

## CHAPTER 7

### The Effects of Sufficiency Economy on Subjective Happiness

This chapter presents the results of the third objective of the study, that is, to analyze the effect of Sufficiency Economy and other factors on farmers' happiness.

#### 7.1 Variables and measurement

**Subjective happiness level:** Denoted as happy, the self-report subjective happiness is used as a proxy measure for individual welfare as people make multidimensional evaluations of their lives. Subjective happiness is the degree to which an individual favorably judges the overall quality of his/her own life as a whole (Rojas and Veenhoven, 2011). Happiness data are taken from Chapter 6.

**Sufficiency Economy Intensity (SEI):** SEI is calculated by the composite index of two major elements, namely, SE in production and SE in livelihood. The composite index of SE in production is calculated from 15 questions representing the degree of production under SE in four sub-elements, namely, resources, capital and technology, labor, and entrepreneur. The composite index of SE in livelihood is calculated from 22 questions representing the degree of livelihood following the SE mode in five sub-elements, namely, consumption, risk management, inheritance culture, environmental protection, and social and family support. SEI was subsequently calculated by summing up the mean scores of SE in production and SE in livelihood with the same weights. SEI data are taken from Chapter 5.

Researchers such as Bhongmakapat (2007, 2011) and Kanjanarangsrinon et al. (2011) have cited SE as a key determinant of the happiness because of the concept of “enough.” SE gradually aids people in controlling their minds, wants, and consciousness, and in

eliminating greed. People who sufficiently consume tend to be happy with what they own and tend to be happier than those who are influenced by consumerism and pushed by social trends. Moreover, sufficient people consume fewer resources to obtain the same level of happiness or consume the same resources but obtain more happiness than others.

**Absolute household income:** Monthly household income (thousand baht/month) refers to the current purchasing power. It is hypothesized to be directly proportional to the level of happiness because of 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. Therefore, absolute income makes people happier. Empirical research indicates that income brings more happiness for people in developing countries than those in developed countries (McBride, 2001; Di Tella et al., 2003; Stutzer, 2004; Ferrer-i-Carbonell, 2005).

**Objective happiness index:** This index 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 well-being 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). When individuals have a high level of objective well-being, they are supposed to have a high level of happiness. In this thesis, objective well-being is a composite index that represents the level of well-being from factors that are unrelated to income. Objective happiness data are taken from Chapter 6.

**Relative income:** According to relative utility theory proposed by Duesenberry (1949), people often compare themselves with a reference group. Therefore, they care not only about their own absolute consumption levels but also about their consumption amount related to that benchmark. In the relative income hypothesis, an increase in income of reference groups can reduce the happiness of an individual even if his/her income remains unchanged or increases because these situations induce psychological stress and diminish happiness (Oshio et al., 2011). Therefore, relative income is hypothesized to have a negative relationship with the level of subjective happiness.

In the present study, the reference group consisted of farmers who lived in the same amphoe based on the assumption that the respondents generally interacted with other people at the amphoe level and compared themselves with those people. Thus, reference income pertains to the average household income of the reference group, and relative income is the difference between household income and the average household income of the reference group. Relative income was calculated by two methods. The first method follows the approach of Ferreri-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 reference income of the individual as the average income of reference group is  $y_r = \frac{1}{n_i} \sum y_i$ , where,  $i$  = individual who belongs to the same amphoe and  $y$  = income of respondent.

Richer1 and Poorer1 variables are created as follow,

- If  $y > y_r$ , then
 

Richer1	=	$\ln(y) - \ln(y_r)$
Poorer1	=	0
- If  $y < y_r$ , then
 

Richer1	=	0
Poorer1	=	$\ln(y_r) - \ln(y)$

The second measure is the ratio concept between the rich and the poor relative to the average values, denoted as Richer2 and Poorer2, respectively. The richer and poorer variables are created as follows:

- If  $y > y_r$ , then
 

Richer2	=	$\frac{y}{y_r}$
Poorer2	=	0
- If  $y < y_r$ , then
 

Richer2	=	0
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$$\text{Poorer2} = \frac{y_r}{y}$$

The difference between the effects of the rich and those of 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).

**Attitude toward relative income:** This study examines the influence of attitude toward relative income on the subjective happiness level. The dummy variable was 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 were ranked at five levels, ranging from far below average to far above average.

- Having even more income than average income very much = 4
- Having more income than average income = 3
- Having income equal to the average income = 2
- Having less income than the average income = 1
- Having even less income than average income = 0

People who feel that they have more income than others in the same society should be happier, and thus so the coefficient of attitude toward relative income on happiness level should be positive.

**Income aspiration:** According to aspiration level theory, individual well-being is determined by the gap between aspiration and achievement (Stutzer, 2004). People typically draw comparisons; they compare their income or wealth with those of other people in society (McBride, 2001; Stutzer, 2004; Senik, 2009; 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 current study refers to as “income aspiration” (McBride, 2010).

The level of income aspiration of the respondents was calculated by the difference between the minimum household income and the (real) absolute household income. This variable is a proxy for the aspiration level of individuals. Minimum household income pertains to the household income level that the respondents believe that enable them to meet their expected welfare. This study hypothesizes that higher income aspirations are expected to reduce happiness.

**Gender:** A dummy gender variable is coded as 1 = female and 0 = male. Males tend to be happier than female.

**Age (Year):** This variable is a quantitative one. Happiness supposedly increases with age.

**Health:** Health is used as a categorical variable. By comparing the respondent's health with that of others of the same age, the respondent has to indicate his/her answer using a scale of one to five (1 = very poor, 2 = poor, 3 = average, 4 = good, and 5 = excellent). Healthy people or those who think that they are healthy are hypothesized to be happier because strong physical health without any illness leads to a vigorous mind. Independent variables and expected sign are presented in Table 7.1.

Table 7.1 Independent variables and expected sign

Independent variables	Expected sign	Explanation	Example related paper
SEI	+	After adopt SE famers can control their minds, wants, and consciousness, as well as in eliminating greed. Famers with high SEI are happier than others.	Linhavess (2008)
Objective happiness index	+	Objective happiness is composed of aspects that lead to good life. High objective happiness index bring high happiness.	Institute of social studies (2005)

Table 7.1 (continued)

Independent variables	Expected sign	Explanation	Example related paper
Absolute household income	+	<ul style="list-style-type: none"> <li>- Utility Theory</li> <li>- The more is better.</li> </ul>	Clark et al (2006), Frey (2008), Blarnc flower and Oswald (2000)
	0	<ul style="list-style-type: none"> <li>- Easterlin Paradox</li> </ul>	Easterlin (2011), Kaheman and Krueger (2006)
Relative income	Richer: +/0 Poorer: -	<ul style="list-style-type: none"> <li>- Relative utility theory</li> <li>- an increase in income of reference groups could reduce happiness even if his income remains unchanged or increases because these situations induce psychological stress and diminish happiness.</li> <li>- Ferrer-i-Carbonell (2005) claimed that this effect asymmetric between rich and poor people.</li> </ul>	Clark and Oswald (1986), Oswald (2004), Luttmer (2004), Ferrer-i-Carbonell (2005)
Attitude toward relative income	+	<ul style="list-style-type: none"> <li>- Social comparison theory</li> <li>- Individual who felt that he/she has more income than the others should be happier.</li> </ul>	Kayo et al 2010, Grey et al 2008 Mc bride, 2001
Income aspiration	-	<ul style="list-style-type: none"> <li>- Aspiration theory</li> <li>- Human has aspiration instinctively</li> <li>- Individual who get closer their aspiration level is happier.</li> </ul>	Mc Bridge (2010) Stutzer and Frey (2004)

Table 7.1 (continued)

Independent variables	Expected sign	Explanation	Example related paper
Gender	+	- Female is happier than male due to female is more optimist, less aspiration and less health problems.	Loscocco and Spitze (1990)
	-	- Male is happier than female due to male is high resilience, more self-esteem and has more opportunity in life.	
	0	- Not difference between female and male.	
Age	+	- Older people had already passed adolescence stress and middle-aged stress” so they are happier than adolescence people.	Argyle (1999, 2001) Blanchflower and Oswald (2007)
Health	+	- Physical health is relative with mental health. - Healthy people are happier.	Deaton (2008), Davis (2005)

## 7.2 Ordered Logit regression

The dependent variable (subjective happiness level) observed from a field survey is ordinal, and thus it is suitable to be analyzed through the Ordered Logit regression. To estimate the logistic probability models for self-reported happiness, this study enables the probability of being happy to be a function of observable factors  $X$  and assumes that the level of (perceived) happiness can be modelled as an unobserved (latent) continuous variable.

The standard Ordered Logit method is used to estimate overall effects among categorical variables. Four self-reported subjective happiness levels are function of observable factors  $X$  defined by Equation (1). It indicates directions and magnitudes of each factor in  $X$  to all happiness levels in general (Guyen and Sørensen, 2007).

$$Happy_i^* = \phi X_i + \xi_i. \quad (1)$$

The  $X_i$  (column vector) includes exogenous variables, and the unobserved component  $\xi_i$ ,  $\phi$  is a row vector of coefficients.

In the case with four outcomes the Ordered Logit model captures the probability that the happiness of the  $i$ th individual will be in one the four categories. There are four categories for the latent variable  $Happy_i$  and the observed level of happiness is denoted as  $Happy_i$ .

$$\text{Category (1)} : Happy_i = 1 \quad \text{if} \quad Happy_i^* < -\lambda_1 \quad (2)$$

$$\text{Category (2)} : Happy_i = 2 \quad \text{if} \quad -\lambda_1 < Happy_i^* < -\lambda_2 \quad (3)$$

$$\text{Category (3)} : Happy_i = 3 \quad \text{if} \quad -\lambda_2 < Happy_i^* < -\lambda_3 \quad (4)$$

$$\text{Category (4)} : Happy_i = 4 \quad \text{if} \quad Happy_i^* > -\lambda_3 \quad (5)$$

where  $\lambda_1$ ,  $\lambda_2$  and  $\lambda_3$  are the cut-off levels, The cumulative probability function of the latent variable can be expressed as the sum of the probabilities of different categories. The probabilities of different categories are shown as follows:

$$\text{Category (1)} : Pr (Happy_i = 1) = \frac{1}{1 + \exp(\phi X_i + \lambda_1)} \quad (6)$$

$$\text{Category (2)} : Pr (Happy_i = 2) = \frac{1}{1 + \exp(\phi X_i + \lambda_2)} - \frac{1}{1 + \exp(\phi X_i + \lambda_1)} \quad (7)$$

$$\text{Category (3)} : Pr (Happy_i = 3) = \frac{1}{1 + \exp(\phi X_i + \lambda_3)} - \frac{1}{1 + \exp(\phi X_i + \lambda_2)} \quad (8)$$

$$\text{Category (4)} : Pr (Happy_i = 4) = \frac{\exp(\phi X_i + \lambda_3)}{1 + \exp(\phi X_i + \lambda_3)} \quad (9)$$

Since the coefficients from logit models are not easily interpretable, marginal effects are calculated. Marginal effects will present the change in probability when the predictor or independent variable increases by one unit to the mean of the relevant repressor. Assume  $\theta$  represents the marginal change in the variable  $k$  (the independent variable of interest). For example, the marginal probability calculated at the second outcome (happy = 2) takes

the form: 
$$\frac{\exp(\hat{\phi}\bar{X} + \hat{\lambda}_2 + \phi_k \theta)}{1 + \exp(\hat{\phi}\bar{X} + \hat{\lambda}_2 + \phi_k \theta)} - \frac{\exp(\hat{\phi}\bar{X} + \hat{\lambda}_2)}{1 + \exp(\hat{\phi}\bar{X} + \hat{\lambda}_2)}, \quad (10)$$

where  $\hat{\phi}$  and  $\hat{\lambda}_2$  are the estimated coefficients. To estimate the happiness equation of farmers. The function can be written as following:

$$H_i = f(SEI_i, Y_i, O_i, R_i, A_i, P_i, Z_i) \quad (11)$$

where  $H_i$  is subjective happiness level of farmers for individual  $i$ ,  $SEI_i$  is the SEI index,  $Y_i$  is the absolute household income,  $O_i$  is the objective happiness index,  $R_i$  is the relative income,  $A_i$  is the attitude toward relative income,  $P_i$  is the income aspiration,  $Z_i$  is a vector of the variable of personal characteristics (age, gender and health).

### 7.3 Results

The factors that determine subjective happiness have been extensively investigated for several decades. These factors include income, wealth, health, education, and other physical assets based on the Western view of happiness. However, subjective happiness from the oriental perspective is significantly different. Particularly, Buddhism views happiness as mind cultivation. SE is one of the concepts developed from Buddhism that Thailand applies to its citizens for acquiring happiness, especially the farmers.

Table 7.2 shows the descriptive statistics of the main variables of interest. Among others, two key variables exhibit high difference in the subjective happiness of farmers and SEI. On average, Thai farmers are “happy” with their lives (2.35 out of 4). The average SEI is moderate (6.52 out of 10). The absolute household income ranges from 1,000 Baht/month to 111,000 Baht/month, and the average is approximately 11,580 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 that of others of the same age.

Table 7.2 Summary statistics of variables of interests

Variable	Definition	Mean	SD.	Min	Max
Subjective happiness level	Subjective happiness level (1-4)	2.3546	0.7951	1	4
SEI	SEI index (1-10)	6.5192	0.7161	3.58	9.11
Absolute household income	Monthly household income (thousand baht/month/household)	11.5797	12.3523	1	111.00
Objective happiness	Objective happiness 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

Table 7.2 (continued)

Variable	Definition	Mean	SD.	Min	Max
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
Gender	1= female, 0 = male.	-	0.4838	0	1
Health	Opinion of his/her own health comparing with other in the same age (1-5)	3.6974	0.6564	1	5

The estimation of ordered logit regression is reported in Table 7.3, which shows the estimates of nine different specifications. Columns 1–3 are the baseline equations linking the subjective happiness level to the main variables of interest: SEI, objective happiness, absolute household income, and relative income. Columns 4–6 are additionally controlled by inner thoughts: attitude toward relative income and income aspiration. Columns 7–9 are additionally controlled by personal characteristics: age, gender, and health. The statistics for each equation is reported at the end of each column.

Table 7.3 Coefficients of ordered logit equation of subjective happiness (4-happiness levels)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>Coefficients</b>									
SEI	0.7254*** (0.1036)	0.7210*** (0.1047)	0.7144*** (0.1045)	0.6916*** (0.1048)	0.6861*** (0.1059)	0.6797*** (0.1058)	0.6994*** (0.1056)	0.6945*** (0.1067)	0.6880*** (0.1066)
Objective happiness	0.1643* (0.0876)	0.1527* (0.0877)	0.1534* (0.0876)	0.1417 (0.0884)	0.1292 (0.0883)	0.1313 (0.0884)	0.1471* (0.0918)	0.1357 (0.0918)	0.1377 (0.0918)
Absolute household income	0.0214*** (0.0001)			0.0195*** (0.0001)			0.0200*** (0.0001)		
Relative income									
Richer 1		0.3856 (0.2411)			0.3625 (0.2433)			0.3543 (0.2440)	
Poorer 1		-0.1637 (0.1480)			-0.1061 (0.1499)			-0.1359 (0.1517)	
Richer 2			0.1370* (0.0796)			0.1307 (0.0805)			0.1258 (0.0809)
Poorer 2			-0.0462 (0.0489)			-0.0338 (0.0494)			-0.0447 (0.0499)
Attitude toward relative income				0.3398** (0.1365)	0.3331** (0.1362)	0.3362** (0.1364)	0.3193** (0.1374)	0.3115** (0.1372)	0.3154** (0.1373)
Income aspiration				-0.1399** (0.0001)	-0.1480*** (0.0001)	-0.1486*** (0.0001)	-0.1533*** (0.0001)	-0.1586*** (0.0001)	-0.1595*** (0.0001)

Table 7.3 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>Coefficients</b>									
Age							0.0120*	0.0120*	0.0122*
							(0.0067)	(0.0067)	(0.0068)
Woman							-0.0390	-0.0639	-0.0607
							(0.1532)	(0.1526)	(0.1527)
Health							-0.0197	-0.0150	-0.0154
							(0.1181)	(0.1184)	(0.1185)
<b>Statistical Report</b>									
log likelihood	-755.2008	-758.2120	-757.6627	-747.2242	-749.9819	-749.2960	-745.5241	-748.2275	-747.5021
Pseudo R-square	0.0436	0.0398	0.0404	0.0537	0.0502	0.0510	0.0558	0.0524	0.0533
LR chi2	68.80	62.78	63.88	84.75	79.24	80.61	88.15	82.75	84.20
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Number of observation	671	671	671	671	671	671	671	671	671

Remarks: \*, \*\*, \*\*\* indicate the level of significance at 10%, 5% and 1%, respectively. Standard error in parenthesis.

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Table 7.4 Marginal effects of subjective happiness equation (equation 7<sup>th</sup>)

Variables	Predicted Probability				Average marginal effect
	Happy = 1	Happy = 2	Happy = 3	Happy = 4	
SEI	-0.0785*** (0.0127)	-0.0776*** (0.0121)	0.1189*** (0.0167)	0.0372*** (0.0076)	0.0785
Objective happiness	-0.0165 (0.0104)	-0.0163* (0.0102)	0.0250* (0.0155)	0.0078 (0.0050)	0.0165
Absolute household income	-0.0023*** (0.0007)	-0.0022*** (0.0007)	0.0034*** (0.0011)	0.0011*** (0.0004)	0.0001
Attitude toward relative income	-0.0359** (0.0156)	-0.0354** (0.0153)	0.0543** (0.0232)	0.0170** (0.0077)	0.0358
Income aspiration	0.0173*** (0.0053)	0.0170*** (0.0053)	-0.0261*** (0.0078)	-0.0082*** (0.0028)	-0.0001
Age	-0.0014* (0.0008)	-0.0013* (0.0007)	0.0020* (0.0011)	0.0007* (0.0004)	0.0013
Woman	0.0044 (0.0172)	0.0043 (0.0169)	-0.0066 (0.0260)	-0.0021 (0.0082)	-0.0043
Health	0.0023 (0.0133)	0.0022 (0.0131)	-0.0034 (0.2001)	-0.0011 (0.0063)	-0.0022

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

Standard error in parenthesis

The highest Pseudo R-square and LR chi<sup>2</sup>, and the significant specification error test (Appendix D) propose that equation 7 is the best fit with dataset. Therefore, the interpretations of estimation are referring from equation 7.

**SEI:** The result from column 1 in Table 7.3 shows that SEI has a strong positive relationship with subjective happiness at the 99% confident level. After adding the relative household income, attitude toward relative income, and income aspiration variables (columns 2–6), the results slightly change in magnitude but remain to have a

strong positive relationship. After adding the control variables of age, gender, and health, the results remain unchanged (columns 7–9). Therefore, the result is robust whether relative income, income aspiration, or demographic characteristics are controlled.

Table 7.4 reports the average marginal effect and the marginal effect of each category of subjective happiness. The average marginal effect of SEI is approximately 0.0785, which means that an increase in SEI by one unit affects an increase in subjective happiness at 7.85%. Compared with the average marginal effect of other independent variables, SEI is the most important determinant of subjective happiness for the farmers in the upper north of Thailand.

The negative marginal effect (in category happy =1 and happy =2) indicates that the reduced probability of being happy in this category may be transferred to other categories. Therefore, when happiness is low, increasing happiness by the SEI has relatively low effectivity.

Predicted subjective happiness was calculated using the coefficients of equation 7 in Table 7.3 by the fixed values of all variables at their means except the predicting variables (e.g., SEI for Figure 7.1).

Figure 7.1 confirms that SEI is significantly positively related to happiness. With a low degree of SEI, the predicted subjective happiness is less compared with the medium and high degrees of SEI. This finding may be attributed to the initial period of adopting SEI in which farmers are faced with the changing livelihood and agricultural practice, the misunderstanding of the concept and the proper adaptation, the unfamiliar new way of life, and obtaining some transaction costs. When farmers adapt SEI properly and effectively, they obtain a greater happiness level. Moreover, the more the SEI adaptation, the happier the farmers are.



Figure 7.1 Predicted subjective happiness at different SEI levels

Farmers who adopt SE can manage resource allocation efficiently, prioritize local resources, and have self-reliance in their own households by planting what they eat. Self-reliance brings feelings of security and creates utility from their sense of ownership. Planting under a mixed farming system obtains benefits from the economy of scope. All of these situations can make farmers happy.

Aside from adopting agricultural practice, farmers tend to change their behavior to sufficiency after applying SE. They balance what they have and what they desire. Farmers are recommended to adjust not only to have enough consumption but also to have wisdom in financial management and planning. Farmers change their behavior such as reducing expenses, decreasing their debt burden, and increasing their savings. Moreover, SE helps strengthen the social capital and social network in kinship and local society. Farmers work together, share food, exchange labor, and take care and help each other. Social capital and trust reduce asymmetric information, so that economic problems can be solved at the micro-level (Mongsawad, 2010). Building a strong social capital reduces risk and resists

external shocks and uncontrolled situations. Thus, farmers can live together more happily on their own and in their society.

SE can be applied at all levels of society. Concrete examples show increased quality of individual life and community and success in enterprise administration after applying SE. Examples of individuals who have successfully applied SE are Prayong Ronnarong, Viboon Kemchalern (Indaratna, 2007), Boonchuey Klongkaew, and Vinai Suwanatri (Mongsawad, 2010). Examples of communities that have successfully applied SE are Nathong Village, Nngya Kaonok Khonkan Community (Indaratna, 2007), Bankhambong Community (Kotrmaneeetaweeetong, 2012), and Inpaeng Network (UNDP, 2007; Sangsuriyajan, 2011). Examples of businesses that have successfully applied SE are PTT Public Company, Toshiba Thailand, Prada Jewelry Company (Mongsawad, 2010), Lemon Farm (Indaratna, 2007), and Siam Cement (Indaratna, 2007; Mongsawad, 2008, 2010).

**Objective happiness:** The results from Table 7.3 indicate that objective happiness is positively significant. In the same specification, the selected specification in Equation 7 reveals that objective happiness has a positive relationship with subjective happiness at the 90% confident level. The average marginal effect is approximately 0.0165 (Table 7.4), which indicates that adding one unit of objective happiness increases subjective happiness by approximately 1.65%. Marginal effects in each category of happiness in Table 7.4 show that the effect of objective happiness on happiness increases with the level of objective happiness. However, the effect of objective happiness is the strongest among people with a middle happiness level. This finding suggests that the power of physical well-being is the strongest when people pass the basic level of human needs and that a high objective condition does not effectively influence inner happiness.

The relationship of predicted subjective happiness at different objective levels is shown in Figure 7.2. The effect on subjective happiness of objective happiness is stable. This finding claims that the components of standard living, such as asset, social support, and freedom, also stimulate subjective happiness, but they are less important than SE.

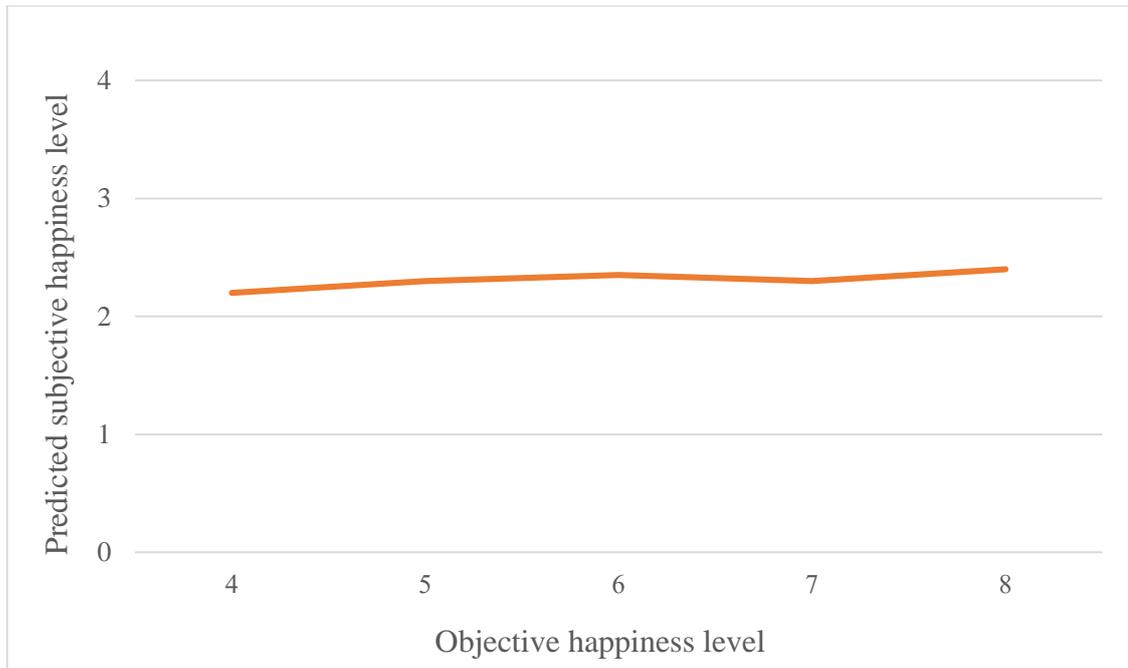


Figure 7.2 Predicted subjective happiness at different objective happiness levels

**Absolute household income:** As expected, absolute income is a significant source of subjective happiness (columns 1 and 4 in Table 7.3). Net of controls, the estimated effect of absolute income on subjective happiness remains statistically significant (column 7). This correlation suggests that richer farmers tend to be happier than poorer farmer. The average marginal effect is approximately 0.0001 (Table 7.4), which means that increasing the absolute income by a thousand baht can add to subjective happiness by approximately 0.01%.

Figure 7.3 presents the relation between predicted subjective happiness and absolute household income. The effect of absolute household income on predicted subjective happiness is positive.

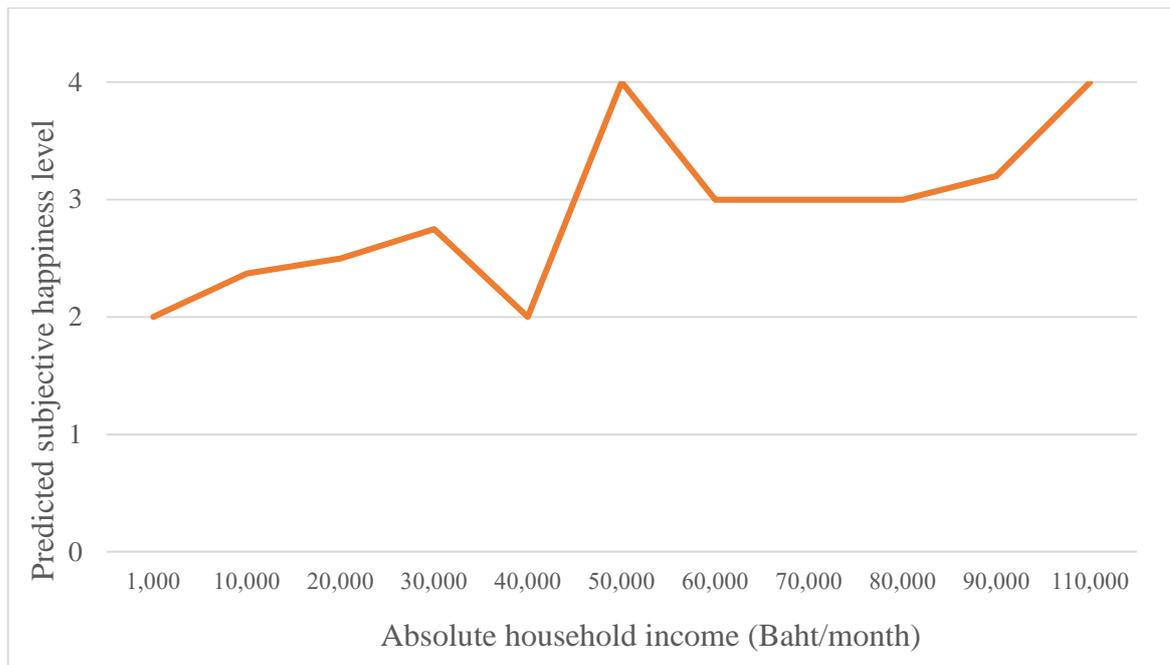


Figure 7.3 Predicted subjective happiness at different absolute household income levels

This finding conforms to that of several studies in the literature (Inglehart and Klingemann, 2000; Blanchflower and Oswald, 2004; Frey and Statzer, 2002; Sacks et al., 2010; Vinson and Ericson; 2012) and confirms conventional utility theory, which claims that higher utility can be achieved by an increase in absolute income because of the provision of basic needs and other materials or goods that satisfy people's wants. Moreover, people with money can have more leisure and effortless activities than those without (Gailliot, 2012), and they have more opportunities to obtain whatever they desire (Alexander, 2012). The result is associated with that of Easterlin et al., (2010), which claims that happiness varies directly with income at one point in time among and within countries.

In comparing the effect of SEI, objective happiness, and absolute household income, the findings reveal that adopting SE in the agricultural sector can increase happiness and that the power of objective happiness and absolute household income to overcome unhappiness is limited. Therefore, SEI can promote real inner happiness.

**Relative income and attitude toward relative income:** This study considers relative income from two aspects: realized relative income and attitude toward relative income. These measures are separated from each other because realized relative income and attitude about relative income may have difference effects on the subjective happiness level in direction or in magnitude or both.

For relative income factor, the results in Table 7.3 show that the coefficients of richer variables (Richer1 and Richer2) have a positive relationship with the subjective happiness level, whereas the coefficients of the poorer variables (Poorer1 and Poorer2) are negative (columns 2–3 and 5–6). However, all realized relative income variables are insignificant even after adding the control variables (columns 8–9). The finding indicates that both poorer and richer farmer groups seem not to be concerned about the real situation or their realized relative income.

The attitude toward relative income variable reveals farmers' inner subjective factor according to their comparative status, which should influence their subjective happiness level. Individuals who feel that they have more income than others in the same society should be happier. Therefore, the coefficient of attitude toward relative income on the subjective happiness level should be positive. Table 7.3 indicates that attitude toward relative income has a strong positive significant relationship with the subjective happiness level. Farmers who feel that they have more income than the others tend to be happier than others.

The average marginal effect is approximately 0.0358, and the marginal effects in each subjective happiness category show that one unit of people feeling that they have more income than others in the same society (dummy variable) is associated with a 5.43% increase in probability to report subjective happiness level 3 and a 0.70% increase in probability to report subjective happiness level 4. It also decreases the probability to report subjective happiness level 1 and level 2 by 3.59% and 3.54%, respectively. (Table 7.4)

This result suggests that “attitude or perception” is more important than “realistic situation” in the point of view of farmers. Moreover, this finding suggests that individuals do not assess their life in isolation from all others. They always compare themselves with others, thus revealing the negative effect of social comparison on the happiness level. Social comparison implies a negative externality in the income-generating activity (Layard, 2005).

**Income aspiration:** People usually compare their income or wealth with that of other people in society (McBride, 2001; Stutzer, 2004; Senik, 2009; Ferrer-i-carbonell, 2005; Knigh and Song, 2009), 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 current study defines as the last comparison in income aspiration (McBride, 2010).

The results in Table 7.3 show a significantly negative effect on subjective happiness by income aspiration (columns 4–6). The gap between aspiration and achievement leads to the negative effect on subjective happiness. After adding the control variables, the coefficients slightly increase (columns 7–9). Therefore, this correlation suggests that individuals with less income aspiration or ambition seem to be happier than those with more. A decrease in income aspiration by one thousand baht affects the increase in subjective happiness at 0.01% (average marginal effect in Table 7.4). The negative relationship between predicted subjective happiness and income aspiration is presented in Figure 7.4.

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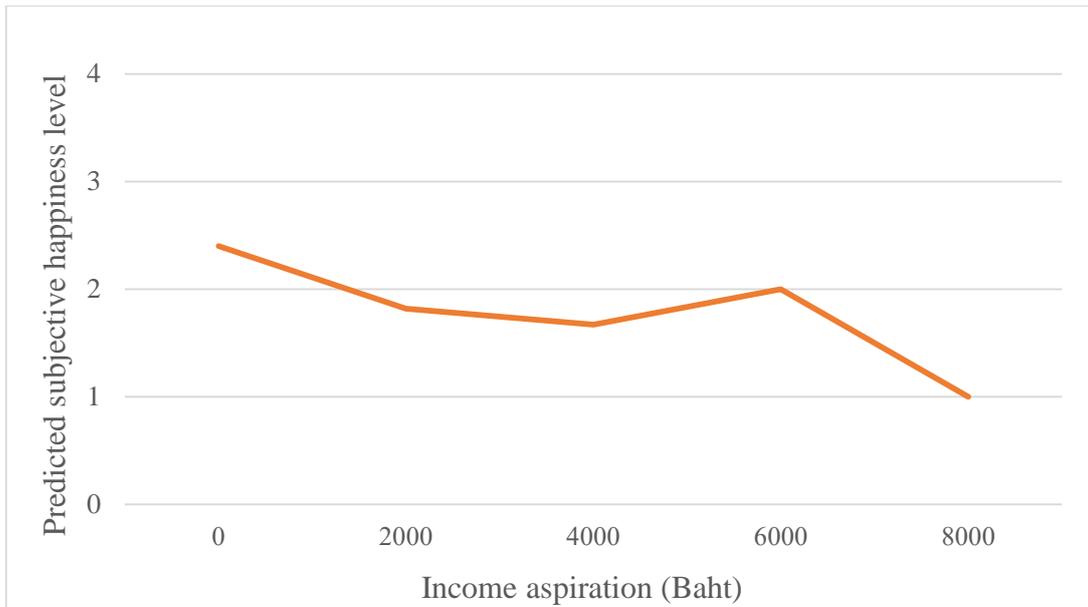


Figure 7.4 Predicted subjective happiness at different income aspiration levels

Theoretically, income aspiration has two main reasons: 1) adaptation: people usually have the capability to be familiar with situations. That is, people also adapt themselves to feel normal with their current income and wealth, and then look at the higher level of income or aspire for the future. When their income increases to a new high, people change their level of aspiration and repeat the loop. Therefore, their income aspiration correlates with their previous income and past consumption. (McBride, 2001; Di Tella et al., 2003, 2007; Stutzer, 2004). 2) Comparison: people usually compare themselves with others. When they observe other people having higher income, better status, or more luxury consumption, they increase their aspiration to imitate and strive to achieve it. Therefore, income aspiration depends on the outcome (either income, wealth, status, or consumption) of the reference group with a positive relationship (McBride, 2001; Stutzer, 2004; Senik, 2009; Ferrer-i-carbonell, 2005; Knigh and Song, 2009; McBride, 2010).

**Age:** This study finds that older farmers are likely to be satisfied with their life than younger farmers. Farmers report that subjective happiness decreases roughly by 0.10% when age increases by one year (Table 7.4). As almost all the respondents are middle-aged, they have already passed adolescence stress and middle-age stress and are not in a

situation to confront health problems in old-age. Farmers do not face health problems compared with other carriers because they work hard and always have outdoor activities.

**Gender:** The result shows no or little effect of gender on subjective happiness. The results in columns 7–9 in Table 7.3 confirm a negative sign, which indicates that men are likely to be happier than women, but it is insignificant.

**Health:** Individuals with good health have a higher subjective happiness level than those with poor health, and thus health and subjective happiness expect a positive sign. However, the results presented in columns 7–9 in Table 7.3 show insignificant effects. These results may be attributed to the high proportion of old population and less variation of age in respondents.

To test the robustness of the study, the complete seven happiness levels are included to run an estimation. The method is the same as the previous model. The result does not change much from the four-scale scale happiness estimation. Therefore, the results from the estimation are robust (Appendix E).

In sum, the results exhibit the robust and strong effects of SEI, objective happiness, absolute household income, attitude toward relative income and income aspiration on subjective happiness level for all available specifications. All of these determinants comply with the theoretical explanation. An increase of SEI, objective happiness, absolute income and attitude toward relative income inflate the subjective happiness level, while an increase of income aspiration, make their target higher, and reduce the subjective happiness level.