Conglomerate Radar of Happiness in Bhutan

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Abstract

This paper investigates empirically some of the critical aspects of wellbeing, primarily constituting the standard of living in Bhutan, using conglomerative radar perspective and econometric technique. The analysis is based on district level data for Bhutan, pertaining to the year 2005, taken from recently concluded standard of living survey and census enumeration in the country. The study concludes that at a disaggregate level, conglomerates of wellbeing enhancing indicators are important as they tend to contribute to the happiness of individual as well as society. Beyond this level, it is the lifetime satisfaction which is important for happiness. The study suggests focusing on domain satisfaction indicators for poor performing districts in Bhutan.

Introduction

The UNDP human development framework emphasised the recognition of broad based consensus on the three critical dimensions of wellbeing.[1] These dimensions of wellbeing are:

- Longevity
- Education
- Command over Resources

Longevity is about the ability to live a long and healthy life. Education is the ability to read, write and acquire knowledge. Command over resources is the ability to enjoy a decent standard of living and have a socially meaningful life. These three critical elements of wellbeing facilitate effective empowerment and bring about a social, economic and political inclusion of the marginalised segments of the mainstream society. While much has been established to enhance our understanding about the significance of longevity and education on wellbeing research,

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[1] UNDP Human Development Index reports.

relatively less has been spoken on the significance of command over resources. However, domain satisfaction research seems to have focused on some of the aspects of command over resources. Individual command over resources determines sustenance, attainments of aspects of wellbeing and the opportunity that these attainments facilitate. It can also be pointed out that ensuring command over resources and amenities alone is not sufficient for lifetime satisfaction. Happiness is derived both from domain satisfaction as well as lifetime satisfaction. Both are necessary and initially they tend to reinforce each other. However, the researchable question raised here is: To what extent do improvements in dimensions of wellbeing ensure happiness?

The conglomerative perspective provides an effective and well-established way of understanding the dynamics and reinforcement of critical elements of wellbeing and thereby happiness of people and society. The conglomerative perspective looks at the advances made by society as a whole. Contrary to this, the deprivational perspective captures the status of the deprived in society. Both approaches are essential to understand societal wellbeing. While the first approach would suggest what enhances wellbeing in general, the second approach would capture the possible extent of reduction in wellbeing due to deprivation and lack of command over resources.

The present paper examines some of the critical elements of wellbeing in Bhutan and their relationship with happiness using the conglomerative perspective. The results have been obtained by drawing conglomerative radar for disaggregated data on some of the critical aspects of wellbeing in the country. Much of our understanding about Bhutan is intuitive in nature and lacks empirical support due to the unavailability of data. It is virtually impossible to attempt a disaggregated analysis, e.g. district level analysis. However, the situation seems to be improving and the recent standard of living survey and census enumeration of the country have provided a good database at the disaggregate level. The present paper makes use of this database for analysis.

Section II: Literature review

The growing literature on happiness has been immensely enriched with Bhutan's contribution of Gross National Happiness (GNH). The holistic concept of GNH is constantly evolving and an attempt has also been made to model and quantify the concept. GNH is a macro concept and in all probability there exits a need for ascertaining the link between GNH and individual happiness. The pertinent question to ask is whether improvement as registered in a proposed GNH Index (seemingly in the making to quantify aggregate happiness of the nation), would essentially mean an improvement in individual happiness. Furthermore, when GNH is more important than GDP, then essentially the distribution of happiness, like the distribution of GDP, would be as important as the aggregate of GNH.

In the paper presented in the First International Conference on "Operationalising Gross National Happiness" held in Thimphu, I and my colleague argued that there seems to be a moderate link between GNH and individual happiness (Pankaj & Dorjee, 2005). Based on field data from eastern parts of Bhutan, the study showed that income and the social profile of individuals contribute differentially towards their happiness when seen across rural-urban set up and also across occupation, income class and age. Therefore, it makes sense to further analyse and understand happiness in the country for a better understanding of the linkage between GNH and individual happiness.

Current status of happiness research

There has been a phenomenal growth in happiness research since the 1960s with over 3000 published studies exploring this subject in a variety of ways (www.authentichappiness.sas.upenn.edu). As more and more has been discovered, there is also a growing realisation among scholars that more needs to be explored. Like the subject of happiness itself, the convergence of opinion on its research is far from sight. Happiness research hasn't been more about understanding it as perfectly as possible but it has been more about how the research can help individuals and societies to become as happy as possible. This makes research more relevant on a subject as elusive as happiness. There is a shift in the

domain of happiness research from psychology to that of applied psychology wherein the focus is on happiness increase research. The contribution of GNH in enhancing the status the happiness research is enormous. In fact, GNH has provided an alternative worldview which will go a long way in securing the greatest happiness for the greatest mass.

The literature on subjective wellbeing or happiness is fast growing and a comprehensive review of this literature can be found in Veenhoven (in press); many attempt to seek interventions to increase happiness (Fava, 1999; Fava & Ruini, 2003). Studies have pointed out clearly the distinction between the two components of 'satisfaction' (happiness); 'life (global) satisfaction' and 'domain (work, family, self, etc.) satisfactions'. The leading researcher and authority on happiness, Rutt Veenhoven, visualised happiness as the degree to which an individual judges the overall quality of life-as-a-whole favourably. Psychologist Jonathan Freeman pointed out that people may pursue happiness differently, but by and large it is the same happiness for everyone. Therefore, happiness can be viewed and discussed both as a global as well as individual concept. Happiness is an individual expression as much as it is an aggregate expression for an individual as also for the society as a whole. However, scarcely any study has attempted to find the link between aggregate happiness and individual happiness. It is imperative to ask and explore whether enhancement in societal happiness necessarily would increase individual happiness of everyone in the society. Is there a distributional aspect of happiness as an aggregate expression?

Determinants of happiness

Jeremy Bentham provided one of the earliest accounts of the calculus of pain and pleasure while bringing the discussion on utility to the forefront in England in 1789 (Stigler, 1965). Bentham's thirty-two circumstances explained pleasure and pain. However, discussion in economics thereafter, cantered on discovering and rediscovering the principles of marginal utility and later on, their measurement. Utility is akin to welfare. As such, an enhancement in welfare can be measured in terms of changes in utility. More income brings enhanced consumption

which increases utility and hence welfare (happiness). The object of public policy should be to maximise the sum of happiness in society. Since marginal utility of money is more for the poor, it makes sense to focus on the redistribution of income. Contrary to this, many studies have confirmed that happiness, not income, constitutes the ultimate goal of most individuals (Easterlin, 1995; Easterlin, 2001; Ng, 1997; Oswald, 1997). Easterlin provided one of the earliest empirical works about self-reported happiness. The decade of the 1990s witnessed increased awareness on the subject, and economists have shown that happiness is not an entirely personalised phenomenon; rather, it also depends on conditions like unemployment, inflation and income (Clark & Oswald, 1994; Oswald, 1997; Easterlin, 200). Some scholars have also tried to quantify the effect of variables such as freedom (Frey, 2000) air pollution (Welsch, 2003), aircraft noise (Praag & Baarsma, 2001) and climate (Rehdanz & Maddison).

A good deal of discussion on this subject can be found in Layard (Layard, 2003) which emphasised that GDP is a hopeless measure of welfare demonstrated by the fact that despite a several-fold increase in per capita GDP the happiness of the population tended to stagnate. Layard points out that Pareto optimality leads us to a situation where no one could be happier without someone else being less happy. Even if we account for problems such as asymmetric information, short-sightedness, externalities and diseconomies of scale, it only can suggest that higher real wages will make the population happier. It fails to realise that our wants, once we are above subsistence level, are largely derived from society and they are major factors affecting happiness. Karl Marx said, "A house may be large or small; as long as the surrounding houses are equally small, it satisfies all social demands for a dwelling. But if a palace rises beside the little house, the little house shrinks into a hut," (quoted in Layard, 2003). Layard concludes that rational policy-making is possible since happiness is a real scalar variable and can be compared between people.

Helliwel (Helliwell, 2001) perhaps, is the only author who attempted to analyse international (Helliwell, 2001) and inter-personal difference in subjective wellbeing while making use of data from three waves of the World Value Survey covering about

fifty different countries. The study uses large international samples of data combining individual and societal level determinants of wellbeing. The study establishes the link among social capital, education, income and wellbeing. It also identifies the direct and indirect linkage between social capital and wellbeing. Happiness depends on a lot more than people's purchasing power. It depends on tastes which people acquire from environment and on the whole social context in which we all live. Therefore, situation pertaining to income, work, family, and health do contribute to happiness and they also account for the overall happiness rating/index. Layard's discussion also focuses on factors pertaining to freedom, religion, trust, and morality as important facets of life resulting in upward movement in happiness index.

Layard and Helliwell's study lends a great deal of support to the presumption of the present paper that establishing the link between individual and aggregate happiness is important, as both individual and societal factors determine the extent of rise or fall in wellbeing (happiness) index. It also makes sense to compare aggregate happiness with that of individual happiness in relation to their determinants. It is in this light that the next section takes up the analysis of available data and the presentation of results.

Section III: Estimation and results

Data and methodology

The data used for analysis in the present study has been taken from the Planning Commission, Thimphu, which collected from the recently concluded standard of living survey and census enumeration. Most data are taken from unpublished sources and pertain to the survey year of 2005. A two-pronged methodology followed for the analysis of data: conglomerative radar and econometric estimation.

Conglomerative radar is a diagrammatic representation of progress and provides a snapshot view of the structure, pace and gaps in progress. The radar is also helpful in understanding the relationship among competing aspects. The present study draws the radar for each district and also for 12 critical aspects of wellbeing including happiness. To ensure comparability in

attainments, the respective magnitudes have been scaled and normalised to take a value on a scale ranging from 0 to 5. The least achievement corresponds to 0 scale, while the best achievement is closer to 5. In constructing the scales desirable, norms have been adopted. However, in some cases the norms are self-selecting, e.g. computer usage, ownership of land, etc. The selection of indicators strictly followed the international norms (MDGs etc.) coupled with the Royal Government of Bhutan's development policy and emphasis. The radar captures the relative contribution of different dimensions of wellbeing vis-à-vis happiness. The greater the shaded area of any indicator the better is the attainment on that indicator. Similarly, the more symmetrical the shaded portion of the radar, the more balanced are the attainments of different dimensions of wellbeing. A well balanced achievement radar would look more like a good diamond, and therefore, the goal of public policy should be to achieve a good looking development diamond.

The study also makes use of the econometric technique for estimating the cause-and-effect relationship, keeping happiness as dependent variable. The explanatory variables are the selected wellbeing indicators. The estimation has been done using SPSS software.

Dimensions of wellbeing

- Happiness: Happiness has entered into the study as dependent variable and the ultimate goal of both individual and society. The data on happiness has been reported on three scales of 'very happy', 'happy' and 'not very happy'. The scaling has been done on the frequency related to the first two responses.
- Employment: Scaling on employment has been done by taking employment among the economically active population of 15+ age across districts.
- Literacy Scaling on literacy has been done by taking the literacy of 6+ age population across districts.
- Access to piped water: Access to piped water has been taken for both inside house availability and outside house availability. Though the outside house availability may require further information on its distance from house, but

presumably it would be far nearer in comparison to a natural stream.

- Access to safe toilet: Scaling has been done to capture the sanitation aspect, covering the availability of flush toilet inside or outside house, VIDP and long drop latrine.
- Ownership of land: Scaling of this aspect has been done on the ownership of land independent of the other assets, including house.
- Ownership of house: Scaling of this aspect has been done on the ownership of house independent of assets, including land.
- Safe source of lighting: The scaling included the use of electricity, solar and LPG as the source of lighting over the usage of kerosene, firewood, and generator, etc.
- Safe source of cooking fuel: The scaling included the use of electricity, solar and LPG as the source of cooking fuel over the usage of kerosene and firewood.
- Distance from motor road: The scaling included frequency for less than 30 minutes distance from the motored road.
- Telephone: The scaling included household in possession of telephone independent of other communication and media facility.
- Computer: The scaling included household in possession of computer independent of other communication and media facility.

Conglomerative radar

Table 1 below presents the statistical results of conglomerative radar, reporting on the average of scaling, standard deviation and coefficient of variation. These three statistical measures are useful in determining the level and variation in radar. The average scaling provides information on the level of achievement, with a higher average signifying a higher achievement. The standard deviation tells us about the extent of variation in average scale across various selected wellbeing indicators. The coefficient of variation provides the per cent variation in achievements, with a lesser percent meaning a better balanced achievement. These measures are significant from the point of view of ranking the districts according to their level and balance in achievements on wellbeing. There does not seem to be a definite correlation between level and variability of achievement, however, generally a

higher average achievement is found associated with better balance in growth and thereby more linkage with happiness.

Among districts Paro, Thimphu and Bumthang are the best three performing districts, with Paro at the top of balanced achievement. Districts with better performance in terms of level of achievement are also generally the districts demonstrating better balanced achievements. At the bottom of the ladder are the districts of Gasa, Tsirang and Lhuntse. These districts not only demonstrate a low level of achievements, but also a relatively higher level of variability.

When we look at the calculated scale for Bhutan as a whole, as many as 9 districts seem to be performing better than this average. These districts are the best performing districts with all round achievements. Urban performance in general seems to be better than rural, both in terms of level as well as balanced performance. This possibly can explain a great deal as to why people from rural Bhutan are migrating so rapidly to urban locations. Prima facie, if we address the question whether such migration is happening at the cost of happiness, the answer would be negative. With better balanced achievement radar and its positive relationship with happiness, migration to good urban locations has tended to increase peoples' happiness. The only pull factor against this rural to urban migration could possibly be to achieve a similarly good looking development diamond for rural areas as well.

Happiness as such does not demonstrate much variation across districts, while the conglomerative elements represent a lot of variation. This indicates that, while various critical elements of wellbeing add to happiness in general they do not add to happiness neither greatly nor equally. Also, the extent of contribution has differed district-wise. This, however, needs to be ascertained further with econometric analysis which is undertaken subsequently in this section.

Table 1: Rank order of districts according to average achievement scale and balanced achievement

Rank*	District	Average Achievement Scale (0 to 5)	Stand-ard Devia-tion	Co-efficient of Variation (%)	Rank Order according to average level of achieve-ment
1	Paro	3.41	1.48	42.81	2
2	Thimphu	3.58	1.56	43.57	1
3	Bumthang	3.34	1.51	45.21	3
4	Haa	3.31	1.53	46.22	4
5	Punakha	3.21	1.50	46.71	5
6	Chhukha	3.11	1.48	47.59	7
7	Sarpang	3.16	1.53	48.42	6
8	Wangdue	3.02	1.51	50.00	8
9	Trashigang	2.94	1.71	58.16	9
10	Trongsa	2.87	1.59	55.40	10
11	Pemagatshel	2.84	1.62	57.04	11
12	Samdrup Jongkhar	2.82	1.63	57.80	12
13	Trashi Yangtse	2.94	1.71	58.16	9
14	Monggar	2.75	1.62	58.91	14
15	Samtse	2.74	1.63	59.49	15
16	Zhemgang	2.71	1.65	60.88	16
17	Dagana	2.75	1.69	61.45	14
18	Lhuentse	2.80	1.75	62.50	13
19	Tsirang	2.75	1.59	55.40	14
20	Gasa	2.60	1.75	67.31	16
Bhutan (Combined)		2.91	1.46	50.42	
Bhutan (Urban)		3.51	1.63	46.44	
Bhutan (Rural)		2.61	1.60	61.30	

* Order according to balanced achievement

The snapshot view of the above drawn results can be obtained by conglomerative radars. The radars below are presented for the best and the worst performing districts (Figure 4-6). Figure 13 presents the radar for Bhutan as a whole, urban and rural separately. Radars for all other districts are with the author and available on request. They are not presented here with a view to restrict the paper within limited size.
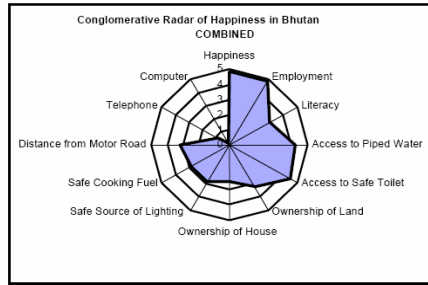
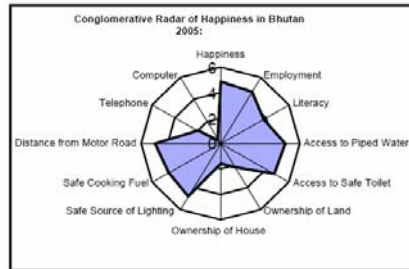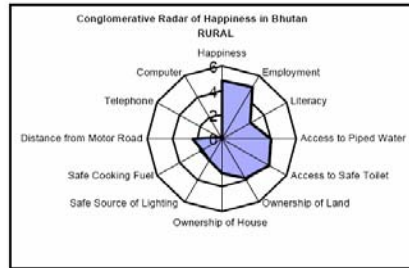119

Figure 1

Figure 2

Figure 3

Top performers: Triple Gems

Paro, Thimphu and Bumthang are presenting the achievement diamond more clearly, may be called the 'triple gems' of achievements. The respective radars are presented below:
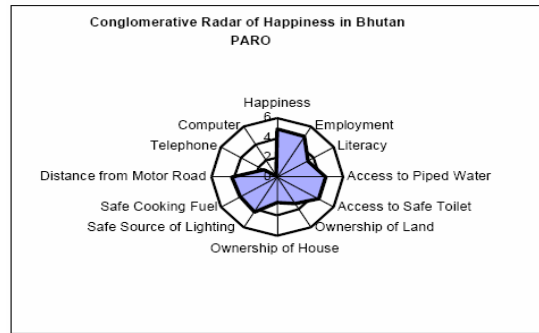
Figure 4

Conglomerative Radar of Happiness in Bhutan
PARO

Figure 5

Conglomerative Radar of Happiness in Bhutan
THIMPHU District

Figure 6

Conglomerative Radar of Happiness in Bhutan2005:
BUMTHANG
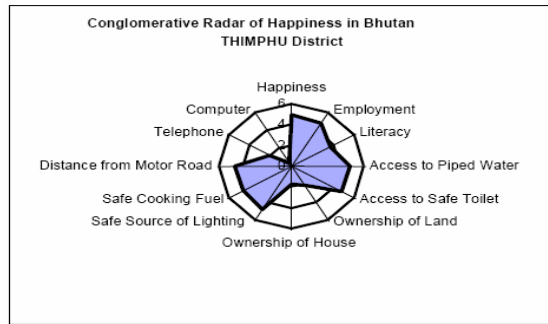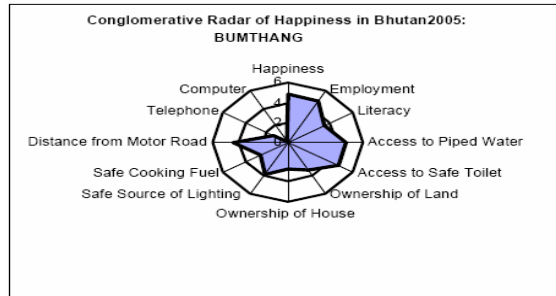
The gems are not equally spread, demonstrating a deep cut on left upper side. This means that telephone and computer availability is yet to catch up with other competing elements of wellbeing. The gems are nicely poised on the right side with sufficient spread. This indicates that the achievements on the front of employment, literacy, piped water availability and safe toilet have gone a long way.

Bottom performers

The three bottom performers are Gasa, Tsirang and Lhuentse. The radars of these three districts are presented below:
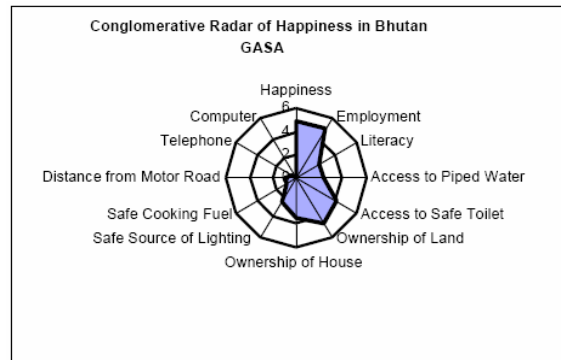
Figure 7

Figure 8

Figure 9

Conglomerative Radar of Happiness of Bhutan 2005:
LHUENTSE District
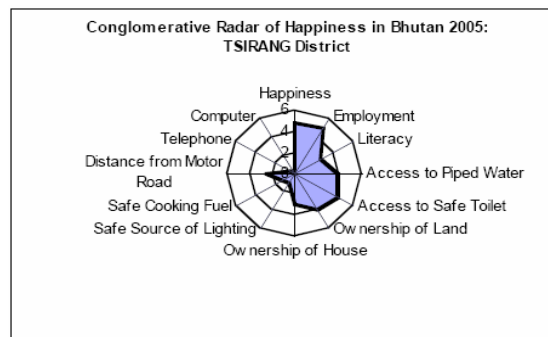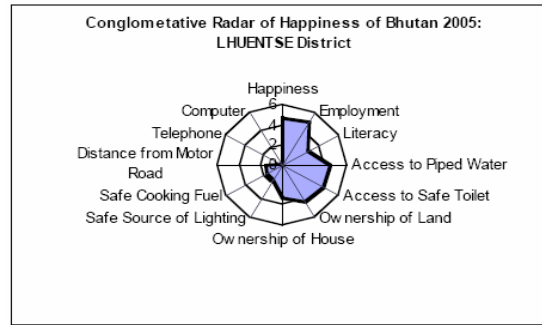
It is clear from the observation of the above three radars (Figure 7-9) that they are half-cut gems, chiselled on left side. This means that bottom performing states have to go a long way in achieving on information and communication front, road network, and also in safe cooking and lighting environment for households.

Conglomerative radar and happiness

Happiness as such is not much different across districts, as is clear from the observation of radar which invariably has a similar sharp vertical edge in all cases. This suggests that critical elements of wellbeing do add to happiness but happiness, per se, is not explained only on the basis of these indicators. There are variations in explanations. This presumption goes very well with the on-going debate and research on happiness which clearly points towards factors beyond wellbeing measures on which happiness depends. Society needs much more beyond sufficient command over resources and amenities to be happy. In order to research a little more on this aspect, the study makes use of econometric techniques. The results of estimated regression are presented in Table 2.

Table 2: Regression results using happiness as dependent variable, Bhutan 2005

	B	t	Sig.
(Constant)	4.405	1.499	0.04
Employment	0.044	0.095	0.01
Literacy	0.058	0.287	0.01
Safe water	0.179	2.086	0.06
Safe toilet	0.285	1.166	0.05
Land	0.062	0.569	0.01
House	0.002	0.025	0.02
Safe lighting	0.038	1.073	0.07
Safe cooking	0.075	1.080	0.01
Distance	0.028	0.329	0.00
Telephone	-0.181	-1.102	0.12
Computer	-0.635	-1.290	0.11
R2	0.756	Adj. R2	0.421
Se	0.055		
F	2.256	Sig.	0.01
DW	2.044		

A perusal of the regression results presented above reinforces the hypothesis set earlier. The result suggests that even if we assign zero value to all wellbeing indicators, the average scale of happiness will be 4.405. This means that almost 81 percent of aggregate happiness is secured without reference to any wellbeing indicators. This is also reflected from the adjusted R^2 value of 0.421 which indicates that the explanatory variables account for about 42 percent of the variation in happiness due to regression whereas rest is explained by variation due to residuals. This is a totally unexpected conclusion as it has been time and again reinforced that happiness is derived from wellbeing indicators up to certain improvements, and thereafter is mostly sought in lifetime satisfaction factors. Therefore, domain satisfaction and lifetime satisfaction complement each other and move side-by-side until 20-25 percent of happiness is secured, thereafter most of the reinforcement to happiness is obtained from lifetime satisfaction pursuits. Studies have pointed out some of the lifetime

satisfaction pursuits which come from freedom, religion, trust, and morality. In the Bhutanese context, aspects such as religiosity, cultural participation and identity were studied as factors affecting individual happiness and these were found to be significant factors.[2] In these cases, the intercepts of estimated regression lines from field data for urban and rural separately, were found negative, suggesting that if we put religiosity, cultural participation and identity to zero level, it is actually likely to result in a substantial decline in happiness. The results were more pronounced for rural vis-à-vis urban Bhutan.

Regression results also reiterate the significance of some of the domain satisfaction variables as constituents of wellbeing. For example, employment, literacy, sanitation, clean water, good lighting and safe cooking energy source will enhance happiness to the extent of 10 to 50 percent. The estimated coefficients for computer and telephone are low, insignificant, and also negative. This indicates that an increase in computer and telephone are causing unhappiness to people. This is not an unexpected result as more exposure brought about by international media is likely to cause dissatisfaction due to the feeling of relative deprivation.

Section IV: Concluding remarks

The preceding analysis, using conglomerative radar and regression results, suggests that causation between wellbeing indicators and overall happiness exists in Bhutan. This conclusion is significant from the point of view of understanding GNH. The study clearly points out that the wellbeing umbrella is likely to enhance happiness but to a limited extent. Beyond certain improvements, the pursuit of happiness requires discussion within the domain of lifetime satisfaction such as religiosity, culture, inner transformation etc. The inter-district analysis brings out a couple of dimensions which have policy implications. The majority of districts falling below the national average scale (11 out of 20 districts) need to improve holistically, keeping the conglomerative radar in mind; those at the bottom of rank order need special attention.

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[2] Pankaj & Dorjee, 2005.

The significance of individual wellbeing indicators cannot be ruled out as they do add to happiness. For a precise word on this notion, the study also attempts to calculate the happiness elasticity with respect to some of the wellbeing indicators. The happiness elasticity calculated from estimating double-log function from the same set of data gives the following results (Table 3).

Table 3: Happiness elasticity with respect to domain satisfaction (wellbeing) indicators

	Happiness elasticity
Employment	0.14
Literacy	0.10
Safe water	0.10
Safe toilet	0.18
Land	0.04
House	0.01
Safe lighting	0.02
Safe cooking	0.03
Distance	0.01
Telephone	0.02
Computer	0.01
R2	0.77
Adj. R2	0.47
F	2.53 (Sig. 0.059)

The above results suggest that employment, literacy, safe water, and safe toilet have a significant response to happiness. This fact can be significantly understood and taken seriously, especially when considering the low performance districts.

The study, therefore, concludes that GNH is a well conceived notion and has the potentiality to be converted into a well designed theory which can guide the course of development. At a disaggregate level, a conglomerate of wellbeing enhancing indicators are important as they tend to contribute to the happiness of the individual as well as society.

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