# Sufficiency economy philosophy and the happiness of farmers on Thai way

Nisachon Leerattanakorn[1] and Aree Wiboonpongse[2]


[1] *Faculty of Agriculture, Chiang Mai University*
*E-mail: nisa.aom@gmail.com*


[2] *Faculty of Agriculture, Chiang Mai University*
*and Faculty of Economics, Prince of Songkla University*
*E-mail: areewiboonpongse@gmail.com*

**ABSTRACT**

Although Thailand has already applied the Sufficiency Economy Philosophy into development paradigm, there are scare quantitative studies about the magnitude of sufficiency economy impact on the happiness. This study surveyed 671 samples from the upper north of Thailand and has employed ordered and quantile logistic regression. It was found by ordered logit that sufficiency economy intensity, absolute household income and attitude toward relative income increase the happiness level while an increase of income aspiration decreases happiness level. Quantile logistic regression also showed that sufficiency economy intensity is the only factor which can increase happiness level in all happiness quantiles, especially for the high happiness-level farmers. These results propose that development with sufficiency economy can contribute income growth together with the happiness to the farmers.

*Keywords:* Happiness, Sufficiency Economy, Ordered Logit, Logistic Quantile
Regression
*JEL Classification:*  C35, D01, O13

## 1. Introduction

Over the past decades, considerable evidence and empirical studies have reported that Thai government policy encouraging economic growth generates numerous problems. Despite the increase in average income and reduction of poverty at the national level, Thailand continues to face social and economic inequality problems (Thailand Future Foundation, 2014), as well as social and institutional problems such as cronyism, bribery, and corruption (Monataraphadung, 2012), including stress, crime, and suicide. Such evidence indicates that policy that encourages growth does not induce happiness.

A new development model has put more focus on happiness and path to happiness. A concrete example is that the UN has identified the pursuit of human wellbeing and happiness as the global development goal for the post-2015 development agenda (WHO, 2013). This agenda will be launched after the expiration of the Millennium Development Goals in 2015. The post-2015 development agenda will focus on economic growth measured by wellbeing indicators, such as Gross National Happiness and index of social and economic welfare beyond GDP (Kumar et al., 2014). Moreover, the UN has declared the first International Happiness Day on March 20, 2014 to encourage country leaders to support the pursuit of happiness as a universal objective. Several countries such as Canada, France, Britain, Japan, and Thailand have also added measures of happiness to their official national statistics.

The development of Thailand under conditions of rapid economic growth has generated numerous problems, ultimately creating an unhappy society. After the economic crisis in 1997, Thailand changed its development paradigm from an economic-led growth to a new concept of alternative development based on the philosophy of "sufficiency economy" (henceforth SE) to pursue a balanced and sustainable development in a globalized world (Naipinit et al., 2014). This philosophy was developed by His Majesty King Bhumibol Adulyadej and originated from his life-long accumulation of knowledge and experience (Bunnag, 2013).

The essence of SE philosophy is inspired by the Buddhism doctrine, a middle-path approach toward the goal of perpetual happiness (Supadhiloke, 2010), with an emphasis on human development by putting people and their wellbeing at the center of development and providing an alternative to traditional beliefs and practices. The philosophy is based on three major components, namely, moderation, reasonableness, and immunity; its two underlying conditions are knowledge and morality (Naipinit et al., 2014).

Agricultural sector plays an important role in multi dimensions and still remains the backbone of Thai economy (Lertdhamtewe, 2011). Although it can generate only 8% of GDP while manufacturing sector account for 38% of GDP but the major proportion of labor forces and land area are dealing with agricultural sector; 40% of total labor force employed and 40% of total land area (NESDB, 2014). Moreover, it is 87% of the poor in Thailand being farmers and workers in rural area, so main sources of income of Thai rural people comes from agricultural sector and they are still poor (NESDB, 2014). Although they are poor, several surveys by National Statistical Office show that farmers in rural area are obviously happier than people in urban area.

As above-mentioned, most farmers have applied SE philosophy and they get happiness, even they are poor. However, it remains scare of quantitative studies in economics to demonstrate the relationship between SE, income and happiness of farmers. Hence, this research aims to

provide a significant answer and to address the lack of knowledge of Thai society with regard to the potential of SE to optimize human wellbeing.

## 2. Background and theoretical concept

Happiness is the ultimate goal of all people. It is currently the liveliest subject in academic study. Happiness interests psychologists, economists, sociologists, and policy makers because it generates positive outcomes in three major life domains, namely, work, personal relationship, and health (DeLeire and Kalil, 2010).

The terms "happiness" and "wellbeing" are often used interchangeably. Several economists use the phrase "subjective wellbeing" as a synonym for "happiness" (McGillivray and Clarke, 2006). These terms are broad concepts that represent the overall quality of life of individuals (Desmet and Pohlmeyer, 2013) or refer to the cognitive and affective evaluations of their lives (Diener, 2000). Happiness or wellbeing can be categorized into two separate but interrelated traditions on happiness, that is, subjective and objective.

In this paper, subjective happiness is used as a proxy measure for individual welfare under a multidimensional evaluation of life, including cognitive judgments of life satisfaction and affective evaluations of emotions and moods. We evaluate subjective happiness through self-reports, which concurs with inner reality, validity, and reliability. Self-reported happiness is found to be strongly correlated with bodily function (Layard, 2010) and life and emotional satisfaction (Kahnaman and Krueger, 2006). Hence, a self-reporting measure of happiness is not only credible and acceptable, but also comfortable and easy in terms of collecting data (Liaghatdar et al., 2008; Diaz et al., 2009).

Objective wellbeing pertains to the degree to which the requirements for having a high quality of life are met, such as basic needs, home ownership, health, and education. Objective wellbeing theory is typically supported by a list of requirements that people should have to lead a good life; these requirements are universal and constant across societies (Guillen and Velazco, 2005).

The factors that determine happiness have been extensively investigated for several decades. These factors include income, wealth, health, education, and other physical assets that are based on the western view of happiness. However, happiness from the oriental perspective is significantly different; in particular, Buddhism views happiness as mind-cultivation. SE is one of the concepts developed from Buddhism that leads to happiness. In terms of moderation, individuals who are moderate in their desire take less advantage of others and even the environment. The world will become a happier place if all nations adopt the concept of SE, without being extreme or insatiable in their desires (Supadhiloke, 2010). Sufficiency economy is similar to but different from a general term, "self-sufficiency"[1] (Supadhiloke, 2010; Suwankitti and Pongquan, 2012).

Several researchers have cited SE as a key determinant of the happiness of farmers because the concept of "enough" is linked to balance and the middle path of Buddhism. SE gradually aid farmers in controlling their minds, wants, and consciousness, as well as in eliminating greed as a principal source of anxiety. Schwartz et al. (2002) confirmed that people who

---

[1] Self-sufficiency is an attribute that pertains to the capacity to adequately produce for one's own need without having to borrow anything from others or embrace globalization. However, sufficiency denotes moderation. It follows the concept of "enough" and renounces borrowing.

sufficiently consume and can be happy with what they own tend to be happier than people who are influenced by consumerism and pushed by social trends. Moreover, Bhongmakapat (2011) applied the Happiness Equilibrium Framework and concluded that a difference exists between mind-cultivated people and general people. Mind-cultivated people consume fewer resources to obtain the same level of happiness, or consume the same resources but obtain more happiness than general people.

Income is hypothesized to be directly proportional to the level of happiness due to the concept of "more is better." When income is higher, the level of consumption is higher, and the utility linked to happiness is ultimately higher. Hence, absolute income makes people happier. Empirical research reports that income brings more happiness to people in developing countries than those in developed countries (McBride, 2001; Di Tella et al., 2003; Stutzer, 2004; Ferrer-i-Carbonell, 2005).

Another concept is relative income. The effect of relative income on happiness is supported by psychology and economics. Relative income can be measured either by relative physical income or by attitude toward relative income. According to relative utility theory that was proposed by Duesenberry (1949), people often compare themselves to a reference group; thus, they care not only about their own absolute consumption levels, but also their consumption amount relative to that benchmark.

According to aspiration level theory, individual wellbeing is determined by the gap between aspiration and achievement (Stutzer, 2004). Humans typically draw comparisons; they compare their income or wealth with those of other people in society (McBride, 2001; Stutzer, 2004; Ferrer-i-carbonell, 2005), compare their own current and past income (McBride, 2001; Di Tella et al., 2003, 2007; Stutzer, 2004), and compare their current income with their expected income, which the present study refers to as "income aspiration" (McBride, 2010).

### 3. Data and measurement

The reported level of subjective happiness (henceforth "happiness") is constructed based on the following question: "All things considered, 12 months ago, how happy would you say you were?" Simultaneously, the respondents are shown a picture with a seven-point numerical scale (1 = "very unhappy" to 7 = "very happy"). The questionnaire also asks the maximum and minimum happiness level of each respondent to recheck the answer of happiness level from the main question.

**Intensity of sufficiency economy (SEI):** SEI is calculated by the composite index of two major elements; SE in production and SE in livelihood. The mean score of SE in agriculture (score of 0 to 5) is calculated from 15 questions that represent the degree of production under SE in four elements, namely, resources, capital and technology, labor, and entrepreneur. The mean score of SE in livelihood (score of 0 to 5) is calculated from 22 questions that represent the degree of livelihood following the SE mode in five elements, namely, consumption, risk management, inheritance culture, environmental protection, and social and family support. SEI is subsequently calculated by summing up the mean scores of SE in production and SE in livelihood with the same weights.

**Income:** Income variable is measured in three forms, namely, absolute income, relative income, and income aspiration. Absolute household income refers to the current purchasing power. In the relative income hypothesis, an increase in the income of others or certain reference groups can reduce the happiness of an individual even if his income remains

unchanged or increases because these situations induce psychological stress and diminish happiness (Oshio et al., 2011). In the present study, the reference group consists of farmers who live in the same Amphoe based on the assumption that the respondents generally interact with other people at the Amphoe level and compare themselves with those people. Thus, reference income pertains to the average income of the reference group; meanwhile, relative income denotes the difference between household income and the average income of the reference group.

Relative income is calculated by two methods. The first method follows the approach of Ferrer-i-Carbonell (2005) and is constructed by the difference between the rich and the poor relative to the average values, denoted as Richer1 and Poorer1, respectively. The second measure is a ratio concept between the rich and the poor relative to the average values, denoted as Richer2 and Poorer2, respectively. The separation between the effects of the rich and the poor is expected to be different. Individuals may feel unhappy if their income is lower than that of their reference group, whereas those with income higher than that of their reference group are not sensitive to income comparisons (Oshio et al., 2011). The level of income aspiration of respondents is calculated by the difference between minimum household income and (real) absolute household income. This variable is a proxy for the aspiration level of individuals. The minimum household income pertains to the household income level that the respondents believe allows them to meet their expected welfare.

**Attitude toward relative income:** This study examines the influence of attitude toward relative income. The dummy variable is coded from an answer to the question, "How would you describe your family income compared with that of other families in your society?" The answers are ranked in five levels, ranging from far below average to far above average.

**Objective wellbeing:** Objective wellbeing is a composite index that represents the level of wellbeing from  factors that are unrelated to income, and is calculated by three categories, namely, physical elements, individual beliefs, and social conventions.

**Demographic variables:** A dummy gender variable is coded as 1 = female, and 0 = male. Age is a quantitative variable. Health is one of the important determinants of happiness; thus, several studies indicate that a higher level of happiness is associated with better health. Health is used as a categorical variable. Comparing his health with that of others with the same age, the respondent has to indicate his answer on a scale of 1 to 5 (1 = very poor, 2 = poor, 3 = average, 4 = good, and 5 = excellent).

Table 1: Summary Statistics of Variables of Interests

| Variable | Definition | Mean | SD. | Min | Max |
|---|---|---|---|---|---|
| Happiness level | Subjective happiness level (1-7) | 5.3487 | 0.8107 | 2 | 7 |
| SEI | The intensity of SE (1-10) | 6.5192 | 0.7161 | 3.58 | 9.11 |
| Absolute household income | Monthly household income; (thousand baht/month/household) | 11.6274 | 12.3523 | 1 | 111.00 |
| Objective wellbeing | Objective wellbeing index (1-10) | 6.1812 | 0.8569 | 4.08 | 8.5 |
| Richer1 | Relative Income | 0.1636 | 0.3496 | 0 | 2.2478 |
| Poorer1 | | 0.4505 | 0.5342 | 0 | 2.6136 |
| Richer2 | | 0.3558 | 0.7164 | 0 | 1.2399 |
| Poorer2 | | 0.4988 | 0.5158 | 0 | 1.3783 |
| Attitude toward relative income | The relative income attitude when compare with average community's income | 2.9001 | 0.5412 | 1 | 5 |
| Minimum household income | The minimum household income that requires to meet expected welfare (thousand baht/month/household) | 12.1922 | 12.2469 | 1.0 | 111.00 |
| Income aspiration | The minimum household income - absolute household income (thousand baht/month/household) | 0.5648 | 1.6988 | 0.00 | 12.00 |
| Age | Age (Year) | 55.11 | 9.7439 | 21 | 86 |
| Sex | 1= female, 0 = male. | - | 0.4838 | 0 | 1 |
| Health | Opinion of his/her own health comparing with other in the same age | 3.6974 | 0.6564 | 1 | 5 |

Table 1 shows the descriptive statistics of the main variables of interest. Among others, two key variables exhibit high difference in the happiness of farmers and SE. Thai farmers feel relatively happy with their lives (5.35 out of 7 points); however, the happiness range is extremely high. The average intensity of SE is moderate (6.52 out of 10). The absolute household income ranges from 1,000 to 111,000 baht/month, and the average is approximately 11,627 baht/month. The average minimum household income is roughly 12,192 baht/month. The average income aspiration is 564 baht/month. In addition, most respondents report that their health status is similar to others with the same age.

## 4. Methodology

The sampling process involved two steps. The first step entailed the selection of provinces (i.e., Chiang Mai, Chiang Rai, and Lampang) based on the criterion that these provinces have the largest number of agricultural holdings households in the upper north of Thailand (NSO Agricultural Census, 2014). The second step involved the use of the geographical concept in selecting the representative of each province.

This paper classified the Amphoe in each province into three layers, namely, core, middle, and outer layers. Only farmers in the Amphoe under the middle layer were subsequently selected due to the mix between urban and rural areas. A total of 421,363 units comprised the household population in this survey. The size of the sample (i.e., approximately 400) was calculated using the Yamane formula. Finally, 700 farmers from three provinces were interviewed from March to May 2013 to reduce any error. However, data from 671 out of 700 respondents were analyzed due to completeness of questionnaire.

The empirical study of the determinants of happiness relied on the data that were primarily generated through face-to-face interviews; such interviews were restricted to farmer households in the upper north of Thailand. Although the head of each household provided the answers, they could be responsible for the entire household because of the likely interdependencies in wellbeing among household members (Powdthavee, 2005).

The questionnaire of the current research was designed to include both quantitative and qualitative information, as well as perceptions, attitudes, and real data. During the interview, each respondent was asked the same questions on six aspects, namely, happiness level, intensity of agricultural productions under SE, intensity of livelihood under SE, morality/religious perception and experience, socio-economic data, and objective happiness factors.

This paper reported the results of ordered logit and quantile logistic regression models. The former presented the marginal probability of individual factors on each level of happiness. The latter provided the parameter or magnitude of the effects of the factors at various quantiles (levels) of happiness.

## Ordered Logit Regression

The standard ordered logit method is to estimate overall effects between categorical variable; 7 self-reported happiness levels as a function of observable factors *X* defined by Equation (1). It indicates directions and magnitudes of each factor *X* to all happiness levels in general.

$$Happy_{it}^{*} = \phi X_{it} + \xi_{it} .\tag{1}$$

The $X_{it}$ (column vector) includes exogenous variables and the unobserved component $\xi_{it}$. $\phi$ is a row vector of coefficients. The average marginal effects are also reported.

## Logistic Quantile Regression

Quantile regression was introduced by Koenker and Bassett (1978); it has become increasingly well-known after the extensive description by Koenker (2005). The basic idea of this model is introduced to minimize the sum of the absolute residuals to fit a median regression and focused on group differences across the distribution of a given dependent variable rather than only the mean. So logistic quantile regression is a powerful tool for comparing, more thoroughly than the mean alone, various aspects of any type of distribution of outcomes across different covariate patterns.

This paper applies logistic quantile regression following Orsini and Bottai (2011). To estimate the happiness equation of farmers, we applied the same definitions of variables in both equations. Conceptually, the model can be written as follows:

$$H_i = \beta_1 SEI_i + \beta_2 Y_i + \beta_3 O_i + \lambda_1 R_i + \delta_1 A_i + \beta_4 P_i + \beta_5 Z_i + \varepsilon_i \tag{2}$$

where $H_i$ is happiness level of farmers for individual $i$, $SEI_i$ is the intensity of SE, $Y_i$ is absolute household income, $O_i$ is objective wellbeing, $R_i$ is relative income, $A_i$ is attitude toward relative income, $P_i$ is income aspiration, $Z_i$ is a vector of personal characteristics variable, and $\varepsilon_i$ is an error term.

The advantage of logistic quantile regression method is to estimate categorical effects between happiness levels and observable factors *X*. Relative to ordered logit regression, it

relates each factor *X* to specific happiness intervals, so it can identify different effects of directions and magnitudes on each specific happiness intervals.

## 5. Results

The estimates of ordered logistic regression are reported in Table 3 to show the general effects of each independent variable, including intensity of SE on happiness. Table 2 presents the estimates of nine different specifications. Columns 1–3 are baseline equations that link the happiness level to the main variables of interest, namely, SE index, objective wellbeing, absolute household income, and relative income. Columns 4–6 are additionally controlled by inner thoughts, that is, the attitude toward relative income and income aspiration. Columns 7–9 are additionally controlled by personal characteristics, such as age, gender, and health. The statistics for each equation are reported at the end of each column.

**SEI:** The results from Column 1 indicate that SEI has a strongly positive relationship with happiness at the 99% confidence level. After adding relative household income, attitude toward relative income, and income aspiration variables (Columns 2–6), the results slightly change in magnitude but remain strongly positive. After adding the control variables of age, gender, and health, the results remain unchanged (Columns 7–9). This outcome suggests that the result is robust regardless of control relative income, income aspiration, and demographic characteristics. The average marginal effect of SEI is approximately 0.0011, which suggests that an increase in SEI by one unit affects the increase in happiness by 0.11%. Thus, SE is the most important factor in determining the happiness of farmers in the upper north of Thailand. Moreover, government support in terms of the SE adoption of farmers can increase their happiness.

In addition to agricultural practice, farmers tend to change their behavior to a sufficiency-focused life after applying SE. Farmers balance what they have and what they desire. They are recommended to adjust not only their sufficient consumption, but also their wisdom in financial management and planning. Farmers change their behaviors, including reducing expenses, decreasing debts, and increasing savings. Moreover, SE helps build the strength of social capital and the activities in social networks within kinship and local society, such as working together, sharing food, exchanging labor, and taking care of and helping each other. Social capital and trust subsequently reduce asymmetric information, thus helping solve economic problems at the micro level (Mongsawad, 2010). Building strong social capital reduces risks and resists external shocks and uncontrolled situations. Therefore, farmers can live together more happily on their own and in their society.

**Objective wellbeing:** The results from Columns 1–3 indicate that objective wellbeing is positively significant. After adding attitude toward relative income and income aspiration variables represented in Columns 4–7, the result signifies that the sign of objective wellbeing remains positive but insignificant. The finding suggests that the latter variables have more influence on happiness than objective wellbeing. The results remain unchanged after adding the control variables, that is, objective wellbeing has an insignificant effect on the happiness level (Columns 7–9). Thus, objective wellbeing is not a major factor that influences the happiness level of respondent farmers in this study.

**Absolute household income:** As expected, absolute income is a strong significant source of happiness (Columns 1 and 4). Net of controls, the estimated effect of absolute income on happiness, remains statistically significant (Column 7). This correlation suggests that a richer

farmer tends to be happier than a poorer farmer. The average marginal effect is approximately 0.0001, which suggests that adding up 1,000 baht of absolute income affects the addition of happiness by approximately 0.01%. This finding concurs with the vast amount of literature (Blanchflower and Oswald, 2004; Frey and Statzer, 2002; Sacks et al., 2010). At the same time, it confirms conventional utility theory, which states that an increase in absolute income can generate a higher utility due to the provision of basic needs and other materials or goods that satisfy human wants. People with money can have more leisurely, effortless activities than those without (Gailliot, 2012), and they have more opportunities to achieve their desires (Alexander, 2012). Moreover, the results are associated with Easterlin et al. (2010), indicating that at a point in time, happiness varies directly with income both among and within countries.

**Relative income and attitude toward relative income:** The present study considers relative income in two aspects, namely, realized relative income and attitude toward relative income. These measures are separated because realized relative income and attitude about relative income may have different effects on the happiness level in terms of direction and magnitude or both.

With regard to relative income, the results indicate that the coefficients of richer variables (Richer1 and Richer2) have a positive relationship with the happiness level, whereas the coefficients of poorer variables (Poorer1 and Poorer2) are negative (Columns 2–3 and 5–6). However, all of the realized relative income variables are insignificant even after adding the control variables (Columns 8 and 9). The finding indicates that both poorer and richer farmer groups are not concerned about the real situation or their realized relative income. The variable of attitude toward relative income reveals that the inner subjective factor of farmers according to their comparative status influences their happiness level. Individuals who feel that they have a higher income than others in the same society should obtain more happiness. Thus, the coefficient of attitude toward relative income on the happiness level should be positive. Table 3 shows that the attitude toward relative income has a strongly positive significant relationship with the happiness level. Farmers who feel that they have a higher income than others tend to be happier than others (Columns 4–6), and this result remains robust after adding the control variables (Columns 7–9). The average marginal effect, approximately 0.0005, suggests that a one-step increase in attitude toward relative income can increase happiness by 0.05 %.

This result suggests that perception is more important than realistic situation from the perspective of farmers. Moreover, individuals do not assess their lives in isolation from others; they constantly compare themselves with others, thus revealing the negative influence of social comparison on the happiness level. Social comparison implies the existence of a negative externality to income-generating activity (Layard, 2005).

**Income aspiration:** The results indicate a significantly negative effect on happiness by income aspiration (Columns 4–6). The gap between aspiration and achievement induces a negative effect on happiness. The coefficients slightly increase after adding the control variables (Columns 7–9). Therefore, this correlation suggests that an individual who has a lower income aspiration or ambition seems to be happier. A decrease in income aspiration (i.e., 1,000 baht) affects the increase in happiness by 0.01%.

Two principal factors theoretically drive income aspiration. The first factor is adaptation. Humans typically have the ability to become familiar with situations. They adapt themselves to feel normal given their current income and wealth, and subsequently seek a higher level of

income or make an aspiration in the future. When their income increases to a new high, they change their level of aspiration and repeat the cycle. Thus, their income aspiration correlates with past income and past consumption (McBride, 2001; Di Tella et al., 2003, 2007; Stutzer, 2004). The second factor that drive aspiration is comparison. Humans typically compare themselves with others. When they observe others obtaining a higher income, better status, or more luxury consumption, they increase their aspiration to imitate and strive to achieve. Hence, income aspiration positively depends on the outcome (i.e., income, wealth, status, or consumption) of the reference group (McBride, 2001; Stutzer, 2004; Ferrer-i-carbonell, 2005; McBride, 2010).

**Age:** The results indicate that older farmers are likely to be satisfied with their lives than those who are younger. **Gender:** Gender has little or no effect on happiness. The results in Columns 7–9 indicates that men are likely to be happier than women. **Health:** Individuals with good health should have a higher happiness level than those with poor health. However, the results presented in Columns 7–9 suggest insignificant effects. This outcome may be attributed to the high proportion of the old population and to the low variation in age in the group of farmers as a sample group.

In sum, Table 2 exhibits the strong effects of SEI, absolute income, attitude toward relative income, and income aspiration on the happiness level for all of the available specifications. These determinants comply with the theoretical explanation. An increase in SEI, absolute income, and attitude toward relative income boosts the happiness level, whereas an increase in income aspiration generates a higher target and reduces the happiness level.

Quantile logistic regression aims to specify the different effects of SEI at each level of happiness. Table 3 shows the results of quantile logistic regression. The happiness levels are categorized into four quantile groups to minimize within-group variation and maintain robustness among quantiles; hence, the intervals of the quantile level are unequally distributed. The happiness level data from the survey are unequally distributed; thus, minimizing the within-group variation induces unequal quantile intervals. These are applied for the criteria of the dependent variables of quantile logistic regression, particularly the 15th, 50th, 60th, and 95th quantile levels.

Table 2 shows that SEI is the only factor that increases the happiness of farmers regardless of their happiness level. The underlying principle of SE is to fine-tune the mindset and attitude of farmers. Each individual can apply and adjust this concept effectively in his real situation. Moreover, SEI coefficients continuously increase in each quantile.

Comparing with SEI, absolute household income can also affect the happiness level, but not in every quantile. The effect of income is evident in the middle of the happiness quantile in which ordinary farmers are grouped. Thus, an increase in absolute income can boost the happiness level of ordinary farmers, but it cannot influence the lowest and highest groups of happiness. This finding suggests that the power of income to overcome unhappiness and achieve the highest level of happiness is limited. Moreover, the effects of absolute income in each quantile level are apparently convex.

For other variables, the results are similar to absolute income. Such variables can significantly affect the happiness level, primarily at the 50th and 60th quantile levels. Thus, SE induces different effects because the power to overcome unhappiness and achieve the highest level of happiness of all of other variables, including absolute income, is limited.

The results generally coincide with ordered logit regression. SEI, absolute household income, attitude toward relative income, and income aspiration are the major factors that determine the happiness of farmers. An interesting aspect is that only SEI can shift all of the happiness levels, whereas the other factors play a significant role at the $50^{th}$ and $60^{th}$ quantile levels. Thus, SE can increase all of the ranges of happiness; the rest can also increase happiness around the middle ranges.

Table 2: Coefficients of quantile logistic regression equation of happiness

| Variables | Q15 | Q50 | Q60 | Q95 |
|---|---|---|---|---|
| SEI | 0.2615** | 0.2678*** | 0.3016*** | 0.3553* |
| Absolute household income | 0.0069 | 0.0051** | 0.0037* | 0.0129 |
| Attitude toward relative income | 0.0585 | 0.0856 | 0.1098* | 0.4273** |
| Income aspiration | -0.0518 | -0.0460** | -0.0615** | -0.0665 |
| Sex | 0.0166 | -0.0426 | -0.0087 | 0.0756 |
| Intercept | -1.9099* | -1.3745*** | -1.4993*** | -1.9166 |

Remarks: *, **, *** indicate the level of significance at 10%, 5% and 1%, respectively.

In summary, SE consists of two parts, namely, production and livelihood. Most farmers have already applied the SE philosophy at least at the first level, which focuses on land allocation and local resource intensity. Given that SE combines production and livelihood, farmers do not require a higher income to live their lives. Moreover, when farmers reach the second level, which focuses on giving and sharing, collective activities continuously increase happiness from merit provision (Layard, 2005). Hence, SE is more important than their income.

## 6. Conclusions

After the economic crisis in 1997, Thailand set the establishment of a "happiness society" as one of its ultimate goals. To achieve this goal, a government agency has launched an important instrument, SE, which is based on a middle-path approach, and subsequently applied it to the livelihood of people, specifically those in the agricultural sector under the expectation that SE can induce sustainable happiness and development.

The data were collected through a primary interview questionnaire survey of agricultural households in three provinces in the upper north of Thailand. Seven hundred farmers were interviewed; however, only 671 responses were analyzed.

Ordered logit regression with independent variables (SEI, objective wellbeing, absolute household income, relative income, attitude toward relative income, and income aspiration) was subsequently applied. The results indicate that SEI, absolute household income, and attitude toward relative income boost the happiness level, whereas an increase in income aspiration decreases the happiness level. In particular, the marginal effect from ordered logit regression signifies that SE is the most influential factor in increasing happiness. These results coincide with quantile logistic regression, which determines that SE is the sole factor that increases the happiness level of all of the quantile groups, specifically for the farmers with a high level of happiness. Other variables except SE, including income, have limited power to increase the happiness level.

SE is evidently more important than income or wealth in terms of boosting happiness. This finding can be attributed to the fact that the underlying principle of SE is to fine-tune the mindset and shape the attitude. Each individual can apply and adjust this concept effectively in his real situation. Individuals who apply SE should have sufficient consumption behavior. They are happier despite consuming fewer resources and products. Moreover, they can limit or control their greed. With reduced greed and craving, such individuals are free from the trap of materialism and tend to buy things because of need, rather than desire. Their decision-making process is reasonable. The findings from this study indicate that launching SE as the major development paradigm to contribute to the ultimate goal of obtaining the "real happiness" of all Thai people is an appropriate strategy.

Table 3: Coefficients of ordered logit equation of happiness

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| **Coefficients** | | | | | | | | | |
| SEI | 0.7231*** | 0.7186*** | 0.7119*** | 0.6897*** | 0.6840*** | 0.6776*** | 0.6977*** | 0.6926*** | 0.6860*** |
| | (0.0011) | (0.0012) | (0.0012) | (0.0012) | (0.0010) | (0.0010) | (0.0011) | (0.0011) | (0.0010) |
| Objective wellbeing | 0.1637* | 0.1522* | 0.1527* | 0.1412 | 0.1289 | 0.1309 | 0.1469* | 0.1356 | 0.1375 |
| | (0.0002) | (0.0002) | (0.0002) | (0.0002) | (0.0002) | (0.0002) | (0.0002) | (0.0002) | (0.0002) |
| Absolute household income | 0.0215*** | | | 0.0196*** | | | 0.0201*** | | |
| | (0.0001) | | | (0.0001) | | | (0.0001) | | |
| Relative income | | | | | | | | | |
|    Richer 1 | | 0.3874 | | | 0.3648 | | | 0.3570 | |
| | | (0.0006) | | | (0.0006) | | | (0.0005) | |
|    Poorer 1 | | -0.1663 | | | -0.1086 | | | -0.1385 | |
| | | (-0.0002) | | | (-0.0002) | | | (-0.0002) | |
|    Richer 2 | | | 0.1379* | | | 0.1317 | | | 0.1269 |
| | | | (0.0002) | | | (0.0002) | | | (0.0002) |
|    Poorer 2 | | | -0.0466 | | | -0.0342 | | | -0.0450 |
| | | | (-0.0001) | | | (-0.0001) | | | (-0.0001) |
| Attitude toward relative income | | | | 0.3356** | 0.3289** | 0.3319** | 0.3151** | 0.3037** | 0.3113** |
| | | | | (0.0005) | (0.0005) | (0.0005) | (0.0005) | (0.0005) | (0.0005) |
| Income aspiration | | | | -0.1399** | -0.1459*** | -0.1465*** | -0.1510*** | -0.1562*** | -0.1573*** |
| | | | | (-0.0001) | (-0.0001) | (-0.0001) | (-0.0001) | (-0.0001) | (-0.0001) |
| Age | | | | | | | 0.0121* | 0.0121* | 0.0123* |
| | | | | | | | (0.0001) | (0.0001) | (0.0001) |
| Woman | | | | | | | -0.0377 | -0.0627 | -0.0596 |
| | | | | | | | (-0.0001) | (-0.0001) | (-0.0001) |
| Health | | | | | | | -0.0213 | -0.0165 | -0.0170 |
| | | | | | | | (-0.0001) | (-0.0001) | (-0.0001) |

|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| **Statistical Report** | | | | | | | | | |
| log likelihood | -770.5468 | -773.5556 | -773.0103 | -762.7463 | -765.5081 | -764.8225 | -761.0284 | -763.7362 | -763.0123 |
| Pseudo R-square | 0.0426 | 0.0389 | 0.0395 | 0.0523 | 0.0489 | 0.0497 | 0.0544 | 0.0511 | 0.0520 |
| LR chi2 | 68.56 | 62.55 | 63.64 | 84.17 | 78.64 | 80.01 | 87.60 | 82.19 | 83.63 |
| Number of observation | 671 | 671 | 671 | 671 | 671 | 671 | 671 | 671 | 671 |

Remarks: *, **, *** indicate the level of significance at 10%, 5% and 1%, respectively. Average marginal effects in parenthesis.

**REFERENCES**

Alexander. 2012. "The Optimal Material Threshold: Toward an economics of sufficiency," Real World Economics Review, issue no. 61. Retrieved 14 January, 2015 from http://rwer.wordpress.com/2012/09/26/rwer-issue-61/.

Bhongmakapat, Teerana. 2011. "Economics of Enoughness," In Setthakitporpeng No2, Chulalongkorn University Press.

Blanchflower, D. G. and A. J. Oswald. 2004. "Well-being over Time in Britain and the USA," Journal of Public Economics (88): pp. 1359 – 1386.

Bunnag, Anawat. 2013. "Sustainable Economic Development in Thailand," International Journal of Social Science and Humanity, 3 (1): pp. 39-42.

DeLeire, Thomas and Kalil, Ariel. 2010. "Does Consumption buy Happiness? Evidence from the United States," issue 2: pp.63-176, Retrieved 20 January, 2015 from http://EconPapers.repec.org/RePEc:spr:inrvec:v:57:y:2010:i:2:p:163-176.

Desmet, P.M.A. and Pohlmeyer, A.E. 2013. "Positive Design: An Introduction to Design for Subjective Well-being," International Journal of Design, 7(3): pp. 5-19.

Di Tella, R., J. et al. 2003. "The Macroeconomics of Happiness," Review of Economics and Statistics, 85(4): pp. 809-827.

Di Tella, R., J. Haisken-De New, and R. McCulloch. 2007. "Happiness Adaptation to Income and to Status in an Individual Panel," Journal of Economic Behavior and Organization, 76(3): pp.834-852.

Díaz, D., Horcajo, J. and Blanco, A. 2009. "Development of an Implicit Well-being Measure Using the IAT," The Spanish Journal of Psychology, 12(2): pp. 604-617.

Diener, E. 2000. "Subjective Well-being: The Science of Happiness, and a Proposal for National index," American Psychologist, 55: pp. 34-43.

Easterlin, R.A., et al. 2010. "The Happiness-income Paradox Revisited," Proc Natl Acad Sci USA.; 107: 22463–22468

Ferrer-i-Carbonell, A. 2005. "Income and Well- being: an Empirical Analysis of The Comparison Income Effect," Journal of Public Economics, 89(5–6): pp. 997–1019.

Frey, B. S. and A. Stutzer. 2002. "What Can Economists Learn from Happiness Research?", Journal of Economic Literature, 40 (2): pp. 402-435.

Gailliot, M. 2012. "Happiness as Surplus or Freely Available Energy," Psychology, 3: pp. 702-712. doi: 10.4236/psych.2012.39107.

Guillen. M. and Velazco, J. 2005. "Exploring the Relationship between Happiness, Objective and Subjective Well-being: Evidence from Rural Thailand," Retrieved 18 January, 2014 from www.welldev.org.uk/spa-presentations/guillen-velazco.pdf.

Kahneman, D., and Alan B. Krueger. 2006. "Developments in the Measurement of Subjective Wellbeing," Journal of Economic Perspectives, 20(1): pp. 3-24.

Koenker, R. 2005. "Quantile Regression," Cambridge University Press.

Koenker, R. and Bassett, G. J. 1978. "Regression Quantiles," Econometrica, 46: pp. 33-50.

Kumar, Gitanjli. et al. 2014. "A Transformative Post-2015 Development Agenda Some Key Concepts and an Evaluative Checklist for assessing Targets and Goals," Retrieved 18 January, 2015 from Thailand Future Foundation. (2014).

Layard, R. 2005. "Happiness: Lessons from a New Science," New York: The Penguin Press.

Layard, R. 2010. "Measuring Subjective Well-being," Science, 327: pp. 534-535.

Lertdhamtewe, Pawarit. 2011. "Effective Plant Variety Protection as Development Policy: A Perspective for Thailand." Thailand Journal of Law & Policy, 14(2)

Liaghtadar MJ, Jafari E, Abedi MR, and Samiee F. 2008. "Reliability and Validity of the Oxford Happiness Inventory among University Students in Iran," The Spanish Journal of Psychology, 11(1): pp. 310-313.

McBridge, M. 2001. "Relative Income Effects on Subjective Well-being in the Cross Section," Journal of Economic Behavior and Organization, 45: pp. 251-278.

McBridge, M. 2010. "Money, Happiness, and Aspirations: An Experimental Study," Journal of Economic Behavior and Organization, 74: pp. 262–276.

McGillivray, Mark and Matthew Clarke. 2006. "Human Well-being: Concepts and Measures," In Mark McGillivray and Matthew Clarke, eds. Understanding Human Well-Being. Basingstoke: Palgrave MacMillan.

Monataraphadung, Siriwan. 2012. "The Situation of Corruption in Thailand," Valaya Alongkorn Review, 2(1). (in Thai)

Mongsawad, Prasopchoke. 2010. "The Philosophy of the Sufficiency Economy: a Contribution to the Theory of Development," Asia-Pacific Development Journal, 17 (1), June 2010: pp. 123-143.

Naipinit, A., Sakolnakorn, T. P. N. and Kroeksakul, P. 2014. "Sufficiency Economy for Social and Environmental Sustainability: A Case Atudy of Four Villages in Rural Thailand," Asian Social Science, 10(2): pp. 102-111

National Statistical Office. 2014. "The Household Socio - Economic Survey," National Statistical Office, Ministry of Information and Communication Technology. Retrieved 6 October, 2014 from http://service.nso.go.th/nso/web/statseries/statseries11.html

Orsini, Nicola and Bottai, Matteo. 2011. "Logistic Quantile Regression in Stata," The Stata Journal, 11 (3): pp. 327-344.

Oshio, T., K. Nozaki and M. Kobayashi. 2011. "Relative income and happiness in Asia: Evidence from Nationwide Surveys in China, Japan, and Korea," Social Indicators Research, forthcoming. DOI: 10.1007/s11205-010-9754-9.

Powdthavee, N. 2005. "Unhappiness and Crime: Evidence from South Africa," Economica, 72: pp. 531–547.

Sacks, Daniel W., Stevenson, Betsey and Justin Wolfers. 2010. "Subjective Well-being, Income, Economic Development and Growth", NBER Working Paper No. 16441.

Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., and Lehman, D. R. 2002. "Maximizing Versus Satisficing: Happiness is a Matter of Choice," Personality and Social Psychology, 83: pp. 1178–1197.

Stutzer, A. 2004. "The role of income aspirations in individual happiness," Journal of Economic Behavior and Organization, 54(1): pp. 89-109.

Supadhiloke, Boonlert. 2010. "Synergy of "Gross National Happiness" and "Sufficiency Economy" as an Imperative Paradigm for Communication and Sustainable Social Change,". Retrieved 10 January, 2015 from http://203.131.210.100/conference/wp-content/uploads/2011/06/01-05-Supadhiloke-Synergy-of-Gross-National-Happiness-and-Sufficiency-Economy.pdf

Suwankitti, Wanchat and Pongquan, Soparth. 2012. "Thai Community's Experiences in Developing Livelihoods through Sufficiency Community Economic Development Approach," Advances in Asian Social Science, 1 (1) (March 2012): pp. 34-40.

Thailand Future Foundation. 2014. "Thailand Future Foundation Series on Inequality," (in Thai) Retrieved 10 January, 2015 from http://thailandfuturefoundation.org/upload/reports/8%20inequality_th_full_report.pdf

World Health Organization. 2013. "Post-2015 Development Agenda," Retrieved 18 January, 2015 from http://apps.searo.who.int/pds_docs/B4960.pdf