued that self-reported happiness responses are unreliable.

The way in which self-reported happiness answers are measured is also questioned. Happiness is measured in some discrete categories and the numbers are averaged over the number of respondents to obtain an average measure of happiness. Thus a large discrete change is necessary to move from one category to the next one and once a respondent has reached the top-most category, she cannot report further increase in happiness. The assumption that is made in happiness studies that the causality runs from the explanatory variables to the dependent variable is also questionable.

The study of happiness from an economist’s perspective yields some relevant findings. The set point theory holds that life events have temporary effects on happiness. The theory as postulated by psychologists is also not beyond question. Life events such as marriage, divorce or death of a loved one, disability or skill attainment have a long-lasting effect on happiness. Second, the RP theory based on observation of a person’s consumption choice, states that “more is better.” This is because more income can obtain more material goods and more luxuries in life. But the self-reported measure of happiness, which calculates utility of the person concerned, establishes that more income and hence material well-being cannot always ensure more happiness.

Most importantly, happiness studies can be of help while framing public policies. The experience of Bhutan proves the point. The GNH index as constructed in Bhutan provides information that facilitates formulation of public policies. It identifies region, community and age group of people being unhappy and the domain in which intervention to improve happiness is required.

## NOTES

- 1 Dolan et al (2008); Frey and Stutzer (2002a); Oswald (1997); Stutzer and Frey (2010); Tella and MacCulloch (2006).
- 2 Such relationship between income and happiness is also found by Blanchflower and Oswald (2004); Diener et al (1995); Easterlin (1974); Frey and Stutzer (2000); Knight et al (2009); Oswald (1997); Stutzer (2004); Tella et al (2003).
- 3 The argument that relative income matters is grounded on the relative income hypothesis advocated by Dusenbery and validated by Asadullah and Chaudhury (2012); Blanchflower and Oswald (2004); Clark and Oswald (1996).
- 4 Hopkins and Kornienko (2004) use a game theoretic approach and show that in the symmetric Nash equilibrium all consumers will spend inefficiently high on conspicuous consumption. Competition for status will compel every player to pursue the strategy of increasing conspicuous consumption.
- 5 There are some people who are nostalgic about the good old times. They perceive the past as being great. As time passes on, they may feel unhappy.
- 6 Further discussions about the derivation of the marginal rate of substitution can be found in Section 7.
- 7 Binder and Coad (2011); Dolan et al (2008); Frey and Stutzer (2000, 2002a); Helliwell (2003); Jiang et al (2012); Kalyuzhnova and Kambhampati (2008); Oswald (1997); Stutzer (2004); Tella et al (2003).
- 8 Self-employed persons who make enough money are happy. But in general self-employed persons such as actors, order suppliers, and booksellers face huge uncertainty at work and are chronically unhappy.
- 9 Whereas Helliwell (2003); Jiang et al (2012); and Peiro (2006) use self-rated health parameters, Blanchflower and Oswald (2008a); Brereton et al (2008); Cornelisse Vermaat et al (2006); Graham (2008); and Oswald and Powdthavee (2007) use objectively estimated health variables.
- 10 Binder and Coad (2011); Clark and Oswald (1994); Cunado and Gracia (2013); Dolan et al (2008); Hartog and Oosterbeeks (1998); Helliwell (2003); Peiro (2006); Powdthavee (2009); Stutzer (2004).
- 11 Asadullah and Chaudhury (2012); Blanchflower and Oswald (2004); Clark and Oswald (1996); Easterlin (2001); Frey and Stutzer (2000); Helliwell (2003); Oswald (1997); Stutzer (2004).
- 12 Dolan et al (2008); Frey and Stutzer (2000); Hartog and Oosterbeeks (1998); Helliwell (2003); Jiang et al (2012); Peiro (2006); Stutzer (2004); Tella et al (2003); Theodossiou (1998).
- 13 The cases of unhappy marriages, domestic violence, wife beating, and the like may be due to poor communication and higher difference in happiness between partners.
- 14 Asadullah and Chaudhury (2012); Blanchflower and Oswald (2004, 2008b); Cunado and Gracia (2012); Helliwell (2003); Jiang et al (2012); Oswald (1997); Powdthavee (2005); Stutzer (2004).
- 15 A generation of people may have been born in prosperous or bad times. This effect is generally omitted while searching for the relationship between age and happiness.
- 16 When a logit or probit model is used, the persons who are happy are denoted by 1 and the persons who are unhappy are denoted by 0 in econometric analysis.
- 17 Cardinality of self-reported happiness responses implies that the distance between two consecutive response points are treated equally.
- 18 It is also assumed that unobserved variables and measurement errors are captured in the error term and unobserved variables are not correlated with the explanatory variables.
- 19 India was not chosen as a sample unit in wave 1.

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