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**EXPLORING THE RELATIONSHIP BETWEEN HAPPINESS, OBJECTIVE
AND SUBJECTIVE WELL-BEING: EVIDENCE FROM RURAL THAILAND**

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WeD - Wellbeing in Developing Countries ESRC Research Group

WeD is a multidisciplinary research group funded by the ESRC, dedicated to the study of poverty, inequality and the quality of life in poor countries. The research group is based at the University of Bath and draws on the knowledge and expertise from three different departments (Economics and International Development, Social and Policy Sciences and Psychology) as well as an extensive network of overseas contacts and specific partnerships with institutes in Bangladesh, Ethiopia, Peru and Thailand. The purpose of the research programme is to develop conceptual and methodological tools for investigating and understanding the social and cultural construction of well-being in specific countries.

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SUMMARY

This paper approaches well-being following the tradition of happiness in economics, where happiness and satisfaction are taken as proxies for subjective well-being. It also relates indicators of basic needs (Doyal and Gough, 1991) with happiness and domains satisfaction contributing to the reconciliation of the subjective and objective approaches to well-being.

The study draws on Thai data collected in rural communities through the Resources and Needs Questionnaire. Objective indicators of basic need satisfaction such as food shortages, chronic ill health and wealth are shown to have a significant impact on household happiness and domain satisfaction in Thailand. Perceptions of the economic position of the household in comparison with the rest of the community emerge as a key determinant of happiness and domain satisfaction. The analysis undertaken in the paper opens up the field for a further exploration of the relationship between basic needs indicators and self-reported happiness and satisfaction in poor rural communities.

Key words: objective well-being, subjective well-being, basic needs, economics of happiness, developing countries, rural Thailand

Key reading: Doyal, L. and Gough, I. (1991), *A Theory of Human Need*, Basingstoke: Macmillan.

Frey, B. S. and Stutzer, A. (2002) *Happiness and Economics*, Princeton: Princeton University Press.

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INTRODUCTION

Well-being is a broad concept ranging from subjective accounts of individuals' happiness to fulfilment or satisfaction of a given list of capabilities, functionings or needs. Two traditions have collected those apparently opposing approaches under the labels of Subjective Well-Being (hereafter SWB) and Objective Well-Being (hereafter OWB) studies. Scholars in both areas have pointed out the problems faced when trying to find the link between objective and individual's perceptions of well-being (Gasper, 2004); difficulties that have been extensively reported in happiness studies since the work of Easterlin (1974) on happiness and income.

Although income has been the objective indicator of well-being most commonly investigated by economists, there are other objective indicators that are frequently used to assess society's well-being to which attention needs to be paid. 'Normative theories of the good'¹, like the Theory of Human Need (hereafter THN) offer richer accounts of human flourishing than the ones approximated through income. They maintain that there are universal characteristics from which individuals' well-being can be assessed, and that those can be summed up in concrete and specific lists of well-being components.

The Resources and Needs Questionnaire (hereafter RANQ), developed by the Well-being in Developing Countries (hereafter WeD) Research Group, was designed to begin the exploration of the social and cultural constructions of well-being drawing from the THN among other theoretical approaches. The RANQ has been applied in several rural and urban communities within Bangladesh, Ethiopia, Peru and Thailand offering data on basic needs and SWB. This paper draws from the data of the RANQ survey in Thailand which collected information from 922 households in five rural communities, two in the South of the country and three in the Northeast during 2004.

The analysis is done at two levels, first we carry out a descriptive analysis of basic needs satisfaction in the sites and we test for correlations between basic needs indicators and SWB variables. Then a causal model is developed following the happiness studies tradition in economics (Van Praag and Ferrer-i-Carbonell 2004, Frey and Stutzer 2002, Graham 2005, Rojas 2005a etc.). We use an Ordered Probit model to study the causal relationship between socio-demographic and economic indicators, including

¹ See Clark (2002: 81-92) for a discussion on the several alternative conceptions of the good.

basic needs indicators, with self-reported happiness and life domains satisfaction.

The structure of the paper is as follows: in the first part, we present the background discussion between subjective and objective accounts of well-being as well as the debate over bridging the two approaches. Second, we introduce the survey and the socio-demographic characteristics of the respondents, the level of basic need satisfaction of the participating households² and the household head's reported level of global happiness and satisfaction with family income, family food consumption, family housing, children's education and health. Then the model used to analyse happiness and domains satisfaction is described and the results discussed. Finally, we discuss the importance of basic needs indicators in explaining individual happiness and domain satisfaction in rural Thailand.

OBJECTIVE AND SUBJECTIVE WELL-BEING TRADITIONS

What constitutes well-being is a topic for debate. There are two main distinctive approaches that, despite some attempts at reconciliation still occupy different compartments within well-being studies. Objective Well-being theories are usually supported by a list of requirements that people should have satisfied in order to lead a good life, requirements which are universal and do not vary among societies. Subjective Well-being theories base their notion of well-being on the fact that "people are reckoned to be the best judges of the overall quality of their lives, and it is a straightforward strategy to ask them about their well-being" (Frey and Sutzter, 2002:405). The superiority of either of the two approaches in capturing well-being is an ongoing debate well beyond the scope of this paper. However, it is worth highlighting some of their features since this paper explores well-being in rural Thailand drawing from the two traditions.

The OWB tradition has managed to get support with regards to the need for objective measures when assessing well-being, welfare or developmental achievements. Despite criticism of paternalism, being against differences in culture and not allowing for individuals' diversity, several scholars have produced specific lists of values or capabilities attained or possessed by individuals (Nussbaum 2000, Doyal and Gough 1991, Max-Neef 1991

² In this paper we take respondent's answers about objectives variables (like age, number of assets owned, level of education) as objective variables, acknowledging the limitations related to this type of data that is otherwise the most commonly used in household surveys.

among others) as best indicators of the goodness achieved in societies³. Moreover, OWB theorists have strongly supported the use of the information from bottom-up approaches to enrich or even adapt their universal lists to different values or societies⁴.

The Theory of Human Need by Doyal and Gough (1991) is a normative theory of well-being, which has inspired, among other theories, the Resources and Needs Questionnaire (RANQ) from which the data of this study are taken. It defines a list of needs ranked from universal goals through basic needs to intermediate needs. As universal goals they identify avoidance of serious harm, social participation and critical participation. Physical health and critical autonomy are considered the basic needs. Intermediate needs are the characteristics that human needs satisfiers have to comply with (THN ch.10) and are grouped into eleven categories: adequate nutritional food and water, adequate protective housing, non-hazardous work and physical environments, appropriate health care, security in childhood, significant primary relationships, physical and economic security, safe birth control and childbearing, and appropriate basic and cross-cultural education (Doyal and Gough, 1991: 202). Whereas needs are considered universal⁵, satisfiers depend on the culture and the society in which the individual is living. Although they recognise cultural variety in meeting needs, they do not see the identification of needs as being subordinated to cultural contexts⁶ (Gough, 2005). Following the THN, an assessment of the well-being achieved by a society or an individual could be done through indicators of objective need-satisfaction showing the level of satisfaction of the basic needs as well as the performance in terms of intermediate needs⁷.

SWB can be defined as “people’s multidimensional evaluation of their lives, including cognitive judgments of life satisfaction as well as affective evaluations of moods and emotions” (Eid and Diener 2003:65). As Diener (2002:2) points out, SWB is used as an ‘umbrella’ term referring to

³ See Des Gasper (1996,2004,2005) for a discussion on OWB and needs theories.

⁴ See Nussbaum (2000:41-50), Doyal and Gough (35-45) and Gough (2002:3).

⁵ That basic needs are universal means that if they are not satisfied the individual will suffer from some kind of objective harm.

⁶ Gough (2005:293) states that “if need satisfaction is to be optimized, all groups with knowledge about this context should have the ability to participate in research into need satisfiers and to contribute to policy making”.

⁷ The indicators of need-satisfaction should ideally be related to the *minimum optimum*, “the minimum quantity of intermediate need-satisfaction required to produce the optimum level of basic need satisfaction” (Doyal and Gough:162).

separable components: “life satisfaction and satisfaction with life domains such as marriage, work, income, housing and leisure: feeling positive affect (pleasant emotions and moods) most of the time: experiencing infrequent feelings of negative affect (such as depression, stress and anger); and judging one’s life to be fulfilling and meaningful”. In order to capture SWB, researchers usually rely on self-reported questions about happiness or life satisfaction. Thus, questions about happiness, global or domains satisfaction, self-reported adequacy of life domains, frequency of good and bad feelings, etc. are commonly included in surveys and used as indicators of SWB. Increasingly, there has been strong support in development studies for considering individuals’ account of SWB as a necessary complement to assessments done through objective indicators. It is accepted that people do not only base their behaviour on what is available to them but on what they feel about the different options or constraints that they are facing.

Relating subjective accounts of well-being and objective measures such as income, consumption or availability of housing, school or health facilities has proven to be a challenging task (Des Gasper, 2005). One of the relationships most studied by economists has been the one relating income and SWB. Regression exercises have traditionally found weak, even if statistically significant, relations between income and SWB⁸. Although people in richer countries are on average happier than people in poorer nations, differences in wealth within any given country show a small positive correlation with happiness (they only explain 2-3% of the variance in SWB between individuals⁹). Furthermore, economic growth in developed countries has not been associated with increases in SWB beyond a middle-income level over the past decades (Easterlin, 1995). These paradoxical results have been the basis for several studies enquiring into the reason for the slow increase or stabilisation of SWB measures when income rises. Frey and Stutzer (2002:414) argue that “additional material goods and services initially provide extra pleasure, but it is usually only transitory. Higher happiness with material things wears off. Satisfaction depends on change and disappears with continued consumption”. However, comparisons across countries seem to encounter strong correlations between national wealth and national average levels of SWB but those are not comparable to the results from within country comparisons, mainly due to different measurement levels and aggregation.

⁸ See Kahneman et al (1999) for a discussion of different approaches to SWB.

⁹ Ahuvia (2002:24) collecting results of the works of Ahuvia and Friedman, 1998; Andrews and Whitney, 1976; Campbell et al.1976; Clark and Oswald, 1994; Diener et al.,1985,1993; Larson,1978; Schyns, 2000.

Research on SWB in developed countries might lead to building a hypothesis about what can be found when investigating socio-economic determinants of happiness in developing countries. It would be expected that since those countries have greater poverty rates than developed ones, correlations between income or objective variables with SWB would be higher and significant. This seems to be the case in the early quality of life South African studies of Valerie Møller (2005). She collected a set of objective quality-of-life indicators as well as satisfaction questions matching the objective domains and found that correspondence between subjective assessment and objective living conditions was very strong, thus supporting her choice of just monitoring subjective well-being. Nevertheless, those are not universal findings. Low income individuals in developing countries have not always been reported to experience higher levels of satisfaction as income increases and objective conditions improve (Janakarajan and Seabright, 1999; Graham, 2005). Other factors seem again to override income and other objective indicators in their importance to raise satisfaction. Theories of adaptation have long studied this phenomenon. Martha Nussbaum, in her 2001 book *Women and Human Development*, tackled adaptive preferences following Elster (1983)¹⁰ and Sen (1999). Nussbaum argued that adaptation is a generalized phenomenon in developing countries as women get used to deprivation or constrained liberties. She exemplifies adaptation drawing on evidence from Indian women experiencing abusive marriage, discriminatory wage structure, discriminatory system of family income sharing and unhealthy or unsanitary conditions. She found that women under those circumstances internalise their situations and live their lives and make their choices in an adverse surrounding without feeling it as oppressive as it would look to an external observer or even to their eyes if they had the chance to try life with extended liberties or options. Thus, oppressed women would declare themselves to be more satisfied with their lives than an initial account of their situation through objective socio-economic measures would indicate.

Rivalry, social relationships and personal traits might play more important roles than type of house, education and health care when people in poor countries are confronted with questions on happiness or satisfaction. On one hand, Fafchamps and Shilpi (2003) show how in Nepal rivalry might

¹⁰ J. Elster (1983:25) defines adaptive preference formation as “the adjustment of wants to possibilities - not the deliberate adaptation favoured by character planners, but a causal process occurring non-consciously. Behind this adaptation there is the drive to reduce the tension or frustration that one feels in having wants that one cannot possibly satisfy”.

reverse positive feelings associated with increases of income, thus group cooperation does not lead to well-being (framing effects). On the other hand, Biswas-Diener and Diener (2001), in their study carried out in Calcutta, find evidence that a slum's dwellers do not show a much lower sense of life satisfaction than more affluent counterparts due to the importance they attach to social relationships and the satisfaction derived from them. Nevertheless, it could also happen that OWB measures do not include the variables that individuals take into account when they assess their well-being, thus reinforcing the irreconcilability of the two approaches. Carol Graham (2005) in her research on reported well-being in Latin America and Russia points out the key role of behaviour when explaining happiness. Personality traits such as optimism and self-esteem might well be behind the low explanatory power of socio-economic and demographic variables¹¹.

This paper contributes to the economics literature on happiness studies in developing countries by exploring the impact on happiness and satisfaction with domains of basic needs indicators together with subjective perceptions (like one's economic position in the community). Thus, we try to capture the social comparison component of SWB found in the above-mentioned studies.

NEEDS SATISFACTION AND SWB IN RURAL THAILAND

Data on perceptions, basic needs and the resources available to the Thai households have been collected through RANQ. The RANQ is a survey instrument designed to advance towards the understanding of how well-being is constructed in developing countries. It gathers information on:

- household resources (human, material, natural, social and cultural),
- the level of needs satisfaction by household (income, health, education, food and housing),
- long-term shocks and fortunes, social resources, etc.

Many questions are identical across the four countries of WeD (Thailand, Peru, Ethiopia and Bangladesh); others have been adjusted to each country's characteristics.

¹¹ That personality matters is a well-known finding in psychology research. Richard Ryan's empirical studies on Self Determination Theory (SDT) demonstrate that even if objective material indicators show a scenario of scarcity, individuals might report a relatively high level of subjective well-being if they manage to have their psychological needs fulfilled in a given setting (society, community, group) (Ryan, 2005).

In Thailand, RANQ has been applied in five rural sites and two urban sites. The data analysed in this paper concerns the rural sites surveyed during 2004, collecting data from 4315 individuals belonging to 922 households distributed in five sites, two in the South and three in the Northeast of the country. The characteristics of the sites are summarised in table A.1 in the appendix. Despite the communities being basically rural there are many differences with regards to their geographical and economic situation; the ones in the South being relatively prosperous compared to their Northeastern counterparts. However, within regions, access to the nearest cities determines the different speed at which the rapid transformation of the country impacts rural societies.

Most of the questions of the RANQ are at the household level, but the ones related to personal perceptions, like domain satisfaction and global happiness, were only addressed to the head of the household. Table A.2 in the appendix goes over the main characteristics of the household heads participating in the survey by community of residence. 77% of the household heads were males and most of them were middle aged, between 40 and 59. By far the main activity of the households is related to agriculture (48%), with rubber plantation being predominant in the South and rice farming in the Northeast. However, the proximity of the Northeastern community of Ban Lao to the thriving city of Khon Kaen results in a lower incidence of farming activities (19%) and a more dispersed distribution of economic activities like working in factories and construction sites. Most households are Buddhist (67%) although in the Southern sites there is a strong presence of Muslims that account for 44% of the households in Ban Chai Khao and for 75% in Ban Tha.

Basic needs satisfaction

Societies can be assessed from their success in meeting basic needs. Doyal and Gough (1991) undertake this task and compare “the three worlds” demonstrating that “objective welfare can be compared and evaluated over space and over time” (THN:268). Following their study in chapter 12 of the THN, table A.3 in the appendix shows summary indicators of individual need satisfaction for Thailand, Peru (the other middle-income country studied by the WeD research) and the average of lower-medium income countries as defined by the World Bank (2001). In terms of the two basic needs, health and autonomy, Thailand scores much higher than the average of middle-income countries. However, health services are scarce. This represents a threat to the current and potential capacity of the country

to satisfy the basic need for health care (Gough, 2000:105-130) since in 1995 there were only 0.2 physicians and 1.5 beds per 1,000 people.

With regards to needs satisfiers, the differences between urban and rural population arise. 95% of the urban population has access to safe water, compared to 81% of the rural population. The poverty rate (13.1%) is again lower compared to other middle-income countries, yet 32.5% of the population remain below the \$2 a day poverty threshold set by the World Bank.

Table 1 offers a description of the level of basic needs satisfaction in the five Thai rural sites where RANQ was applied.

Table 1. Basic Needs satisfaction: Rural households in Thailand, 2004

Basic Needs satisfaction in Rural Thailand	South		North East			Average of five sites
	Ban Chai Khao	Ban Thung Nam	Ban Lao	Ban Dong	Ban Tha	
Health						
Chronic illness						
% of the population affected	16%	18%	20%	19%	19%	18%
% of the households affected	10%	22%	14%	18%	16%	16%
Major disability						
% of the population affected	1%	3%	1%	2%	3%	2%
% of the households affected	6%	12%	6%	8%	12%	8%
Education						
Illiteracy ¹	6%	8%	2%	17%	2%	8%
Non formal ¹	2%	3%	1%	2%	1%	2%
Primary ¹	43%	54%	69%	53%	76%	55%
Secondary ¹	31%	22%	22%	23%	19%	24%
Higher education ¹	10%	5%	6%	1%	2%	6%
Housing						
Electricity ²	99%	99%	100%	95%	99%	98%
Clean water ²	84%	82%	97%	97%	91%	89%
Sanitation ³	96%	89%	100%	83%	99%	92%
Piped water ²	53%	21%	96%	84%	97%	61%
Food						
Food shortages ⁴	8%	11%	43%	64%	39%	29%
Connections						
Kin and fictive kin ⁵	98%	92%	100%	99%	99%	97%
Local community ⁶	43%	33%	85%	81%	82%	59%
Wider world ⁷	53%	61%	56%	55%	72%	57%
Wealth						
Asset Index (average score) ⁸	3.5	2.77	2.61	2.02	2.48	2.76
Long term shocks						
Too much rain or flood ²	50.8%	37.6%	-	5.6%	62.7%	29.7%
Serious illness of family members ²	10.0%	8.4%	8.3%	11.1%	7.5%	9.3%
Accident/severe injury ²	6.8%	4.4%	14.0%	6.1%	11.9%	7.6%
Total households ²	250	250	157	198	67	922

Source: RANQ-Thailand (2004), WeD Research Group, University of Bath, UK.

1 % of the population affected

2 % of the households affected

3 % of households with flush toilet or improved pit latrine

4 % of households suffering from food shortages during last year

5 % of households spending time with relatives in the previous week

6 % of households participating in any collective activity in the community in the last year

7 % of households staying more than 1 night in other communities during the last year

8 see appendix for a description of the index

Illiteracy is still a problem in rural Thailand, the rate being twice that of the population as a whole (8% compared to 4%). However, it is unevenly spread, with the two towns in the South showing figures around 7%, the two Northeastern well-connected sites an average of 2% and the remote community of Ban Dong 17%. The bulk of the sample has primary schooling and the Southern communities present higher percentages of population with some sort of higher education. However, proximity to bigger cities arises as an important factor explaining Ban Chai Khao and Ban Lao's superior regional higher education rates.

The high rate of chronic illnesses in rural Thailand shows the deficiencies identified at the national level. 18% of the population in the villages report suffering from a chronic illness, the most common being joint and muscle pain, diabetes, hypertension, allergies and heart disease. Clean and available water stands out as a difficulty for Southern rural households. On average they have less access to clean water (15% of households do not have access) and to piped water (only 51% have access in Ban Chai Khao and 21% in Ban Thung Nam¹²).

Households suffering from food shortages are common in the Northeast. In the relatively isolated town of Ban Dong, 64% of households reported food shortages during the last year. Most shortages are of staple food, lack of vegetable proteins, animal proteins and vegetables/fruit is less common¹³. Divergences between the two regions could be related to the differentiated capacity of households to balance a bad harvest.

When it comes to approximate material wealth or income, RANQ data can be used to generate different indicators. The instrument does not collect data on income or consumption but it provides a quite thorough account of assets owned by the household. Asset ownership data has often been used to generate wealth indexes. However, since those kinds of indexes include variables that are also basic needs indicators, like housing characteristics (electricity, clean water, sanitation, etc.) and education level, among others, they are not a feasible option for our study. An alternative to a wealth index is the construction of an indicator of consumption or income through data on consumer durables ownership. The later has been the option taken in this

¹² Jongudomkarn (2004:6) reports that in Ban Tung Nam "villagers that do not have tap water rely on ground water. Unfortunately, when the dry season comes, these villagers encounter a shortage of water because the ground water takes on an offensive smell and they are obliged to buy bottled water for drinking"

¹³ 24% households suffer from lack of staple food, 10% vegetable proteins, 9.6% animal proteins and 9.2% vegetables and fruits.

paper¹⁴ and shows, as expected, how Southern rural households are richer in terms of asset ownership than their Northeastern counterparts, thus making it easier for them to draw from their own resources to compensate for a bad farming season, among other possible shocks (see table A.5 in the appendix).

Despite the relatively high level of labour migration (11% travel beyond nearby areas to work), family networks are very strong in rural communities with 97% of the households spending time with relatives during the week prior to the survey. The importance of family relations was clearly underlined in the results of the pilot study in Phase 1 of the WeD Quality of Life study since it was the most cited area by participants as being important for a good life. Local community involvement shows very high figures in the Northeast. However, this is not representative of active participation in the community but of compulsory enrolment in groups such as the village burial/cremation group. The Southern sites show a more heterogeneous wealth of community groups, from savings groups, rubber buying groups and agricultural demonstration groups to housewife groups. Ban Thung Nam has the lowest percentage of households involved in community activities due to the weak links between the Muslim and the Buddhist communities in the village (Jongudomkarn and Camfield, 2005).

Happiness and domains satisfaction

Subjective well-being has been collected in RANQ through two different types of questions addressed to the household head¹⁵: global happiness and satisfaction with life domains. Happiness was investigated through a three-point scale question asking "Taking all things together, how would you say things are these days? Would you say you are: very happy, fairly happy, not too happy". Satisfaction was worded in terms of adequacy of children's education, family health care, family housing, family food consumption and family's total income also using a three-point scale¹⁶.

Satisfaction questions were placed after the interviewee had answered questions about objective issues for every domain (for instance food shortages were talked through before the household head was enquired

¹⁴ See appendix for a more detailed description of the index.

¹⁵ It should be noted, as mentioned before, that most household heads were men, middle-aged and Buddhist. Whether those characteristics have any impact on levels of satisfaction and happiness will be investigated in the second part of the paper.

¹⁶ A discussion about the validity of the scales used in happiness studies can be found in Cummins (2003).

about his/her satisfaction with family food consumption). This allowed for previous reflection on the household situation regarding each domain before appraising their satisfaction levels. However, the happiness question appeared right after the question on household deaths. 4% of the households had a deceased member during the year before the interview so we would have expected little impact on the happiness question. However, a Pearson Chi square test showed that there is a weak but significant association between the responses to the two questions (deaths in the households and global happiness) with a significance level of .05. Therefore, we can expect that the happiness question has been somehow influenced by the previous question on household deaths. Further qualitative research of WeD will shed light on this particular issue.

Table 2 shows the results in percentages by site. Most household heads declare themselves to be fairly happy (76%) whilst only a minority state that they feel very happy (5%) and nearly 20% of the household heads affirm to feeling not too happy¹⁷. Again, differences between regions stand out, Northeastern households being on average unhappier and more dissatisfied. The unhappiest households are in Ban Dong with 33% of the household heads declaring to be 'not too happy'. Children's education is the most unsatisfactory domain for all sites (78.6%), followed by total income (54.1%), family housing (42.6%), health care (33.4%) and food consumption (18.8%). Ban Dong is again the most dissatisfied community by far, with 84.7% of households dissatisfied with children's education, 79.1% with total income, 66.3% with family housing, 51.8% with family's health care and 42.6% with food consumption. This remote community in the Northeast showed the lowest level of basic needs satisfaction and showed the highest proportion of illiterates, highest incidence of food shortages and lowest level of wealth. Moreover, this was a politically active community engaged with the Thai Communist party until its fall in 1980, which has left a feeling of inequality in access to government services contributing to an overall feeling of dissatisfaction (Jongudomkarn and Camfield, 2005).

Before undertaking the study of happiness and satisfaction determinants, some correlation analyses were run in order to sketch basic associations between subjective and key objective variables. A simple correlation analysis showed a high Pearson Chi-square for happiness and the asset index at a significance level lower than .001 for both regions. In the exploratory Quality of Life research with a sub-sample of RANQ, income

¹⁷ The distribution of happiness in the survey is not very different from the general findings in the literature (Veenhoven, 1992; Diener and Biswas-Diener, 2002; Rojas, 2005b).

and having money appeared as the third important area of people's lives after family relationships and health. In rural Thailand, money is related to survival, to basic needs satisfaction and to feelings of personal worth¹⁸ (Jongudomkarn and Camfield, 2005). Those underlying motives for wanting money have been empirically proven to be positively related to SWB since they reflect meeting life necessities and using money as a measure of market worth and achievement in life (Srivasta et al. 2001).

With regards to domain satisfaction, Chi square statistics showed a significant strong association (at a level of significance lower than .001) between satisfaction with income and asset index and satisfaction with food consumption and food shortages for all the sites in both regions. These results confirmed the relationship between key objective indicators of basic and intermediate needs (food shortages and level of wealth) and subjective indicators of well-being (reported satisfaction with food and income) in poor rural settings. Associations between health care and chronic illness were only significant for the Southern sites (level of significance below .05) where people in general are more satisfied with their health services.

¹⁸ "Middle aged participants reported the greatest financial problems as not having enough money caused difficulties in their families, required them to work very hard, meant they could not afford the necessary materials for their farms and could not provide higher education or an inheritance or their children (...) Lack of money kept older participants working harder than they should have been at their age and deprived them of contact with their offspring who were supporting their families by working away from home and could not afford to return" (Jongudomkarn and Camfield, 2005:16).

Table 2. The overall percentage of Respondents by category of subjective well-being: Rural households in Thailand, 2004

	South		North East			Average of the five sites
	Ban Chai Khao	Ban Thung Nam	Ban Lao	Ban Dong	Ban Tha	
Happiness (average)						
Very happy	5%	5%	6%	4%	3%	5%
Fairly happy	88%	79%	71%	63%	70%	76%
Not too happy	6%	16%	22%	33%	27%	19%
Total (number)	248	250	157	197	66	918
Satisfaction with children's education						
Not adequate	76%	83%	71%	85%	68%	79%
Just adequate	23%	16%	29%	15%	30%	21%
More than adequate	0%	0%	-	-	2%	0%
Total (number)	213	229	150	190	63	845
Satisfaction with family's health care						
Not adequate	26%	30%	29%	52%	30%	33%
Just adequate	73%	69%	71%	48%	65%	66%
More than adequate	1%	1%	-	1%	5%	1%
Total (number)	233	250	157	193	66	899
Satisfaction with family's housing						
Not adequate	26%	36%	52%	66%	37%	43%
Just adequate	64%	57%	48%	33%	63%	53%
More than adequate	10%	6%	-	1%	-	5%
Total (number)	250	249	155	196	67	917
Satisfaction with family's food consumption						
Not adequate	4%	12%	24%	43%	19%	19%
Just adequate	94%	83%	76%	55%	75%	78%
More than adequate	3%	5%	1%	2%	6%	3%
Total (number)	250	250	157	197	67	921
Satisfaction with family's total income						
Not adequate	30%	47%	69%	79%	61%	54%
Just adequate	65%	51%	29%	20%	30%	43%
More than adequate	4%	2%	1%	1%	9%	3%
Total (number)	249	249	156	196	67	917

Source: RANQ-Thailand (2004), WeD Research Group, University of Bath, UK.

Moreover, association between house satisfaction and piped water was only significant for the Northeastern villages where 90% of the households have access to this facility. Those traits might indicate either the importance of social comparison when answering the satisfaction questions or adaptation to a reduced set of opportunities in the most domain-deprived regions. Finally, community involvement and happiness is only significant in the Southern sites where participation is lower, aiming at particular economic problems (credit, rubber sales, agriculture pressure groups and others). Causal relationships exploring the impact of basic need indicators on subjective reports of well-being will be exposed hereafter.

HAPPINESS AND SATISFACTION DETERMINANTS IN RURAL THAILAND

Modelling Individual Perception: A Choice Model

Some caution is required when carrying out an empirical analysis of subjective well-being using regression analysis due to the small percentage of variation of SWB measures explained by socio-economic-demographic variables (Graham, 2005) and the issue of causation (Diener, 2002). As Frey and Stutzer posit (2002:66) “the causality does not necessarily go from the factors just mentioned to happiness, but may run in the opposite direction. Thus good health does not only cause happiness, but happy people also tend to be in better health. As with the selection effect, it is necessary to collect additional evidence in order to ascertain the direction of causation”. Acknowledging the relevance of the previous debates, we follow the tradition of happiness in economics considering that socio-economic variables affect utility which is approximated by happiness and self-reported subjective wellbeing. We expect that further insights into the causality issue will be provided by WeD’s Quality of Life research currently undertaken in Thailand.

In this paper the causal relationships between the socio-economic and demographic variables of RANQ and the SWB indicators are analyzed through an ordered Probit model which is designed to model the choice between discrete alternatives¹⁹ and has been applied extensively in previous economic studies (Ferrer-i-Carbonell and Frijters, 2004). In general, it is assumed that there are N individuals ($i = 1 \dots N$), with a vector

¹⁹ In addition to the ordered probit model, a probit model of the selected regression was also estimated. The results were quite similar using both models.

x_{ki} containing observations on K independent variables that explain individuals' perception of happiness and life domain satisfaction.

The empirical specification is formulated in terms of a latent response variable, y_i^* , which depends on individual perception and is defined by the following structural equation:

$$y_i^* = \sum_{k=1}^K \beta_{ki} x_{ki} + e_i \quad e_i \sim NID(0,1) \quad (1)$$

where:

- i : The surveyed individual
- x_{ki} : Independent variables that explain the individual's perception
- β_k : Parameter that indicates the effect of x_k on y_i^*
- e_i : A normally distributed independent error term for household i

Let y_i be a discrete random variable whose value ranges from 1 to 3. The happiness question's categories are "not too happy", "fairly happy" and "very happy". Similarly, for the life domain satisfaction questions, the following categories are considered: "not adequate", "just adequate" and "more than adequate". Therefore, the ordered probit model with 3 alternatives is defined as follows:

$$y_i = \begin{cases} 1 & \text{if } y_i^* < d_1 \\ 2 & \text{if } d_1 \leq y_i^* < d_2 \\ 3 & \text{if } d_2 \leq y_i^* \end{cases}$$

Where $d_1 < d_2$

The parameter d is called "threshold parameter". The model is estimated using maximum likelihood estimation.

Following the definition from equation (1), the empirical models uses the following exogenous variables.

Exogenous variables

It is important to note that we do not have measures of the personality traits (e.g. extroversion and neuroticism) that have been studied in psychological research (Schimack et al.,2002 in Camfield, 2004) and found to be very important determinants of life satisfaction scores. Thus well-being might be determined by personality traits which would explain why a model based mainly on objective socio-economic measures has a limited explanatory power. Bearing in mind those limitations, the proposed set of exogenous variables available from the RANQ are organised as follows:

- a) Personal characteristics of the household respondent such as age, gender, sex, level of education, marital status, religious membership, number of children and location according to region were considered.
- b) Objective well-being variables are related to the satisfaction of basic needs. For housing characteristics, the variables considered are access to good drinking water, electricity and sanitation. For health care service, the chosen variables are: presence of any household member suffering from chronic ill health; presence of persons suffering from major disability; presence of persons injured and unable to perform usual daily activities in the last 12 months; presence of persons who suffered from illness or injury in the two weeks before the interview and who sought treatment in a government institution. Additionally, presence of any household member receiving vaccination was included. In relation to education, variables such as level of education of children currently attending to school, type of school, location of school, mode of transport used and time to reach school were taken into account. In addition to that, family food condition is taken into account when the household has suffered any shortage of staple food, vegetable, fruit, vegetable protein and/or animal protein during the last 12 months. Long term shocks were also included to capture the unexpected events that led to significant changes in asset holdings, household income or consumption in the last 5 years.
- c) Using the information about perceptions of relative position in relation to other households in the community allowed the ranking of the households in rich, average and poor households. This ranking was supported by fact that perceptions of relative position were

strongly associated with the asset index (level of significance lower than .001). The subjective information on self-evaluation of current family's total income when comparing with its total income five years ago, enabled classification into two main groups: income better and income worse than five years ago; having as a reference group those who said that their income was the same.

- d) Social resources variables consisted of connections to the community expressed as household member participation in local institutions or in any form of collective community activity. Connections to the wider world were captured through the presence of a household member visiting outside the community and the identification of household access to mass media for finding out information about events in the capital city or elsewhere in the country.

Therefore, the empirical model to be estimated is represented as:

$$Y^* = F(\text{Household characteristics, Household head characteristics, basic needs, objective indicators, perception variables, social resources})$$

where the dependent variable, Y^* , is defined to take the values of 1, 2 or 3.

Table 3 contains the description and descriptive statistics of selected variables for the full sample of 922 rural households.

Table 3. Descriptive data

Variable	Description	Obs	Mean	Std. Dev.	Min	Max
Household Head Characteristics						
age	Age of head of household in years	921	50.147	14.534	21	89
ageage	Age in years squared	921	2725.691	1549.474	441	7921
dumyageg	Age dummy. 1 if head aged 40-59. (Reference group aged 20-39)	922	0.462	0.499	0	1
dumyag_a	Age dummy. 1 if head over 60	922	0.275	0.447	0	1
sex	Gender dummy. 1 if head of household is male	921	0.767	0.423	0	1
married	Marital status dummy. 1 if head of household is married	922	0.831	0.375	0	1
dumyrel	Religion dummy. 1 if head of household is Buddhist	922	0.663	0.473	0	1
yearseduc	Years of education of head of household	922	4.466	3.243	0	14
dumyact	Dummy variable. 1 if head of household takes part in farm activities	922	0.621	0.485	0	1
labourhe	Employment status dummy. 1 if head of household is self-employed	917	0.549	0.498	0	1
Household Characteristics						
familysi	Number of household members	922	4.680	1.910	1	16
numkids	Number of children	909	3.557	2.531	0	17
region	Location dummy. 1 if household is located in the South region	922	0.542	0.498	0	1
Basic Needs Objective Indicators						
foodshor	Dummy variable. 1 if household faced food shortage the last 12 months	922	0.289	0.453	0	1
goodshous	Household access to water, electricity and sanitation. Values from 0 to 3	922	2.793	0.446	0	3
dwater	Dummy variable. 1 if household has a private piped water	922	0.615	0.487	0	1
houcroil	Dummy variable. 1 if household members suffer from chronic ill health	920	0.565	0.496	0	1
vaccine	Dummy variable. 1 if household members have taken vaccination	922	0.352	0.478	0	1
majorfsyn	Dummy variable. 1 if household members have major disability	922	0.085	0.278	0	1
injuryea	Dummy variable. 1 if household member has been injured/ill that he/she was unable to perform usual daily activities in the last 12 months	922	0.364	0.482	0	1
treatgov	Dummy variable. 1 if household member suffered from illness/injury in the last 2 weeks and sought treatment in a government institution	922	0.269	0.444	0	1
aindex	Asset index. Values from 1 (lowest) to 6 (highest)	915	2.758	1.422	1	6
dumyshoc	Dummy variable. 1 if household faced a shock in the last 5 years	922	0.637	0.481	0	1
injuryea	Dummy variable. 1 if children are currently attending to primary school	922	0.364	0.482	0	1
childpri	Dummy variable. 1 if children are currently attending to primary school	922	0.113	0.317	0	1
govshoo	Dummy variable. 1 if children are attending to government school	922	0.167	0.373	0	1
whereduc	Dummy variable. 1 if school is located in the village	922	0.102	0.303	0	1
traneduc	Mode of transport dummy. 1 if children walk to school	922	0.064	0.245	0	1
timeeduc	Time dummy. 1 if children take less than 30 minutes to reach the school	922	0.202	0.402	0	1
dumyshoc	Dummy variable. 1 if children take less than 30 minutes to reach the school	922	0.637	0.481	0	1
Perception Variables (dummy variables)						
Happy	Perceived happiness. Values from 1 to 3	918	1.861	0.469	1	3
Childeducat	Perceived satisfaction with children's education. Values from 1 to 3	845	1.218	0.421	1	3
Healthfam	Perceived satisfaction with family's health care. Values from 1 to 3	899	1.678	0.491	1	3
Housing	Perceived satisfaction with family's housing. Values from 1 to 3	917	1.621	0.574	1	3
Food	Perceived satisfaction with family's food consumption. Values from 1 to 3	921	1.843	0.440	1	3
Income	Perceived satisfaction with family's total income. Values from 1 to 3	917	1.489	0.554	1	3
dumyrich	Household compared with village. 1 if is rich, control group is poor	922	0.132	0.339	0	1
dumyaver	Household compared with village. 1 if is above average	922	0.411	0.492	0	1
better5years	1 if household income is better than five years ago.	922	0.386	0.487	0	1
worse5years	Control group: the same income 1 if household income is worse than five years ago.	922	0.311	0.463	0	1
Social Resources (dummy variables)						
communit	1 if household members take part in community organisation	922	0.586	0.493	0	1
outact	1 if household members made visits outside the community the last year	922	0.574	0.495	0	1
media	1 if household uses mass media to know events in the capital or elsewhere	922	0.957	0.204	0	1

Discussion of Results: Determinants of happiness

The results of the ordered probit model, including parameter estimates, corresponding z-statistics are given in Table 4. Those findings are discussed according to the classification of the exogenous variables presented above.

In analysing fit measures for the selected models, it is noted that the model is significant with a likelihood ratio test of the hypothesis that the coefficients are zero based on a chi-squared value. Alternatively, other measures can be estimated based on the likelihood values. Among these, McFadden R^2 and Pseudo R^2 are 0.11 and 0.13, respectively²⁰. These results are reasonable since that goodness of fit is typically fairly low for discrete choice models (Verbeek, 2000).

²⁰ Both goodness-of-fit measures are defined as follows (Verbeek, 2000):

$$McFaddenR^2 = 1 - \text{Log}L_1 / \text{Log}L_0,$$

$$PseudoR^2 = 1 - \frac{1}{1 + 2(\text{Log}L_1 - \text{Log}L_0) / N},$$

where N denotes the number of observations, $\text{Log}L_1$ is the maximum likelihood value of the model of interest and $\text{Log}L_0$ is the maximum value of likelihood function when all parameters, except the intercept, are set to zero.

Table 4. Determinants of Happiness in Rural Thailand

	Coef.	z
Household head Characteristics		
age	-0.043	-1.94
ageage	0.000	1.74
sex	0.168	1.28
married	-0.052	-0.33
dumyreli	-0.156	-1.24
yeareduc	0.011	0.65
labourhe	-0.083	-0.88
Household Characteristics		
numkids	-0.035	-1.70
region	0.179	1.18
Basic Needs		
foodshor	-0.127	-1.10
houcroil	-0.155	-1.67
aaindex	0.085	2.23
dwwater	-0.028	-0.25
dumyshoc	-0.126	-1.33
Perception Variables		
dumyrich	0.812	5.00
dumyaver	0.327	2.92
better5years	0.122	1.09
worse5years	-0.216	-1.90
Social Resources		
communit	0.086	0.81
/cut1	-1.943	
/cut2	0.890	
Number of observations	893	
LR Chi ²	138.57	
Prob > chi ²	0	
McFadden R ²	0.1149	
Pseudo R ²	0.1343	
Log likelihood	-533.8374	

Determinants of happiness section

Household characteristics

With regards to household head characteristics, age, age-squared and number of children are the only significant variables²¹. Self-reported happiness in rural Thailand is affected negatively and significantly by age. Empirical studies using the age variable exhibit contradictory findings. Some studies find that older people's happiness is higher than younger people's whilst other studies find a negative relationship between happiness and age²². What seems to be uncontested is that when controlling for health and other factors, the young and the old are happier than the middle-aged (Frey and Stutzer 2002:54).

When age-squared is included in the model, it shows that happiness is first decreasing and then increasing with age. Rural Thais have the lowest level of predicted happiness at age 61. Studies including the age-square variable do not always support the trend found in this work; Easterlin (2004) using USA longitudinal data found that happiness increases with age until 48 and then starts to decrease.

Gender (being male is the reference group), marital status, religious beliefs, year of education and labour category are not significant variables in explaining self-reported happiness in rural Thailand. Those variables were incorporated because they are usually included in happiness studies and tend to be significant in explaining people's happiness. For instance, with regards to gender, Frey and Stutzer (2002:54) report that women seem to be happier than men although differences are not substantial. In the case of marital status, Diener et al. (1999) reports that married people on average are happier than unmarried people. This was not the case in our study and could be related to problems of drunkenness and financial abandonment (Jongudomkarn and Camfield, 2005).

Education and happiness are usually unrelated when controlling for income as posited by Frey and Stutzer (2002:54). This was also the case in rural Thailand when controlling for asset ownership. Generally, religion seems to positively contribute to happiness (Frey and Stutzer 2002:59). However, in our study of rural Thailand there was no significant relationship with happiness. This could be because we were exploring the effect of being

²¹ Age is significant at the 0.05 level and age squared and number of children at the 0.10.

²² Ferrer-i-Carbonell and Frijters (2004) discuss those findings taking into account whether the happiness variable is ordinal or cardinal and the econometric methods used.

Buddhist or Muslim on happiness, rather than being religious or not (as was the case with Frey and Stutzer, 2002). Type of job tends to have a different kind of impact on happiness depending on the country investigated (Graham and Pettinato, 2002). When exploring the role of labour category on happiness in rural Thailand using a dummy variable to represent the household's head occupation (being self-employed = 1), we found there was not a significant relationship with happiness. This runs contrary to Jongudomkarn and Camfield's (2006:16) claim that participants perceived paid labour and working in the rice fields as jobs that worsened their Quality of Life. A further refinement of the measurement of type of job should deem significant results.

Basic needs indicators

When analysing basic needs variables, only the asset index had a strong direct relationship with happiness (level of significance of 0.01). That the household has access to more status-related durable consumer goods seems to be an important factor in explaining individual's happiness in rural Thailand (see appendix for details on how the index is constructed). The presence of household members with chronic ill health has a negative relationship with happiness, following the results of most happiness studies. However, in this work it does not come as being highly significant (level of significance of 0.10).

Other indicators of basic needs satisfaction were revealed as not being significant: shortage of staple food experienced by the household during the last 12 months at the time of survey, experience of shocks in the last 5 years and access to private piped water (a proxy variable for housing conditions). The lack of significance of those variables follows previous literature that finds weak connections between OWB indicators and happiness. A wealth of explanations for this apparent paradox can be found in Gasper (2005), one of them being adaptation to one's circumstances or fate which is widely discussed in Nussbaum (2005).

Perception variables and social resources

Perception variables, denoting social comparisons, exhibit a positive and highly significant relationship with self-reported happiness (level of significance 0.01). Households that consider themselves better-off or average with regards to their community are happier than self-reported poor households. Households who perceived themselves as rich also show a

higher score in the asset index²³ indicating that people in our sample interpret being rich in material terms. As expected, household perception that its family's total income, at the time of the survey, was worse than five years ago shows a negative and significant effect on happiness (level of significance 0.5).

Finally, social capital variables such as connections and participation in local groups appeared to have no impact on happiness.

Discussion of results: determinants of life domains satisfaction

This section discusses the main findings of the life domain satisfaction regressions. As stated above, five domains are analysed. Table 5, below, presents the regression results for the domain satisfaction. The null hypothesis that the coefficients are zero can be rejected since the Likelihood ratio test shows that each selected model is highly significant.

Household head characteristics

Not all household head characteristics are significant for every domain. For instance, age (that here is a grouped variable, see table 3) is only positively significant for satisfaction with family's housing and family's income. Gender and marital status are not significant variables for any life domain whilst being a Buddhist only has a positive effect on children's education satisfaction²⁴. Years of education also display a positive impact and they are statistically significant for satisfaction with children's education, family's health care and family's income. For this last domain, more educated household heads are more satisfied with their income which signals a direct and strong relationship between human capital and income.

²³ The Pearson Chi-square value is above 40.000 for the two regions with a level of significance less than .001.

²⁴ This is consistent with Jonguomkarn, D. and Camfield L. (2005) findings on different types of education within religious communities and job opportunities showing that Muslim religious schools are not recognised in Thailand making it difficult for young graduates to find a job.

Table 5 Determinants of Life Domain Satisfaction in Rural Thailand

Dependent Variables	Satisfaction with Children's Education		Satisfaction with Family's Health Care		Satisfaction with Family's food Consumption		Satisfaction with Family's housing		Satisfaction with Family's Income	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Household head Characteristics										
dumyageg	-0.037	-0.28	0.039	0.33	-0.090	-0.70	0.205	1.90	0.167	1.47
dumyag_a	-0.011	-0.07	-0.089	-0.58	-0.225	-1.43	0.498	3.78	0.249	1.81
sex	-0.046	-0.32	-0.117	-0.88	0.104	0.73	-0.094	-0.79	0.052	0.41
married	0.013	0.08	-0.174	-1.10	0.049	0.29	0.021	0.15	-0.212	-1.44
dumyreli	0.258	1.83	-0.034	-0.27	0.151	1.03	0.031	0.27	-0.051	-0.44
yeareduc	0.037	2.05	0.031	1.91	0.014	0.79	0.011	0.73	0.051	3.26
labourhe	-0.087	-0.84	0.142	1.52	-0.153	-1.48	0.233	2.72	0.063	0.71
Household Characteristics										
Familisize	-0.073	-2.22			-0.029	-1.09	-0.114	-4.86	-0.061	-2.51
numkids			-0.038	-1.90						
region	0.011	0.08	0.325	2.40	0.622	3.81	0.642	5.53	0.621	5.30
Basic Needs										
aaindex	0.019	0.45	-0.008	-0.23	0.077	1.77	0.098	2.88	0.073	2.09
childpri	-0.576	-2.49								
govschoo	0.499	2.20								
whereduc	-0.212	-0.85								
traneduc	0.072	0.28								
timeeduc	-0.085	-0.40								
vaccine			0.004	0.04						
hhchronic			-0.421	-4.46	0.014	0.14				
majdisyn			-0.226	-1.43						
injuryea			-0.225	-2.36	-0.276	-2.66			-0.135	-1.49
treatgov			-0.190	-1.83						
goodhouse					0.131	1.19	0.163	1.69		
foodshor					-0.668	-5.48				
Perceptions Variables										
dumyrich	0.585	3.58	0.570	3.67	1.007	5.40	0.657	4.69	1.155	8.00
dumyaver	0.145	1.17	0.309	2.86	0.573	4.53	0.331	3.35	0.625	6.02
Social Resources										
communit			0.138	1.30	0.194	1.62				
outact					0.258	2.57				
media					0.312	1.30				
/cut1	0.912		-0.622		0.350		0.909		0.982	
/cut2	3.069		2.412		3.873		3.102		3.152	
Number of observations	835		874		907		905		906	
LR Chi ²	53.93		111.99		250.62		191.23		247.92	
Prob > chi ²	0		0		0		0		0	
McFadden R ²	0.0608		0.0933		0.2276		0.1249		0.1722	
Pseudo R ²	0.0607		0.1136		0.2165		0.1744		0.2149	
Log likelihood	-416.639		-544.49213		-425.2032		-669.7127		-595.9746	

Household characteristics

Regarding household characteristics variables, Southern households exhibit higher satisfaction in all domains, except children's education where the relationship is not significant. Those findings are in line with the known differences between Muslims and Buddhists found above given that Muslims are concentrated in the Southern sites. The number of household members or the family composition expressed as the number of children are strongly and negatively associated with all the life domains.

Basic needs indicators

With regards to objective indicators of basic needs, having children currently attending primary school displays a significant negative statistical impact on satisfaction compared to other educational levels. This suggests that household heads would be more satisfied when their children are attending secondary school. Concerning the type of education facility, it is found that having children attending government schools has a positive impact on education satisfaction. However, location of the educational facility, the mode of transport used to attend school, mainly walking, and the time required to reach the educational facility, being less than 30 minutes, are not significant variables

In relation to satisfaction with family's health care, the presence of household members suffering chronic illness, major disabilities or seriously injured during the last 12 month has an important negative effect on self-reported satisfaction with health care.

Individuals injured or ill during the 2 weeks prior to the interview and who sought a treatment in a government institution would be less satisfied than individuals who used another source of health care, showing the deficiencies already identified in the Thai health care services. Health related variables such as the presence of persons who have been so badly ill/injured that they were unable to perform usual daily activities have a negative impact on food satisfaction. Predictably, household experience of food shortages also affects negatively family's food satisfaction.

Turning to the results of housing satisfaction, as expected, having electricity, water and toilet facilities show a positive impact on housing satisfaction, confirming again a strong and positive relationship between basic needs indicators and SWB.

The material wealth variable, measured by an asset index, shows a positive and significant relationship with all domains, with the exception of satisfaction with children's education and family's health care. This finding could be explained by the limited choices offered in terms of health and education facilities other than the public ones.

Perception variables and social resources

Perception variables show how households identifying themselves as better off and above average are more satisfied with all the domains than poor households, which is in line with the findings in the happiness regression and with material indicators of wealth such as the asset index. However, perceptions are stronger than the later since they are significant for all domains. This may indicate that perception variables can be capturing participants' optimistic or pessimistic approaches to life. As Graham (2005:15) posits 'it is likely that both happiness and perception variables are picking up similar character traits, such as optimism and self esteem'.

Social resources variables such as participation in local institutions, connections to the wider world such as travels outside the village and access to information from the capital city and elsewhere appear to be positively related to food consumption satisfaction. This could be a sign of the importance of networks in order to access food in times of need.

DISCUSSION AND CONCLUDING REMARKS

Des Gasper (2004) offers a set of options for research when dealing with discrepancies between reported SWB and OWB indicators. One of them would be giving priority to OWB because people might not know what it is good for them. However as Clark (2002:103) points out in his South African study, after having evaluated the potential presence of "false consciousness" in his respondents' account of what makes a good life: "Most of the people interviewed – despite often lacking formal education – had clear ideas about the things their lives lacked and the problems facing their community, not to mention the things they wanted the authorities to do about it". This seems to be the case in rural Thailand, and what makes people happy and satisfied is not far from what an assessment of their situations following the normative theory of basic needs would imply. Satisfiers are obviously diverse and different across cultures, but the underlying basic and intermediate needs appear to have an impact in people's self-reported happiness and satisfaction.

This paper has shown that the level of fulfilment of some intermediate needs has a significant impact on satisfaction and happiness. In particular, there are lower levels of satisfaction where basic needs are not being met. For example, households with high number of people affected by chronic illness, major disability or serious injuries report low levels of satisfaction with health care. Similarly, electricity, clean water and toilet facilities have a positive impact on house satisfaction. Food shortages emerge as a significant factor explaining low levels of food satisfaction. The extent to which a household is satisfied with its level of income is strongly related to how it perceives its wealth status relative to others.

Community involvement as a proxy of social resources was expected to be an important variable in explaining happiness and satisfaction. However, this was not the case as it only showed a low effect in explaining family's food consumption.

Social comparison²⁵ arises as an important factor when people assess their happiness or satisfaction with domains. Individuals who feel richer than the average report higher levels of happiness, higher satisfaction with food, health, education, house and obviously income. Since perceiving the household as 'the richest in the community', 'amongst the richest in the community' and 'richer than most households in the community' is associated with the asset index, households that perceive themselves as better-off also have greater access to resources that can reverse institutionally deficient situations like lack of education, health and water infrastructures, and incidence of food shortages.

Income as such has not been collected in the RANQ, although it will be collected in a second questionnaire administered a year into the project when greater rapport has developed between researchers and respondents. The question about access to assets is the closest indicator we can get from the questionnaire. There are many limitations to the use of this measure as a proxy for income since assets denote stock and income as a flow measure. However, the asset index gives some insight into the material wealth of the households in qualitative terms. From the Quality of Life study in Thailand, it is known that rural households give importance to money with regards to the impact it has in meeting their basic needs. As their motives for wanting possessions are not

²⁵ The robustness of this relationship was tested when the regressions presented in table 4 and 5 were re-run without the asset index, an objective measure of wealth. The new estimation confirmed the significance of the social comparison variables since there was an increase in both their coefficient values and their level of significance. However the Pseudo-R² is lower than for the regression with asset index and perception variables, which justifies the inclusion of the asset index in the final regressions.

extrinsic (status, display) but intrinsic (need satisfaction) material wealth is more likely to enhance their SWB (Ryan, 2005). This is what we obtain in our results, since the asset index is shown to have a positive impact on households' happiness, income, housing and perceived food satisfaction.

To sum up, rural Thailand shows some deficiencies in basic needs satisfaction: high incidence of chronic illnesses²⁶, scarce and unevenly available water, higher degree of illiteracy and food shortages. All those variables have a negative impact on the satisfaction within the respective domains. With regards to global happiness, chronic illnesses, economic deprivation and long term shocks also show a significant impact. Finally, perception of one's relative economic position within the community seems to suggest the importance of social comparison. This has been proven to override objective measures in several studies carried out in western societies (see Layard, 2005).

More work needs to be done in the exploration of most of those relationships and causalities. Information about income and expenditures is key to producing a more accurate assessment of material well-being in those areas. Also, investigating the extent to which social comparison overrides the objective poverty of the households needs to be clarified. However, this study may still shed light on the debate between OWB indicators and subjective assessments of well-being. Supplementing the universal THN with local accounts of well-being is a challenging task. This paper has aimed to do this by showing that basic need satisfaction matters to poor rural Thai households so when basic needs are not met happiness and satisfaction with life domains is generally reduced.

²⁶ The threat to basic needs satisfaction would occur if chronically ill are untreated due to inadequate health services. RANQ data does not allow us to confirm this point although we know that injured individuals treated by a government institution are more likely to be unsatisfied with their health care.

APPENDIX

Table A.1. Rural sites in Northeast and South Thailand

Site code	Site name	Region	Number house-holds	General information
41	Ban Chai Khao	South	250	Large rural community on the outskirts of Hat Yai city. 400 households. Much of its economic activity still dependent on rural natural resources. This juxtaposition of agricultural-rural and the modern-urban is increasingly unusual in Thailand. Its ethnic composition features an equal proportion of Thai Buddhists and Thai Muslims. Access to all government facilities is very good for the community due to its peri-urban location.
42	Ban Thung Nam	South	250	Established over 50 years ago. 300 households. The proportion of Thai Muslims and Thai Buddhists being about 70:30. People engaged in various occupations including rubber production, rice production, animal raising, fruit production, hired labour in rubber plantation and labouring in nearby factories. Moderately remote because poor quality roads particularly difficult in the rainy season.
43	Ban Lao	Northeast	157	15 kilometres away from Khon Khaen town. 190 households . Agricultural town but off-farm activities, such as working in factories and on construction sites. Good infrastructure and well-connected to the thriving economy of Khon Kaen town.
44	Ban Dong	Northeast	198	Located in the middle of Phu Phan Mountain range (reserve forest area), distant from Mukdaharn Provincial town. 196 households of the village have no property rights in land. Livelihood strategies depend on a mixture of cash cropping (cassava), cattle raising, exploitation of forest products and migration. This village is a relatively remote community in modern Thailand.
45	Ban Tha	Northeast	67	Surrounded by a rich variety of natural resources. Most households are rice farmers, but they also exploit other natural resources, as well as migrate to work in modern sectors of the economy. This village is moderately well connected to modern urban centres.

Source: WeD RANQ data and <http://www.welldev.org.uk/research/thailand.htm>

Table A2. Socio-demographic characteristics: Rural households in Thailand, 2004

	South		North East			Total
	Ban Chai Khao	Ban Thung Nam	Ban Lao	Ban Dong	Ban Tha	
Family size (average)	4.48	4.81	4.61	4.51	5.63	4.68
Head of household Gender (percentage)						
Male	77.6%	74.7%	68.8%	86.9%	68.7%	76.7%
Female	22.4%	25.3%	31.2%	13.1%	31.3%	23.3%
Total number	250	249	157	198	67	921
Age groups (percentage)						
a) 20-39	27.6%	24.5%	20.4%	33.0%	19.4%	26.1%
b) 40-59	45.2%	44.6%	52.2%	44.2%	49.3%	46.3%
c) Above 60	27.2%	30.9%	27.4%	22.8%	31.3%	27.6%
Total number	250	249	157	197	67	920
Religion (percentage)						
Buddhist	55.4%	25.4%	100.0%	99.0%	98.5%	67.6%
Islam	44.6%	74.6%				32.1%
Total number	242	244	156	195	64	901
Main economic activity (percentage)						
Farmer	44.0%	47.2%	19.1%	74.7%	56.7%	48.2%
Agricultural labourer	2.4%	17.6%	5.1%	5.1%	1.5%	7.5%
Street vendor	6.0%	7.6%	4.5%	3.0%	3.0%	5.3%
Herding	2.4%	4.0%	8.9%	4.5%	4.5%	4.6%
Total number	250	250	157	198	67	922

Source: RANQ-Thailand (2004), WeD Research Group, University of Bath, UK.

Table A.3. Needs satisfaction in Thailand and Peru

	Thailand	Peru	Lower - Medium Income	Norway (1st HDI)
1 Pop. 2003 (m)	62	27.1	2.655	4.6
2 GNI/head 2003 (Atlas method, US\$)	2,190	2,140	1,480	43,350
Survival/Health				
3 Life Expectancy (2003)	69	70	69	79
4 Infant Mortality (2003)	24	30	32	4
5 Under 5 mortality rate (2002)	28	39	40	4
6 Low birth weight (%) (1995)	7.3	5.8		
Autonomy				
7 Literacy (%) (1999)	95.2	89.4	86.3	-
Intermediate Needs				
Water/Nutrition				
8 Safe water (% of population) (2003)	84	80	81	100
Safe water rural (% rural population with access) (2000)	81	62	-	-
Safe water urban (% urban population with access) (2000)	95	87	-	-
Health services				
9 Physician per population (1,000)(1995)	0.2	1	-	-
10 Hospital beds (1,000) (1995)	1.5	2	-	-
Security				
11 Poverty (% population)	13.1	49	-	6.4
12 Population below 2\$ a day in Peru and Thailand and 11\$ a day in Norway	32.5	37.7	-	4.3
Education				
13 Net primary enrollment (%) (1999)	84.2	99.9	-	99.9
Gross enrolment ratio (%) (1995 Peru, 2001 Thailand and Norway)				
Primary level	97.7	122.9	-	101.5
Secondary level	82.8	69.7	-	114.6
Tertiary level	36.8	27.1	-	70
Reproduction				
14 Contraception (%) (1995)	72	64	-	-
15 Maternal mortality rate (2001)	4.4	410	-	-

Source: World Bank (2004) unless otherwise stated.

1 Total population, 2003, millions

2 Gross National Income per capita 2003 calculated using the World Bank Atlas Method

3 Life expectancy at birth in years, 2003

4 Infant mortality per 1,000 live births

5 Under 5 mortality rate per 1,000 children

6 Low-birthweight babies (% of births)

7 Percentage of persons aged 25 and over "who can, with understanding, read and write a short, simple statement on their everyday life" (World B

8 Percentage of population with access to an improved water source (% of population)

Percentage of population with access to safe water in rural areas

Percentage of population with access to safe water in urban areas

9 Physicians per 1,000 people

10 Hospital beds per 1,000 people

11 Percentage of population below the national poverty line 1990-2001 and % of population below 50% of the median income in Norway 1990-20

12 Percentage of population below 2\$ a day in Peru and Thailand and 11\$ a day in Norway

13 Ratio of the number of children of official school age (as defined by the national education system) who are enrolled in school to the population

14 Percentage of woman using contraception aged 15-49

15 Maternal mortality ratio per 100,000 births

Assets Index

Section 4.3 of the RANQ enquires about the assets the household has access to. There are 81 assets in total classified under hand tools, mechanised productive assets, other productive assets, transport, electrical consumer goods and other household assets. There is neither information about the type of assets within a category nor about their price or quality.

The three first categories of assets are related to the household as a production unit and the other four categories are related to the household as a consumption unit. The asset index is built using only the latter four categories and unlike other indexes constructed with these types of data is not aimed at depicting household wealth.

Assets data has usually been employed in generating wealth indexes through factor analysis (Sahn and Stiffel 2000, Clarke 2004, among others) or multiple component analysis (Booyesen et al. 2005). Other wealth indexes have been generated on the basis of relative scarcity of assets (Morris et al. 1999), a simple average of the household possessions (Graham and Pettinato, 2000) and cumulative disadvantage of the households (Tzakloglou and Papadoupoulos, 2002). Those indexes would use data on selected assets indicating wealth (traditionally assets such as fridge, colour TV, car, computer, washing machine etc.) and other variables describing the type of dwelling, the level of education and the production side of the household (for instance land ownership). Since our aim is to design a variable that approximates wealth, income or consumption without creating a comprehensive measure that would include variables already incorporated in the regression (like some characteristics of the dwelling, education level of the household, quality of drinking water and type of toilet facility) we construct an index based only on consumer durables.

Firstly, an index based on consumer durables could be done by just adding up all the assets owned by the household out of the 51 possibilities. This would imply that households with a higher value of the index have more consumer durables. However, an index such as this could be misleading if we want to approximate household wealth, income or consumption since not all the goods are of similar value and not all of them are associated to a higher status. Secondly, using factor analysis to give meaningful weights to all the assets to build an index is a complex task since the technique gives 10 different factors. Even forcing the technique to focus on a lower number of factors does not give meaningful categories.

Thus, we decided to generate an index following relative scarcity and qualitative information about the meaning of the different assets (Clarke, 2004). Since relative scarcity does not by itself, allow for the grouping of the assets into meaningful categories I draw on information about the communities from Jongudomkarn and Camfield (2005) and Clarke (2004,2006). For instance television is a very accessible asset in rural Thailand since 89% of the households have it, therefore, it has been included in household goods basic. Following Clarke (2004), sewing machine is not included since “it might be owned both by the rich and the poor for different reasons. It has little status attached to it, and is probably best thought of as a productive asset”. Cheap assets owned by a minority of people have been eliminated from the index: Jerry can (12%), mill for grinding (3.6%), gas lamp (6%) and barrel (6%).

Once the index was constructed (see table 2) we ran some cross-tabs and checked for significant correlations (Chi square Test) between the categories to check their consistency. The higher category has always more individuals not owning any of its assets and owning some assets in the lower category. We also checked that assets in *Transport rich* were not commonly owned by people who have *Kitchen appliances basic*. There is a significant correlation between the two, the more of the goods of the basics category they own the more they are likely to own goods in the *Transport rich category*. However, whereas 776 households out of 922 have some assets in the former and no assets in *Transport rich*, there is no household that has a pick up truck or a car and does not have basic kitchen appliances, as it could be expected.

It should also be noted that every category has different numbers of assets and therefore the more assets included in one category the higher the chances of people having at least one of them.

Table A.4. Asset Index

Asset index score:

= 1 if they have assets in *kitchen appliances basic* and *household goods basic*

= 2 if they have assets in the above plus *ITT common*

= 3 if they have assets in the above plus *Jewellery*

= 4 if they have assets in the above plus *Household goods rich*

= 5 if they have assets in the above plus *ITT rich*

= 6 if they have assets in all categories

The index has the advantage that every household will only be included in one category. The lowest value identifies households that have access to the most common objects in the Thai sites, and the highest identifies households that have access to all the categories included in the survey. It also gives a meaning to the scores as households scoring 6 have an expensive means of transport, a technologically advanced ITT product and other “comforts” like a microwave, a washing machine or a sofa.

Households scoring 1 might have the basics needed in a common household in Thailand, which include TV and motorbike, and do not own any sort of telephone, other ITT products and any jewellery. However, households in category 1 can also present different realities and further research into this category is needed to outline the most consumption-deprived households.

The index has some drawbacks, among others, that households having assets only in *kitchen appliances basic* and *ITT* will be codified with a 1 which does not represent their consumption reality. However, this is not a common situation.

The index counts by site are described below and portray a very similar picture to the results of a wealth index calculated by the same sites (Clarke, 2006), where Southern villages have more wealthy people and more durables than the Northeastern ones²⁷.

²⁷ We also calculated an index based on the sum of household asset and another based on a cumulative disadvantage index following Tzakloglou and Papadoupoulos (2002). The two of them showed a high level of correlation with our asset index (the first one a correlation coefficient of 0.971 at the 0.001 level of significance and the second one a correlation coefficient of 0.69 and the 0.0001 level of significance).

Table A.5. Asset index counts by Thai site

		SITECODE					Total
		41	42	43	44	45	
Asset Index	1	30	70	21	71	14	206
	2	48	37	64	61	9	219
	3	39	67	44	56	43	249
	4	69	42	15	1	0	127
	5	26	22	6	4	1	59
	6	37	11	6	1	0	55
Total		249	249	156	194	67	915

- 41 Ban Chai Khao (South)
- 42 Ban Thung Nam (South)
- 43 Ban Lao(North-East)
- 44 Ban Dong (North-East)
- 45 Ban Tha (North-East)

Table A.6. Seven groups of assets following relative scarcity and qualitative information of the Thai communities (Clarke, 2004 and 2006)

*46% of households own either a golden earring or a gold necklace

Assets	Households having assets in the category (%)
Transport rich	15.73
CAR	7.16
PICKUPTRUCK	9.22
ITT rich	23.86
SATELLITETV	0.76
COMPUTER	4.77
DVD	5.86
VIDEOPLAYER	5.64
CAMERA	13.02
LANDLINEPHONE	4.01
Household goods rich	34.92
MICROWAVE	1.84
WASHINGMACHINE	23.75
SOFA	21.58
Jewellery *	61.93
GOLDEARRING	33.30
GOLDNECKLACE	35.03
GOLDRING	27.11
OTHEARRING	15.08
OTHNECKLACE	17.03
OTHRING	15.94
BRACELET	19.96
OTHJEW	6.83
ITT common	77.22
RADIO	46.85
CASSETTEPLAYER	37.96
CDPLAYER	47.94
MOBILEPHONE	48.16
Household goods basic	99.35
BED	43.93
BLANKET	58.13
MATTRESS	76.36
CHAIR	47.51
TABLE	41.87
WARDROBE	85.47
FAN	86.55
MOTORBIKE	79.83
WATCHORCLOCK	80.04
TV	88.83
Kitchen appliances basic	99.78
ELECPOT	55.21
ELECIRON	69.41
ELECRICECOOKEER	79.39
STOVE	63.12
FRIDGE	66.59
CUTLERY	50.11
CROCKERY	79.61
KETTLE	81.67
POTS	83.19

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