Testing Happiness Framework Based on Western and Eastern Thoughts: A Case Study of Bangkok

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Abstract

Human happiness cannot be explained by material achievements only, since happiness is complex and individually different. A vital goal for this study is to find happiness patterns among Thais by synthesizing both western and eastern concepts of happiness because it still does not have the traditional happiness model, especially the model concerning cultural constraint. Therefore, this study adapts Experience Utility in terms of analyzing aspiration, adaptation, social comparison and Buddhist Economics while considering among man, mind and the environment in a analytical framework that may be more suitable to Thai culture and more interpretative of human happiness. Therefore, the policymaker should concern on people's feeling security in their lives, and create the policy mechanism to support people's living happy under the good environment and to practice people's feeling self-sufficiency and self-reliance.

Keywords: Happiness, Life-satisfaction, Experience Utility, Buddhist Economics

1. Introduction

Happiness studies in economics have been rather popular in recent decades among western and eastern researchers; however, it still does not follow a clear pattern. In western academia, psychology and neuroscience provide an explanation of human feelings and behaviors in scientific terms, whereas in eastern studies, spirituality and religion are considered essential and regarded as important issues due to their roles in understanding the subtlety and subjective dimension of human behavior and the environment, both materially and socially. A vital goal for this study is to preliminarily find happiness patterns among Thais by synthesizing both western and eastern concepts of happiness.

Several frameworks and theories have been used in the attempt to explain happiness. For instance, Brickman and Campbell (1971) used the concept of hedonic treadmill in order to explain the phenomena of adaptation in perception and judgment. Easterlin (1974) studied the relationship between happiness and wealth by examining the population of the U.S. from 1946-1970. His findings questioned the traditional principle that economic prosperity provides happiness to a society or individual, and this became known as the "Easterlin paradox". The findings also raised the question, "If happiness is not directly correlated to income, then what other factors influence happiness beyond economic growth?" In contrast, Eastern philosophy, particularly Buddhism, does not directly explain happiness. Rather, reducing suffering is considered the parallel to increasing happiness.

Buddhist Economics as an alternative theory in economics has been developed through Ernst Schumacher's essays, "Buddhist Economics" (1966) that were later compiled into the book "Small is Beautiful: Economics as if People Mattered". Later, Puntasen (2001) explained Buddhism as an alternative of economic theory in his writing, "Buddhist Economics: Evolution, Theory and Application in Economics."

2.   Understanding the Conceptual Framework of Happiness

1) Happiness Concepts in Traditional Academic Notion

There are two polar concepts of happiness: subjective happiness and objective happiness. Frey and Stutzer (2002b; 4-6) reason that subjective happiness can be captured by surveys with the help of single question or several questions of global self-reports. The score indicated by a person unlocks a hidden cognitive process that he or she used to evaluate happiness in comparison to other persons, their past experiences, and expectations of the future whereas objective happiness refers to physiological approaches which capture subjective well-being by measuring human brain waves. There is also another concept of happiness that lies between the extremes of subjective and objective happiness, affect and cognition. Experience sampling measures are typically carried out and tested several times a day, for many days, in order to ascertain moods, emotions, and other feelings at random moments in an individual's everyday life.

In a majority of the literature, the focus of happiness or subjective well-being lies within affect and cognition. "Affect" is the label attached to moods and emotions, representing people's instant evaluation of the events that occur in their lives whereas the cognitive component refers to the rational or intellectual aspects of subjective well-being. It has been shown that pleasant affects, unpleasant affects and life satisfaction are separable constructs.

The cognitive aspect involves components of judgment and comparison. Thus, happiness is not given and immutable. Rather, it is

constructed within the person concerned and heavily depends on the social environment within which each person has socialized and within which he or she lives. In particular, three psychological processes have to be taken into account: for aspiration, adaptation and social comparison.

Aspiration, or the satisfaction treadmill is demonstrated in terms that people always evaluate within their situation with regards to an aspiration level that is systematically formed by hopes and expectations. It has a negative relation between aspiration levels and the happiness report. Adaptation, or the hedonic treadmill is explained in the sense that people get used to new circumstances and accordingly adjust their subjective level of well-being. This refers to many different mechanisms; in the case of habituation, it is an automatic passive biological process. Whereas, social comparison, or relative theory, is a relative measuring stick with respect to subjective happiness. The hedonic as an objectively oriented concept is useful for many psychological intricate questions. More objective methods have advantages in reducing the memory biases that in turn affect retrospective reports of experience in global self-reports. Whereas, the subjectively oriented concept is necessarily less precise in terms of cognitive processes, and may be different among individuals over time, although our attitude toward particular pleasures and pains is not a priori given. Individual well-being is not an isolated feeling, but strongly depends on the conditions in which the persons live. Thus, social comparisons are of great importance and have to be taken into account. Similarly, individuals do not have a fixed grid for measurement; they adjust to changing circumstances. For example, important evidence points to the case of higher income and its affect on happiness. Individuals feel a higher level of happiness at first, but after some months, this increase tends to evaporate, and the happiness level is not much higher than before the increase in income.

2) Happiness Concerning Spirituality and Religion Condition

Distinct from western studies, most Eastern studies use Buddhist concepts in order to explain happy living (Puntasen, 2001, 2006, and 2007; Prayukvong, 2005, 2007). Wisdom, as one supreme quality of the mind is the ability to understand everything in nature. Most of the time people do not have wisdom, because of ignorance or distorted facts of his/her own liking. This special quality of mind known as wisdom must be continuously trained in order to achieve its status of neutrality so that it can learn and understand everything at the object's own nature. However, wisdom cannot be trained alone, it is conditioning to the training of "morality" shortly known as "good conduct" and "concentration". The training of the Threefold Training is the sufficient condition for happy living. It begins with basic faith, which is defined in terms in that always having good conduct will result in a calm mind or a mind that is easier by which to concentrate. Concentration will enhance the neutrality of the mind (clear mind) that will enable it to be more able to learn and understand everything in its own nature. This latter quality of the mind is similar to the qualities of "right intention" and "right views", two principles of the Noble Eightfold Path, and is further known as "wisdom".

The Threefold Training is the training of the three functions of mind; "morality", "concentration" and "wisdom". They form into the Noble Eightfold Path or the way to be relieved from suffering, or conflict, alienation, pain, misery, or suffering that all human beings try to avoid. Given the above qualities, there will be an increased understanding as to why "good conduct" is necessary for a better life. The three components of "good conduct" or "morality" are "right action", "right speech", and "right livelihood". They are the three additional components of the Eightfold Path. With the right conduct, the mind can concentrate more because it will not be disturbed by bad thinking and conduct. This quality of mind is known as "concentration". It consists of the remaining three of the Eightfold Path: "right effort", "right mindfulness", and "right concentration".

3) Conceptual Framework for this Study

Happiness in this study is defined as cognition of life satisfaction. Happiness is from the results of different cognitive processes and individual's different experiences. It means that given everything being equal, differences in an individual's cognition and experience can lead to differences in self-reported life satisfaction. "Happiness" is influenced not only from "self", but also from the "mind" and the "environment", both within society and in the natural environment.

The two main applied theories under Thai culture consist of the experienced utility using psychological mechanisms and Buddhist Economics.[1] This framework aims to analyze relations in each duality under three balance concepts of the ecosystem: human-nature, human-human and body-mind. Human-nature is representative of "self and nature", human and human is that of "self and society" and body and mind is that of "self".

In terms of the happiness factors for this study, there are two groups of factors: (1) main factors: socio-demographic, political, and economic factors explained by psychological concepts as a tool of experienced utility, and (2) additional factors which is the so-called "sufficient system" as interpreted by Buddhist Economics. As for the second dimension, the mind, the Eightfold Path is used in order to examine the individual's Threefold Training via the use of the proxies of moral and merit belief. Finally, the environmental dimension consists of two aspects: society and the natural environment. In terms of the natural environment, the ecological footprint from the Living Planet Index 2006 is used to explain the present natural status in

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[1] The reason to use both theories together is their aspect on happiness as cognition alike. Besides, instant utility definition as an important mechanism of experienced utility is the hedonic value of a moment of experience as immediately reported or recorded under respondents' transformation function. These respondents are Thai people; therefore, their transformation function will be built from within eastern culture. Also, the endowments of their thoughts are created from the Thai culture.

Thailand. Based on Buddhist Economics, humans and the environment relate together; a good environment may lead to more human satisfaction with life. Lastly, the social environment is explained through the relation of family and community factors.
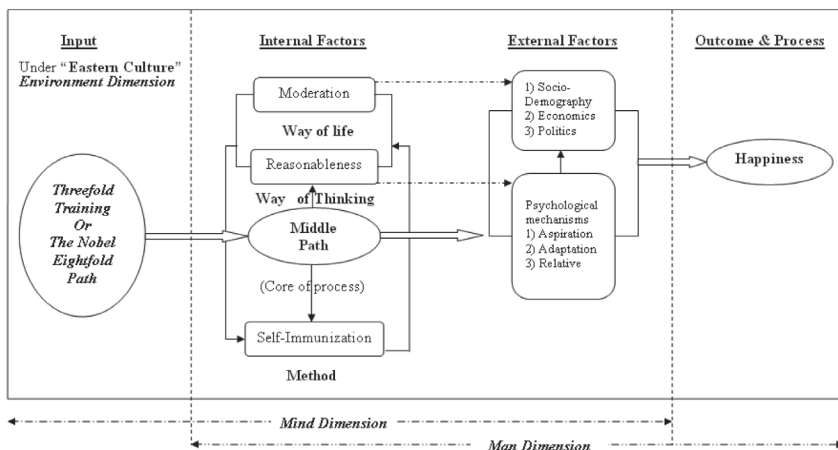
Figure 1 Conceptual Framework for This Happiness Study[2]

3. Data and Methodology

The model's construction is divided into three parts. The first part of the happiness model is the man dimension. The data was collected by a random-sampling survey, and processed by an ordered response model. The second part consists of the mind dimension, which aims to examine the relationship between moral-merit proxies and happiness factors.[3] The third is the environmental dimension

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[2]   This framework is based on Puntasen (2006).

[3]   This will prove whether differences in age, gender, education, job and income are influenced by moral and merit beliefs. If these factors, as part of the happiness pattern are deviated by morals and merit, then we will know which types of morals and merit has an effect on which happiness factor. At the least, this finding will be able to tell whether morals and merits as subjective things have influence on happiness factors, a part of the human happiness report. Utilizing the Nobel Eightfold Path, which is more concrete than using Threefold Training makes it easier to create proxies for this report.

that accounts for the natural environment.

1) Man Dimension Using Happiness Model

$$H = H\,(U(SocDems,\ ECs,\ Pols,\ BudEC)) + e \qquad (1)$$

where

H is some self-reported number indicating happiness or satisfaction level on a given scale, 5 is a completely satisfied level, 4 is satisfied in life, 3 is a normal level, 2 is a level of unsatisfied feelings and 1 is a completely unsatisfied stage in life.

$U(.)$ is to be thought of as the person's true subjective well-being or happiness;

$H(.)$ is a continuous non-differentiable function relating from actual to reported subjective well-being or happiness;

SocDems is a set of socio-demographic factors consisting of age, gender, settlement, close relationship and marital status, education, health and religion;

ECs is a set of economic factors: personal income and unemployment;

Pols is a factor of political participation which this study uses as a self-report in political criticism;

BudEC is an added factor for this study as a "self-sufficient" system by using NESDB's notion (NESDB, 2005), and using the self-reported method.

2) Mind Dimension

A target of this dimension is to examine the relationship between internal moral, merit and happiness factors. This study explores whether morals and beliefs differ between age groups, genders, jobs, and income levels. In case morals and beliefs differ among the above factors, then we will have a better idea as to what kind of moral and merit beliefs may influence each happiness factor. These results can further support the analytical process. Moral and merit are assessed by using proxies in terms of Thai proverbs.

3) Environmental Dimension

This study uses the Living Planet Index 2006 in order to explain the present natural situation in Thailand. With respect to the human and nature relationship, if humans understood moderation in terms of consumption and the natural cycle, they would not destroy natural resources, people's health and the environment would be better off, and human well-being would improve as a result.

This study chooses the global self-reported happiness, because it has been accepted by many studies as the self-reported measures of life satisfaction, especially on the issues with which economists are mostly concerned. The measurement of happiness has proven to yield useful insights in order to improve our understanding of the economy and society in terms of subjective issues. Therefore, using the ordered logit model is technically suitable to this study as is the Chi-square test for mind dimension. This study randomly surveyed / interviewed approximately 400 persons over the age of 15 years old, and who were living in Bangkok in March 2007. Most questions are subjective, and most observations are obtained through the interview method.

4. Results

1) Data Description

The proxy measure for individual utility is based on the answer to the following question: "In all, how satisfied were you with overall life 2-3 months ago?" Therefore, the happiness reports in this study only covered the three-month period from January to March, 2007. The respondents were shown a table with a 5-point scale, of which only two extreme values ("completely dissatisfied" and "completely satisfied") were provided. In terms of mind dimensions, attitude evaluation on each Thai proverb with its four attitude levels consisting of totally agree, agree, disagree, and no comment is used against the following question: "What is your opinion on the following proverbs?" The self-reported satisfaction level on average is scored 3.72 out of 5, or it implies most people are satisfied with their life.

2) Results and Analysis

(1) Econometric Results in the Happiness Model

Table 1[4] shows a non-linear model with contrasting results from previous studies such as Clark, Oswald, and Warr (1996; 63-64), Blanchflower and Oswald (2004; 1381), Graham and Pettinato (2002; 75-76, 91, 95), Powdthavee (2007a; 466-467) and Leamcharaskul (2007; 137), which has a U-shape pattern in happiness over the life cycle.[5] An important reason for this is the difference in factors within the happiness model. Cultural differences may have some influence; but it should not be concluded here that cultural differences is the factor which determines the deviation because this study employs cross-section data, and not panel data. Cross-section data, which focuses only on a certain moment, is static and may not accurately explain the dynamics of actuality / reality, while panel data, which is a set of relatively more continuous data, may yield better results, however, is difficult to obtain. Hence, this analysis can explain only the relation between the happiness report and factors on the happiness model.

The results from this study suggest that age, self-immunity, earner and education are significant factors in influencing happiness.[6]

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[4] Based on the data limitations, there is only one observation for "completely dissatisfied", unable to be a good representative, so this study is necessary to drop this observation from the model. Therefore, the total numbers of observations remain 347 for the four satisfaction levels left in the model.

[5] However, David Morawetz (1977; 519) found that reported happiness did not tend to decline with age in the case of Isos, which is the Greek word for equal, all members' income are equal, because the old people had had much responsibility towards their entire community.

[6] Data limitations: this study is only able to test eight of thirteen factors on the happiness model. These are age, gender, marital status, education, health, personal income, earner status and self-immunity on three factor groups: socio-demographic factors, economic factors and the added factors from Buddhist Economics concept. This study excludes the factors of political participation, settlement and religion in socio-demographic groups, and moderation and reasonableness factors in the Buddhist Economics group. Besides, although unemployed status is a crucial factor in economics, the proportion of unemployed people is so small, about 4%, which is not suitable for a dummy. Therefore, this study uses earner status as a dummy representing the opposite view.

Self-immunity represents people's concerns on saving and insurance and has the largest effect on self-reported global satisfaction with a 99% confidence interval. Age and earner are significant at the 95% confidence interval while education is significant at the 90% confidence interval. In addition, the relationship between happiness factors and the estimate of people's satisfaction do support psychological explanations used in experienced utility, and Buddhist Economics.

The peak of the relationship between happiness and the life cycle is 33-34 years old. After this, there is an adult period which includes belonging to a family and having full family responsibilities such as family expenses, children, etc. It is normally during this period that individuals have high aspirations in life and additional obligations.

For job status, this study includes "earners"[7] instead of unemployed people because the proportion of unemployed people is so small. The former is superior to the latter in that the former has more responsibility towards their families than the latter. At the complete satisfaction level, people who have the status of being employed, tend to have decreased life satisfaction, which may reflect that the burden of family responsibility weighs more than the dignity of being employed. This result is in opposition to the results of some studies that apply the factor of unemployment. For example, Clark and Oswald (2002; 173) found that being jobless had the most negative influence on well-being more than any other single characteristic (including important negative factors such as divorce and separation).

Self-immunity implies that saving and insurance as part of life security can be reflected in people's life satisfaction. In other words, it increases happiness. Its implication refers to relative consideration, since saving and insurance are another life-security factor. It appears that people do have more life satisfaction when it comes to having self-immunity,

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[7]   "Earner status" consists of working people such as government, corporate organizations, and owners. This dummy covers people who have jobs in government and state-enterprises, private companies, business owners and other jobs. On the contrary, "received status" or "economically dependency" covers students, housewives, unemployed persons and retirees for this study.

probably having to do with the sense of possessing more life security, but this does not always apply in all cases, particularly the wealthy, which may not have increased life satisfaction from having self-immunity according to the definition employed in this study. This factor is added from the concept of Buddhist Economics; therefore, most of the previous western studies do not include it in their tested models, neither is it a distinct factor for this study.

Finally, education is an important factor of happiness, because it shows that at the complete satisfaction level, people with high school and university education are more likely to be happier with a 7% probability given other things being constant. The more education people have, the happier they are, due to the opportunities in life that come with higher education such as a high salary and better knowledge. In a number of previous studies, a relationship between education and subjective well-being or happiness varied positively and negatively. Education is a good indicator of personal income; therefore, it is not surprising to see a positive relationship with regards to increasing happiness and education. For example, Blachflower and Oswald (2004; 1371) found that increased years of education had a positive influence on happiness because it acted as a proxy of earnings like Masae (2007) study in the case of among Southern and Northeastern migrant workers in Thailand. However, an opposing result is found in Britain (Powdthavee; 2007b). There, the more educated are not found to be significantly happier than the less educated. An explanation of this result is that higher expectations may lead to lower satisfaction. Education can increase earning opportunities and standards of living; therefore, more equal education offered to all segments of society would help reduce inequality and have a positive effect on happiness.[8]

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[8]   However, some studies (Hartlog and Ooosterbeek; 1998, Mahaarcha and Kittisuksathit; 2007, Powdthavee; 2007b) report that greater expectation and aspiration may have a negative effect on happiness.

(2) Proxies of Thai Proverbs with Testing Relation Attitudes and Happiness Factors

This study uses four proxies following some concepts of the Noble Eightfold Path, but, they are part of the Threefold Training. These are: right understanding (sammā-dihi) and right thought (sammā-saṅkappa) in wisdom, right effort (sammā-vāyāma) part in concentration, and right speech (sammā-vācā) part in morality concept. The target of this section is to examine the relationship between moral-merit proxies and the determinants of happiness among Thais [Table 2].

"Good deeds beget good results, while bad deeds beget bad results" implies people's belief in demerit, merit and karma rule. In this empirical survey, most people comprehend these moral-merit proxies to a similar degree, except for those among different age groups. At 90% statistically confident intervals, age difference leads to dissimilarities in this belief. At the same time, differences in gender, education, job and income are not statistically different concerning people's belief in demerit, merit and karma rule.

"Better to die than to lie" refers to the belief in truthfulness. Differences in age and marriage status influence people's truth discrimination at a 95% statistically confident interval, while job difference is at a statistically 99% confident interval. It means that people who differ in age, marriage status or job, given everything equal, do differ in the truth belief.

"To apply a gold leaf to the back of a Buddha image" implies sincerity to make merit. Age, marriage status, education and job contribute to differences in the belief category at a 99% statistically confident interval. Differences in age, marriage status, education and job, given everything equal, lead to differences in the sincerity of making merit.

Finally, with regards to the proverb "you may step over a fallen tree; don't step over a fallen man", the majority of the people agree at the mean of 3.50 score, a short step from completely agreeing at a score of 4. This proverb implies that individuals should have kindness and mercy and give chances to others. When individuals differ in age and

marriage status, this belief can be different at the level of 99% and 95% statistically confident intervals respectively.

In summary, the chi-square test only examined whether two factors are related, but can not explain how they are related. This is a technical limitation. The finding of this testing is that differences in age and marital status are the most influential factors on people's opinions and beliefs, and differences in job and education levels are the second and third conditions for distinction in opinions and beliefs.

(3) Environmental Effects

The Ecological Footprint measures humanity's demand on the biosphere in terms of the area of biologically productive land and sea required to provide the resources we use and absorb for our waste. The footprint of a country includes all the cropland, grazing land, forest, and fishing grounds required to produce the food, fiber, and timber the country consumes, to absorb the wastes emitted in generating the energy the country uses, and to provide space for the infrastructure. People consume resources and ecological services from all over the world, so their footprint is the sum of these areas, wherever they may be on the planet. [Table 3]

Thailand's footprint index indicates that the per capita ecological footprint (gha/persons) is lower than the biocapacity (gha/person), implying an ecological deficit in Thailand. In the period of 1975-2003, the footprint change per person was more than the biocapability change per person. It means that nature is used at a rate higher than the rate of restoration. Additionally, the water withdrawal as an ecological index explains that the freshwater decrease is in moderate stress.

(4) Three Balance Analysis

In terms of ecosystem relations, its goal is to analyze how happiness elements are related because they are more than self, which consists of body and mind, but also include topics of the social and natural environment. It is found that on the body-mind level, morality has a significant relationship with an individual's happiness factors

as well as on the frequency of illness, which is a negative factor in the individual self-report. As for the human-human relationship, frequencies of family participation imply care among family members. Increase in the frequencies of this factor is positively correlated with reports of family satisfaction. Finally, concerning the human-nature relationship, the deterioration of natural resources and the worsening natural environment in such cases as air, water pollution and toxic soil, do have effects on humans, who are part of nature. Holding everything constant, such effects worsen physical and mental health.

In summary, under Buddhist Economics concept, happiness at a "self" level, or body and mind relationship, can be obtained from practice in perception, concentration and wisdom, which are the core elements of the teachings of Buddha. However, environments such as family, community, society and nature do encourage human happiness because humans are a social animal. Thus, the happiness analysis should consider and incorporate both internal and external factors.

5. Conclusion

This study attempts to research and explain the happiness concept within the context of Thai society. In order to explain the concept of happiness, this study considered three aspects of human relationships: human-nature, human-human and body-mind. Consequently, the theoretical framework consists of three dimensions: man, mind and the environment. The working definition employed in this study is "Happiness is the cognition of life-satisfaction". As concerns the analytical framework, this study extends the scope to include not only material interpretations but also spiritual explanations in order to extend the happiness view from only using objective factors to the addition of subjective topics.

This study finds that human happiness has been significantly influenced by age, education, income and self-immunity in finance. Morals and beliefs do have effects on some happiness factors in that how happy an individual feels depends upon their physical and mental elements. Besides, Thailand's Ecological Footprint data show that the

environment in Thailand has been more consumed by people in the last few decades. Through these three levels of relationships, if an individual can live with balance in terms of body, mind and the environment; this balance can lead to happiness. Hence, the implication is that not only do variables of self dimension matter, but within the environment, society and nature provide significant influences. This happiness framework is constructed in order to explain human happiness in a holistic perspective and how it relates to eastern culture in Thailand.

Therefore, the policy implication should concern on human security in both social and financial dimensions; for example, having prudential fund for all Thai people which the government may encourage people's saving with some subsidy on the fund. This will not only help people to have more life security in their finance, but also it is to make Thai economy stronger from the larger domestic saving. Besides, the government should concentrate on creating a good environment for people's more quality of life. In addition, encouraging on people's concerning self-sufficiency and self-reliance still is important for practicing people with sufficiency living.

The further study regarding happiness study still should create the happiness framework which concerns on both objective and subjective issues, and on cultural constraint in order to lay the foundation of human happiness studies which may become a new paradigm in developing the traditional economic model.

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Table 1 Happiness Results in this Study

Variables	Coefficient	Standard Error	P[IZI>z]	Mean of X	Marginal effect (very satisfaction)
Female	0.1307	0.1228	0.2870	0.5462	0.0285
Age	0.0345	0.0159	0.0299**	33.5000	0.0076
Age^2/100	-0.0002	0.0002	0.3767	13.4951	-0.0038
Married	0.1225	0.1687	0.4676	0.2832	0.0277
Education	0.3867	0.2402	0.1074***	0.9335	0.07
Earner	-0.3498	0.1404	0.0127**	0.5520	-0.0784
Sick frequency	-0.0103	0.0113	0.3618	3.0694	-0.0023
Income	-0.0015	0.0028	0.5964	19.6312	-0.0003
Self-immunity	0.3353	0.1211	0.0056*	0.5462	0.0725
Threshold parameters for index					
Mu(1)	0.9028				
Mu(2)	2.41083				
Degrees of freedom	8				
Prob [Chi^2 > value]	0.10916***				
N	346				

Note: 1) Reference groups: (1) male; (2) single, divorce and widow; (3) less 12 years in education level; (4) student, housewife, unemployment and retire.

2) (*) is at 99% confident interval, (**) is at 95% confident interval, and (***) is nearly at 90% confident interval.

Table 2 Data Description, Sample Means and Standard Deviations

Variables	Descriptions	Mean (overall)
Life Satisfaction	life satisfaction score, coded so that 0 = dissatified, 3 = very satisfied	1.7184(0.8289)
Female	gender of the respondent (male=0, female=1)	0.54598(0.4986)
Age	age of the respondent (discrete data)	33.4167(15.0936)
Age^2/100	age-squared/100 of the respondent	13.4384(12.9114)
Married	marital status, married=1	0.2824(0.4508)
Education	education level of the respondent =/>12 years, i.e. high school, university level	0.9339(0.2488)
Earner	employment status of the respondent, employed =1	0.5489(0.4983)
Sick frequency	sick frequency per year of the respondent	3.056(5.3909)
Income	Income of the respondent per month (per thousand baht)	19.5356(23.7413)
Self-immunity	immunity of the respondent, saving and insurance=1	0.5447(0.4987)

Table 3 Chi-square Test against Thai Proverbs

Variables	"Good deeds beget good results, while bad deeds beget bad results"	"Better to die than to lie"	"To apply gold leaf to the back of a Buddha image"	"You may step over a fallen tree; don't step over a fallen man"
Gender	Chi-Square = 4.41 d.f. = 3 Asymp.Sig. (2-sided) = 0.22	Chi-Square = 1.57 d.f. = 3 Asymp.Sig. (2-sided) = 0.67	Chi-Square = 2.37 d.f. = 3 Asymp.Sig. (2-sided) = 0.50	Chi-Square = 2.14 d.f. = 3 Asymp.Sig. (2-sided) = 0.54
Age	Chi-Square = 28.11 d.f. = 18 Asymp.Sig. (2-sided) = 0.06***	Chi-Square = 30.02 d.f. = 18 Asymp.Sig. (2-sided) = 0.04**	Chi-Square = 40.26 d.f. = 18 Asymp.Sig. (2-sided) = 0.00*	Chi-Square = 38.94 d.f. = 18 Asymp.Sig. (2-sided) = 0.00*
Marriage status	Chi-Square = 11.16 d.f. = 9 Asymp.Sig. (2-sided) = 0.26	Chi-Square = 18.10 d.f. = 9 Asymp.Sig. (2-sided) = 0.03**	Chi-Square = 23.77 d.f. = 9 Asymp.Sig. (2-sided) = 0.00*	Chi-Square = 18.20 d.f. = 9 Asymp.Sig. (2-sided) = 0.03**
Education Level	Chi-Square = 14.05 d.f. = 12 Asymp.Sig. (2-sided) = 0.30	Chi-Square = 16.52 d.f. = 12 Asymp.Sig. (2-sided) = 0.17	Chi-Square = 25.14 d.f. = 12 Asymp.Sig. (2-sided) = 0.01*	Chi-Square = 11.36 d.f. = 12 Asymp.Sig. (2-sided) = 0.50
JOB	Chi-Square = 23.67 d.f. = 21 Asymp.Sig. (2-sided) = 0.31	Chi-Square = 43.34 d.f. = 21 Asymp.Sig. (2-sided) = 0.00*	Chi-Square = 49.54 d.f. = 21 Asymp.Sig. (2-sided) = 0.00*	Chi-Square = 29.50 d.f. = 21 Asymp.Sig. (2-sided) = 0.10***
Personal Income	Chi-Square = 18.26 d.f. = 15 Asymp.Sig. (2-sided) = 0.25	Chi-Square = 13.13 d.f. = 15 Asymp.Sig. (2-sided) = 0.59	Chi-Square = 18.51 d.f. = 15 Asymp.Sig. (2-sided) = 0.24	Chi-Square = 9.21 d.f. = 15 Asymp.Sig. (2-sided) = 0.87

Note: (*) is 99% statistically confident interval, (**) is 95% statistically confident interval, and (***) is 90% statistically confident interval.

Table 4 Thailand's Ecological Footprint

Ecological Footprint (global hectares per person, in 2003 gha)	
Per capita Ecological Footprint (gha/person)	1.4
Biocapacity (gha/person)	1
Ecological reserve (+) or deficit (-) (gha/person)	-0.4
Footprint change per person(%) 1975-2003	60
Biocapability change per person(%) 1975-2003	-4
Water withdrawals	
Water withdrawals (% of total resources)	21
Population (million)	***62.8***

Source: Living Planet Index (2006): 32-33.