

Subjective Well-being and Its Determinants in China: An Empirical Study Based on Survey Data

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Received: July 31, 2016 Accepted: August 22, 2016 Published: September 17, 2016

doi:10.5296/rae.v8i3.9806 URL: <http://dx.doi.org/10.5296/rae.v8i3.9806>

Abstract

Using household survey data collected in 2013, this paper empirically investigates the determinants of individual subjective well-being in China, where there has been rapid economic development over the past three decades. The main results are as follows. First, factors such as good health, marital status, life satisfaction, body mass index, physical exercise, and expectations of inflation are all significantly correlated with the reported level of happiness. Second, income has no significant effect on the level of happiness, and happiness has an inverted U-shaped relationship to wealth. Third, increased education decreases the level of happiness. To some extent, these findings can explain why subjective well-being has declined in China, despite its spectacular economic growth.

Keywords: Subjective Well-being, Happiness, Income, Wealth, China

1. Introduction

Flourishing economies are usually regarded as beneficial for people's well-being. However, many people report feeling unhappy even though they have more comfortable material lives. Subjective well-being has received great attention by economists, starting with Wilson (1967), who published a broad review of research into subjective well-being. Previous studies primarily concentrated on the experience in developed countries. The literature on this topic is multifarious, but the approaches can be divided into those considering either *income* or *non-income* determinants.

1.1 *Income and Happiness*

The focus of many happiness studies has been the impact of income. It is commonly believed that richer individuals are happier than poor individuals and that happiness will increase with income growth (Blanchflower and Oswald, 2000). However, as economies improve, the average happiness level in a population fails to increase (Easterlin, 1995, 2001). One possible explanation for this is that the additional income only flows to the rich, doing little to increase the average level of happiness (Helliwell et al., 2012). Of course, although income can no longer influence levels of happiness, for people who are not wealthy, more income is better (Cummins, 2000). Moreover, Knight et al. (2009) evaluated the self-reported happiness of households in two Melanesian countries, and they found that any link between income and life satisfaction was weak but increased with both income and relative income.

Another finding is that there is diminishing marginal utility of income with respect to happiness. In other words, the life satisfaction of the poor can be improved with small amounts of money, while improving the life satisfaction of richer individuals requires a much larger increase in absolute income. At low levels of income, additional financial resources can secure basic needs, such as food, clothing, housing, health care, water, and sanitation. At higher levels of income, such needs have already been met (Helliwell et al., 2012). Tsutsui et al. (2005) called this phenomenon happiness saturation.

1.2 *Non-income Determinants of Happiness*

There are many non-income determinants of happiness, such as physical health, education, gender, age, minority status, food security, and religion. The relationship of happiness to age has often been found to be U-shaped, with the lowest level of happiness at around 40 years old (Blanchflower and Oswald, 2000). Good mental and physical health have been found to be positively associated with happiness (Helliwell et al., 2012). Marriage has always been found to increase happiness, but there is no strong evidence that having children is associated with happiness (Stutzer and Frey, 2006). In addition, although increased education is usually associated with increased income, in the United States, college education has been found to reduce happiness (Buryi and Glibert, 2014). Sarracion (2013) used two different methodologies to analyze data from the World Values Survey. He drew two main conclusions: (1) similar forces shape people's well-being across countries; and (2) social capital and relational goods are important for people's well-being in rich countries as well as in poor countries. It is interesting that some childhood characteristics can predict the adult life

satisfaction (Frijters et al., 2014). Their findings included the following: the life satisfaction of boys is lower than that of girls, and low birth-weight is associated with lower adult life satisfaction; in addition, good evaluations from teachers (at age 16) is correlated with higher satisfaction as an adult. In general, females are found to be happier than males in advanced economies (Graham and Felton, 2006; Senik, 2004). In recent years, because of the economic depression, unemployment has become a major cause of unhappiness; in most countries, the negative effect of unemployment is greater than that of inflation (Blanchflower et al., 2014).

The studies mentioned above were primarily conducted in developed countries. With the growth of the global economy, economists are increasingly focusing on developing countries, especially China. Appleton and Song (2008) evaluated many of the determinants of life satisfaction in urban China, and found that they were similar to those found to be important in other countries. They also found that Communist Party members report higher levels of life satisfaction, *ceteris paribus*, than nonmembers. Xin and Smyth (2010) used a large household survey, administered across 30 cities in September 2003, to examine the relationship between economic openness and subjective well-being in urban China. Liu and Shang (2012) used data from the China Household Income Project (CHIP) 2002 and found that happiness is positively associated with household income but negatively associated with relative income, and expected income changes have a positive and statistically significant relation to self-reported happiness.

Although some studies have attempted to explain the decrease in happiness in China in recent years, the data they used are relatively old. The most recent data used in the above-mentioned research were collected in 2003, and we note that the lifestyle in China is quite different than it was 10 years ago. Thus, the number of determinants of subjective well-being might increase dramatically. The data we used in this study are from a questionnaire survey conducted by the Institute of Social and Economic Research, Osaka University, in 2013. The questions were somewhat different from those considered in most previous studies, and included information about the frequency of physical exercise, frequency of drinking alcohol, body mass index (BMI), and expected changes in consumer prices over the following year; these were treated as independent variables to evaluate the effect of lifestyle on subjective well-being. Moreover, this paper seeks to identify the main determinants of happiness in China, and a specific objective is to examine whether there is a relationship between *wealth* (not income) and happiness. In China, it is necessary to save money to purchase property, and both property ownership and bank savings are considered as factors affecting happiness; therefore, *wealth* is expected to a factor in happiness in China.

The remainder of this paper is structured as follows. In Section 2, we present an introduction to subjective well-being and discuss the current situation in China. In Section 3, we briefly describe the survey and the variables considered. Section 4 presents the findings of our analysis of the survey responses and a robustness check on the results. Finally, Section 5 concludes this paper.

2. Subjective Well-Being in China

2.1 Subjective Well-Being

There is no uniform definition of subjective well-being. Diener and Seligman (2004) stated that subjective well-being is a positive evaluation and expectation of life. Subjective well-being is generally measured as either happiness or life satisfaction, as self-evaluated on questionnaires (Kalmijn and Veenhoven, 2005). In the World Values Survey, respondents were asked to rate their happiness on a scale of 1 to 4, as follows: “*All considered, would you say that you are: 1. very happy; 2. pretty happy; 3. not too happy; 4. not at all happy?*” In a similar way, they were asked to rate their life satisfaction: “*All things considered, how satisfied are you with your life as a whole these days?*” with answers on a Likert-type scale from 1 (dissatisfied) to 10 (satisfied). Of course, it is possible that the answer was influenced by respondent’s personality, mood at the time of answering, or other factors (Kahneman and Krueger, 2014). Happiness, as self-reported by the respondents, is not an absolute standard but an assessment based on current and past experiences. Moreover, socioeconomic factors, such as economic growth or a depression, also affect the level of happiness. Happiness, as a measure of well-being, has received great attention from policymakers, because measures of subjective well-being provide reliable information about quality of life in modern societies.

2.2 Subjective Well-Being in China

China has undergone massive socioeconomic changes for nearly four decades, following the introduction of market reforms in 1978. Despite spectacular economic growth during this time, subjective well-being in China, as measured by self-reported life satisfaction and happiness, has declined. According to the World Values Surveys, the life satisfaction score fell from 7.29 in 1990 to 6.85 in 2012, and over this same period, those who considered themselves to be very happy dropped from 27.5% to 15.7%. Furthermore, the sixth wave of World Values Surveys (2010–2014) compared the results from the 60 countries that were included in the survey. In China, 35% of the respondents said they were “very happy” or “pretty happy”, which is lower than the overall average, and only 15.7% reported that they were “very happy”; this is far below the overall average of 31.7%. When ranked according to life satisfaction, China was in 32nd place, which is just above the median. This suggests that the subjective well-being in China is not as responsive to the gross domestic product (GDP) as it is in other countries.

3. Data and Methodology

3.1 Data

The data used in this paper are from the *Preference Parameters Survey* (PPS), which was conducted by the *Global COE Program* of Osaka University. Data were collected in four counties: Japan, the United States, India, and China. In China, rural and urban areas were investigated separately. The primary intent of the survey was to obtain data from which the parameters of the utility function could be calculated; these include time preference, risk aversion, habit formation, and externality. In certain urban areas, both a cross-sectional survey

and a panel survey were carried out; this included six cities (Beijing, Shanghai, Guangzhou, Chengdu, Wuhan, and Shenyang). A sample was drawn from men and women aged 20 to 69 years old, and these individuals were interviewed. In rural areas, only cross-section surveys were conducted; as for the urban areas, a sample was selected for interviews, this time for those living in rural areas of four provinces (Hunan, Hubei, Sichuan, and Liaoning).

In this paper, we use the 2013 data for both urban and rural areas. A total of 1318 households were surveyed (818 urban and 500 rural). The survey elicited self-reports of individual characteristics, employment status, income, bank account balance, health status, education, life satisfaction, and various other factors. In the PPS, happiness was determined by responses to the question, “Overall, how happy would you say you are currently?” Answers were on a Likert-type scale from 0 to 10, where 10 was “very happy” and 0 was “very unhappy”. Life satisfaction was determined by responses to the question: “How satisfied are you with your life overall?” Answers were on a Likert-type scale, where 1 was “satisfied” and 5 was “unsatisfied”. The income was reported as the monthly salary, and wealth was reported as the sum of savings and the appraised value of all housing and property owned by the household. A summary of the descriptive statistics used in the analysis is listed in Table 1. As shown in the table, we can see that the average age of individuals sampled was about 44 years old. Their health status was good, and 81.3% of the respondents were married. In addition, the proportion of females to males was approximately 1 to 1.

Figure 1 shows the distribution of self-reported happiness levels. If we group the levels into five pairs, then levels 1 and 2 were “not at all happy”, levels 3 and 4 were “not happy”, 5 and 6 were neither happy nor unhappy (“so-so”), 7 and 8 were “happy”, and 9 and 10 were “very happy”. The majority of the respondents (725) felt happy or very happy (649 happy, 76 very happy), 534 respondents reported they were so-so, and the remaining 59 respondents were not happy or not at all happy. The mean happiness score was 6.22, which is less than that (6.85) of the World Values Survey 2012 results for China.

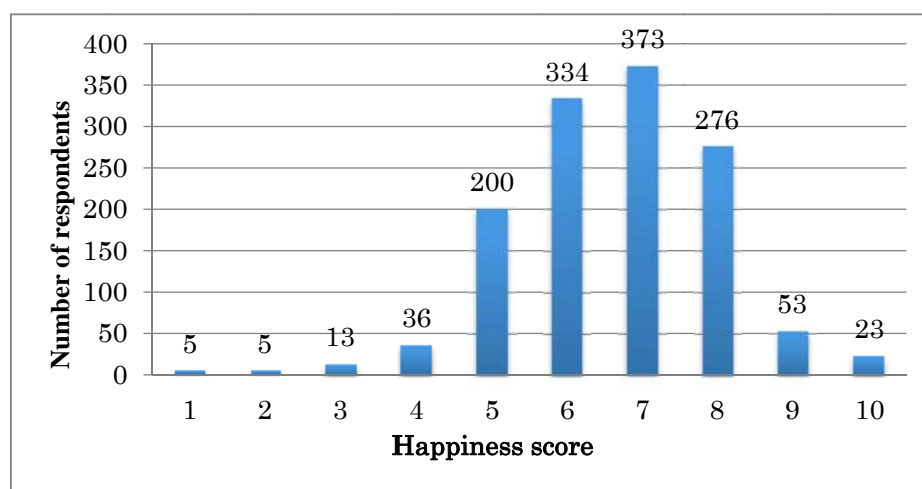


Figure 1. Distribution of the self-reported happiness scores

Table 1. Descriptive Statistics of Variables

Variables	Mean	Std. dev.	Min	Max
Happiness	6.622	1.372	1	10
Age	43.681	13.650	20	69
Female (1 if female, 0 otherwise)	0.499	0.500	0	1
Married (1 if married, 0 otherwise)	0.813	0.390	0	1
Health status (1 if unhealthy, 5 if healthy)	4.073	0.914	1	5
Graduated from college (1 if yes, 0 if no)	0.005	0.067	0	1
Number of people in household	3.363	1.245	1	10
Income (yuan)	2810.56	2,627.77	0	41,100
Wealth (yuan)	779,021	774,509	10,000	4,400,000
Overall satisfaction with life (1 if unsatisfied, 5 if satisfied)	3.798	0.692	1	5
Satisfaction with residence (1 if unsatisfied, 5 if satisfied)	3.719	0.828	1	5
Satisfaction with leisure activities (1 if unsatisfied, 5 if satisfied)	3.561	0.808	1	5
Satisfaction with current financial situation (1 if unsatisfied, 5 if satisfied)	3.388	0.825	1	5
Satisfaction with relationships with friends (1 if unsatisfied, 5 if satisfied)	3.926	0.704	1	5
Satisfaction with work (1 if unsatisfied, 5 if satisfied)	2.858	1.720	1	5
Current standard of living below average	0.200	0.400	0	1
Current standard of living above average	0.196	0.398	0	1
Expected change in consumer prices over next year (percentage)	2.23	1.97	-4.5	4.5
Change in annual income compared to 2011 (percentage)	1.9	3.6	-9.00	9.00
Exercise (times/week)	2.421	1.540	1	5
Drink alcoholic beverages (times/week)	1.806	1.054	1	5
Height (cm)	165.233	7.855	140	189
Weight (kg)	63.627	13.505	35	135

3.2 Methodology

As outlined in Graham (2005), empirical models of happiness are usually specified in the following way:

$$\mathbf{w}_i = \alpha + \mathbf{bX}_i + \mathbf{u}_i \quad (1)$$

where \mathbf{w}_i is self-reported happiness of household member i , \mathbf{X}_i is a vector of explanatory variables including socio-demographic characteristics. In this study, the explanatory variables include age, gender, education background, health status, household size, marital status,

monthly income, wealth, the satisfaction of all areas of life, self-reported inequality, physical exercise, the change in annual income compared to 2011, drinking frequency, BMI, and the percentage of expected change in consumer price next year. α is a constant term and \mathbf{b} is a vector of coefficients. Unobserved characteristics and measurement errors are captured in the error term (\mathbf{u}_i).

Self-reported inequality was obtained by asking households about their standard of living standard: “How does your standard of living compare with that of your community?” Respondents were asked to use a five-point Likert-like scale (1 for “much lower than mine” to 5 for “much higher than mine”).

Because the happiness score was restricted to be in the range from 0 to 10, we used Tobit regression instead of standard ordinary least-squares (OLS) regression. Drawing on the literature and on the descriptive evidence of the survey, we posed the following five questions.

- (1) Do the personal characteristics that have been found to influence happiness around the world have the same effects in China?
- (2) Do economic factors affect happiness? These include factors such as income, wealth, and consumer prices.
- (3) Are comparative factors important to happiness? These include factors such as the relative standard of living.
- (4) Is overall life satisfaction associated with the level of happiness?
- (5) Does lifestyle have an independent effect on happiness?

Life satisfaction and happiness are almost the same thing (Blanchflower and Oswald, 2000), and either happiness or life satisfaction was used in previous studies. However, in the questionnaire, the respondents were asked about their life satisfaction: “How satisfied are you with each of the following? Your life overall, your residence, your leisure activities, the current financial situation of your household, and your relationships with your friends.” Answers were reported on a scale from 1 for unsatisfied to 5 for satisfied. People are usually happier when they have many good friends, because this reduces emotional stress (Diener and Seligman, 2004). Although they were enjoying material comfort, many people reported that they felt isolated and lonely (Yoshinaka and Hatanaka, 2013). Hence, we added these life satisfaction factors as explanatory variables to assess the effect of life satisfaction on happiness.

We divided the factors into five categories: basic variables, economic variables, comparative variables, life-satisfaction variables, and lifestyle variables. In addition, three dummy variables (female, married, and college graduation) were included in the basic variables, and two dummy variables (below-average standard of living and above-average standard of living) were included in the comparative variables. Because of multicollinearity between income and wealth, we estimated the effects of income and wealth separately.

4. Results and discussion

Table 2 presents Tobit regression results, in which income was considered as the primary economic variable. Models (1) and (2) in Table 2 contain the basic variables, economic variables, comparative variables, and life satisfaction variables. Models (3) and (4) contain those variables but also add lifestyle variables. Because of possible multicollinearity between the overall satisfaction with life and the satisfaction with each item, Models (1) and (3) consider the overall satisfaction with life, and Models (2) and (4) consider the satisfaction with each of the various items. We note that among the 1318 samples, only 29 respondents were unemployed, and the dummy variable for unemployment is statistically insignificant. Therefore, we decided not to use this variable in the regression.

4.1 Results of Factors Affecting Happiness When Using Income as the Economic Variable

4.1.1 Basic Variables

The basic variables were individual characteristics, including age, age squared, gender, education, marital status, health status, and household size; these have also been used in most previous studies.

As shown in Table 2, in all four models, the coefficients for age and age squared are significantly negative and positive, respectively. The U-shaped relationship of happiness with age suggests that the level of happiness is relatively high for young people, decreases during middle age, and then increases with increasing age. In China, the lowest level of happiness is for those aged 49, which is older than that seen in the other Organization for Economic Co-operation and Development (OECD) countries (early 40s) and Russia (47; Graham et al., 2004). This might be due to the fact that in recent years in China, especially in the urban areas, people are more likely to get married and have their children later in life. Therefore, the stress from raising children is also delayed, and thus the lowest point of happiness is also delayed.

In some previous studies, women reported being happier than men (Graham and Felton, 2006; Senik, 2004). This has been explained by stating that men generally bear more of the burden for work and family. However, in this study, the dummy variable for female was statistically insignificant, suggesting that gender *per se* does not affect happiness in China. This is probably because women usually work in China. White (1992) pointed out that the gender-based happiness gap is gradually decreasing.

A large number of surveys have shown that married people report greater happiness than those who are unmarried, divorced, separated, or widowed. Our results showed that married respondents reported higher level of happiness than did single respondents. The reason for this is that married people not only have a lower probability of suffering from mental and physical illness (DeLongis et al., 1988), but also their mortality (Lynch, 1979) and unemployment levels (Forthofer et al., 1996) are relatively low. On the other hand, marriage can cause happiness to decrease (Tsang et al., 2003), because after the birth of a child, this places demands on the parents' energy and time (Lawson, 1998).

Good physical health is positively correlated with the level of happiness. Diener and Seligman (2004) stated that health should not be considered only in the traditional sense, that is, the absence of disease, but also as having a good state of mind; that is, both physical and mental

health should be taken into account. In all models, the number of people in the household has also been found to have a significantly positive effect on happiness. Although Feeny et al. (2014) found that household size has a negative association with happiness, they considered only economically poor households. In modern society, although enjoying material comfort, many people report feeling isolated and lonely (Yoshinaka and Hatanaka, 2013); therefore, we assume that those who live with a big family are less likely to feel lonely.

Table 2. Determinants of Happiness When Using Income as the Economic Variable

	(1)	(2)	(3)	(4)
<i>Basic variables</i>				
Age	-0.0495**	-0.0499**	-0.0423*	-0.0441*
Age squared	0.0005**	0.0005*	0.0004*	0.0005*
Female	0.0451	0.0333	0.0021	0.0014
Married	0.2121*	0.2536**	0.2033*	0.2408**
Health status	0.0860*	0.1014**	0.0890*	1.1039**
College graduate	-0.7797***	-0.1304***	-0.9202***	-1.2562***
Number of people in household	0.0584*	0.0595*	0.0686**	0.0720**
<i>Economic variables</i>				
Log of income	-0.4248	-0.3930	-0.7829	-0.7059
Log of income squared	0.0346	0.0285	0.0552	0.0463
Percentage change in annual income			0.0710	0.3218
<i>Comparative variables</i>				
Below-average standard of living standard	-0.0374	-0.0974	-0.0077	-0.0729
Above-average standard of living	-0.0440	-0.0673	-0.0532	0.0772
<i>Satisfaction variables</i>				
Satisfaction with overall life	0.5738***		0.5742***	
Satisfaction with residence		0.0446		0.0247
Satisfaction with leisure activities		0.1320**		0.1393***
Satisfaction with current finances situation		0.2095***		0.2040***
Satisfaction with friends		0.2023***		0.1990***
Satisfaction with work		-0.0007		0.0089
<i>Lifestyle variables</i>				
Expected change in consumer prices %			5.9141***	5.2971**
BMI			-0.0132*	-0.0096
Exercise			0.0793***	0.0866***
Drinking alcoholic beverages			-0.0198	-0.0131
Constant	6.0450	6.1406	7.3944	7.2850
R-squared	0.0316	0.0252	0.0372	0.0300
Number of observation	1238	1238	1238	1238

Note: *p < 0.10; **p < 0.05; ***p < 0.01

We predicated that a good education might also have a positive effect on happiness. However, we find that the opposite is true, as shown in Table 2. This is also contrary to the results presented by Sarracino (2013). A possible explanation for this is that a good education can result in a higher income, but higher-paying jobs (such as manager, engineer, or professor) require longer working hours, job safety risks, and frequent business travel.

4.1.2 Economic Variables

Several studies have found that income has a significantly positive effect on happiness (Ahuvia and Friedman, 1998; Hajdu and Hajdu, 2014). However, our results find that the effect of income is insignificant, which is consistent with the results of Campbell et al. (1976), who concluded that personal income exerts little influence over subjective well-being. Subsequent reviewers have generally arrived at a similar conclusion (Diener et al., 1999; Headey and Wearing, 1992; King and Napa, 1998). However, despite this apparent consensus, there are numerous empirical reports indicating that people who are rich have a level of subjective well-being that is substantially higher than people who are poor (Feeny et al., 2014). We note that the mean change in annual income (compared to 2011) was 1.9%, but this did not result in a greater level of happiness. We note that it has been found that people tend to evaluate their past, current, and future income by reference to their current aspirations (Easterlin, 2001). The satisfaction with one's current financial situation was found to have a strong positive effect in Models (2) and (4), which implies that, to some extent, money plays a role in determining one's happiness.

Table 3. Percentage of Individuals by Level of Happiness and Relative Standard of Living

	Well below average	Below average	Average	Above average	Well above average
Very happy	8.33	4.26	5.03	9.32	7.41
Happy	25	53.19	51.88	38.56	51.85
So-so	33.33	35.32	40.08	49.58	25.93
Not happy	29.17	6.81	2.64	2.12	0
Not at all happy	4.17	0.43	0.38	0.42	14.81
Total	1.82	17.8	60.40	17.92	2.06

Note: The total number of observations was 1318. The level of happiness based on cardinal values assigned to qualitative assessments is as follows: very happy = 9 and 10; happy = 7 and 8; so-so = 5 and 6; unhappy = 3 and 4, not at all happy = 1 and 2.

4.1.3 Comparative Variables

We now consider whether happiness is influenced by a person's aspirations, as determined by their community. Respondents were asked to compare their standard of living with that of their community. Table 3 shows that there is a symmetrical distribution around the average, and the majority (60.40%) regard their standard of living as being average. The proportion reporting that they are happy or very happy rises monotonically with the relative standard of living, from 33.33% (8.33% + 25%) for those well below average, to 59.26% (7.41% + 51.85%) for those

well above average. The mean happiness score also rises monotonically with the relative standard of living, from 5.7 for well below average, to 6.22 for well above average. It appears that people experience relative deprivation by comparison with the standard of living of others in their community. However, the effects of the comparative variables on happiness were statistically insignificant in all the models. In other words, comparing one's standard of living with that of their community does not affect one's level of happiness. Easterlin (2001) has argued that happiness is a positive function of income and a negative function of aspirations. Moreover, aspirations tend to be governed by the standards and norms of the community. This makes a person's relative position in the community important to his or her happiness.

4.1.4 Satisfaction Variables

In Models (1) and (3), we found that overall satisfaction with life was strongly correlated with happiness. In Models (2) and (4), the satisfaction with one's current financial situation, leisure activities, and relationships with friends was significantly associated with greater happiness. Satisfaction with residence and work were less associated with happiness. Thus, we found that compared to the livings and working environment, good interpersonal relationship and rewarding use of leisure time are more important for raising the level of happiness. Layard (2005) suggested that trust in others and honesty are declining, stress and mental illness are widespread, and it is increasingly difficult to find space to enjoy social relationships. It seems that the overall standard of living is improved less by paying attention to necessities, such as food and clothing, and more by paying attention to spiritual and emotional needs.

4.1.5 Lifestyle Variables

We introduced a set of lifestyle variables (expected increase in consumer prices over the next year, BMI, physical exercise, and drinking alcoholic beverages) into Models (3) and (4). The BMI is a well-known index of weight, and a larger BMI is associated with an increased risk of various illnesses. For this reason, in Model (3), we assumed that the BMI would have a significant negative effect on happiness, although we assumed that this effect would be weakened when the full set of *satisfaction variables* was applied. We expected that an individual who drank more alcoholic beverages would be less happy due to stress. Although the correlation was negative, it was not statistically significant. An explanation for this might be that drinking behavior can also be social, and thus heavier drinking could be associated with reduced stress. The expected increase in consumer prices was found to have a strong and positive effect on happiness.

4.2 Results of Factors Affecting Happiness When Using Wealth as the Economic Variable

Table 4 shows the results of a Tobit regression when using wealth as the main economic variable. The results are almost the same as those presented in Table 2. Wealth is significantly correlated to happiness in all four models, as expected. The inverted U-shaped pattern seen for the relationship between wealth and happiness is consistent with the findings of Graham and Pettinato (2002). Moreover, Knight et al. (2009) used the Chinese rural household survey and also found that net wealth significantly increases happiness, although the effect is relatively small. The result that wealth significantly affects the level of happiness but income does not

reflects the fact that there is a very large gap between wealth and income in China. This is due to the housing reform measures that began in 1994. This dramatically increased the wealth-income ratio of Chinese households, especially in urban areas. In our sample, the average wealth-income ratio was 13.56, which is much higher than that in G7 countries.

Table 4. Determinants of Happiness Using Wealth as the Economic Variable

	(1)	(2)	(3)	(4)
<i>Basic variables</i>				
Age	-0.0465**	-0.0455*	-0.0410*	-0.0386
Age squared	0.0004*	0.0004	0.0004	0.0004
Female	0.0408	0.0314	0.0604	0.0036
Married	0.2652**	0.2536**	0.2650**	0.3281***
Health status	0.0933*	0.1156**	0.0891*	0.1123**
College graduate	-0.6625***	-1.0641***	-0.8467***	-1.2562***
Number of people in household	0.0571*	0.0549	0.0673**	0.0667*
<i>Economic variables</i>				
Log of wealth	1.6820***	1.0652**	1.1073**	0.8273*
Log of wealth squared	-0.0496**	-0.0423**	-0.0439**	-0.0345*
Percentage change in annual income			1.2778	0.4393
<i>Comparative variables</i>				
Below-average standard of living	-0.1468	-0.1787*	-0.1047	-0.1420
Above-average standard of living	-0.1410	-0.1647	-0.1636	0.1831*
<i>Satisfaction variables</i>				
Overall satisfaction with life	2.5593***		0.5561***	
Satisfaction with residence		0.0836		0.0678
Satisfaction with leisure activities		0.1157**		0.1214**
Satisfaction with current finances situation		0.1835***		0.1839***
Satisfaction with friends		0.1845***		0.1792**
Satisfaction with work		-0.0295		-0.0259
<i>Lifestyle variables</i>				
Expected change in consumer prices %			5.1584***	5.0342**
BMI			-0.0137*	-0.0102
Exercise			0.0884***	0.0934***
Drinking alcoholic beverages			-0.0622	-0.0396
Constant	-3.3972	-1.7291	-2.1017	-0.1224
R-squared	0.0346	0.0277	0.0412	0.0330
Number of observations	1140	1140	1140	1140

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

We now consider the comparative variables. As shown in Table 4, we find a significantly negative effect of a below-average standard of living on happiness, and we found the opposite for an above-average standard of living. Although these effects were weak, they are consistent with the results of Knight et al. (2009). It is worth mentioning that the expected increase in consumer prices over the next year is always a significant determinant of happiness. This implies that the respondents' expectation of good economic conditions in the future can improve the degree of happiness.

As a result of performing the Tobit regression and using both income and wealth as the economic variables, we can now answer the five questions posed in Section 3.2.

- (1) Our data have properties that are common to many happiness studies around the world. For example, the age-happiness profile had a U-shaped pattern, and being married and in good health increased happiness. However, in China, we found no direct beneficial effect of education on happiness.
- (2) For the conventional economic variables, we found that income had no effect on happiness, and wealth significantly affected happiness in an inverted U-shaped pattern.
- (3) In general, the comparative variables, including the relative standard of living, had little effect on the level of happiness.
- (4) Overall life satisfaction and satisfaction with such factors as leisure activities, current financial situation, and relationships with friends were positively associated with the level of happiness. People who derived their satisfaction more from personal relationships and less from material goods and services appeared to be happier. Therefore, in order to raise their level of happiness, people should maintain good relationships with their friends.
- (5) We find that certain lifestyle variables, such as the BMI and physical exercise, significantly influenced the level of happiness.

4.3 Robustness Check

In this subsection, we report the results obtained from a Probit regression that is performed as a robustness check of the above results. Table 5 presents the Probit estimates. The Probit regression estimated the effect of each variable on the probability of being happy or unhappy. The binary dependent variable in the Probit regression is 1 if the level of happiness was higher than 5, and 0 otherwise. All the independent variables are exactly the same as those shown in Table 4. By comparison with the results present in Table 4, there are no large differences in the signs and significance of the parameters. In this sense, our results can be regarded as robust.

Table 5. Robustness Check: Determinants of Happiness

	(1)	(2)	(3)
<i>Basic variables</i>			
Age	-0.0560**	-0.0148*	-0.0501*
Age squared	0.0005*	0.0001	0.0004
Female	0.0421	0.0200	0.0021
Married	0.2533*	0.0861*	0.2825**
Health status	0.0925*	0.0182	0.0635
College graduate	-0.1105	-0.0092	-0.4661
Number of people in household	0.0409	0.0104	0.0336
<i>Economic variables</i>			
Log of wealth	0.0987*	0.3493*	0.9130
Log of wealth squared	-0.0383*	-0.0141*	-0.0385*
Percentage change in annual income		1.1667***	2.8525**
<i>Comparative variables</i>			
Below-average standard of living		-0.0837**	-0.2525**
Above-average standard of living		-0.0298	-0.1166
<i>Satisfaction variables</i>			
Overall satisfaction with life		0.1564***	
Satisfaction with residence			0.0017
Satisfaction with leisure activities			0.1180*
Satisfaction with current financial situation			0.1798***
Satisfaction with friends			0.2223***
Satisfaction with work			-0.0108
<i>Lifestyle variables</i>			
Percentage of expected consumer price increase		1.2125*	4.3946**
BMI		-0.0035	-0.0051
Exercise		0.0370***	0.1274 ***
Drinking alcoholic beverages		0.0050	0.0145
Constant	-4.7184	-1.8317	-5.9541
R-squared	0.0206	0.0252	0.0956
Number of observations	1161	1161	1161

Note: *p < 0.10; **p < 0.05; ***p < 0.01

5. Conclusions

In this paper, we considered the main factors influencing subjective well-being in China. We considered those factors determined by prior studies, and we used survey data from 2013. Our approach was that seen in much of the growing literature on the economics of happiness, and we used self-reported measures of utility to examine the determinants of subjective well-being and to evaluate economic policies in transitional economies. The main findings are as follows. First, factors such as good health, marital status, life satisfaction, BMI, physical exercise, and an expected increase in consumer prices are all significantly associated with the level of

happiness. Second, income has no significant effect on the level of happiness, but wealth shows an inverted U-shaped effect on happiness. Third, higher education decreases the level of happiness.

As a way to improve the level of happiness, the previous Chinese administration of Hu Jintao and Wen Jiabao introduced the notion of building a harmonious society, in which the benefits of economic growth are balanced against the need to reduce income inequality, access to education is improved, jobs are created, and there is a safety net for those who have been made worse off by economic reform. The purpose is to demonstrate the government's commitment to the construction of a socialist market that serves the citizens. If the Chinese government seeks to offer reassurance, our results suggest that attention should be given to the social problems that have accompanied China's economic changes. If these social problems are addressed, there will be a positive effect on subjective well-being.

Finally, one limitation of this study should be mentioned. As a potential but important factor of unhappiness, unemployment needs to be considered. However, the number of unemployed respondents in the sample was too small; we intend to address this in the future.

Acknowledgments

We wish to thank the Global COE program at Osaka University for providing the data we used in this study. Financial support for this study was provided by the Japanese Ministry of Education, Culture, Sports, Science and Technology through Grant-in-Aid for Scientific Research (C) 15K03353. All views expressed in this paper and any errors are the sole responsibility of the authors.

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