Happiness and Life Satisfaction in Japan by Gender and Age

Tim Tiefenbach and Florian Kohlbacher

Happiness (marginal age effect)
Happiness and Life Satisfaction in Japan by Gender and Age

Abstract
Subjective well-being, especially measured in terms of “happiness” and “life satisfaction”, is increasingly considered an important policy goal around the globe. The fact that the Japanese government decided in 2010 to focus its annual survey, the National Survey on Lifestyle Preferences, on happiness and its determinants is just one indicator of this importance also in Japan. Based on the most recent survey data from the years 2010 to 2012 this study analyses happiness over the lifespan with a special focus on gender differences. An analysis of the happiness level over the lifespan is especially interesting in the case of Japan, since the country is known for its relatively traditional, rigid social structures with predetermined life courses and carrier paths. Furthermore, research has revealed strong gender differences across various social indicators in Japan and these differences are also reflected in the correlates of happiness. Although previous happiness studies in Japan have also included gender in their analysis, the present study is unique in two respects: First, the underlying dataset is not only the most current one available for Japan, with over 9000 observations it is also very comprehensive. Second, in a subset of the data not only the “happiness level” but also the “life satisfaction” of the respondents is recorded, which allows a unique differentiation of the two concepts stratified by gender. Results indicate for example that while household income affects happiness and life satisfaction equally for men and women, the latter show a stronger negative correlation with life satisfaction when having no savings. Overall, the present study provides the first overview of recent happiness and life satisfaction data in Japan from a gender and age perspective.
Happiness and Life Satisfaction in Japan by Gender and Age

© Tim Tiefenbach and Florian Kohlbacher
1. Introduction

Japan is not only known for its high life-expectancy and its increasingly aging society (Coulmas 2008), but also for its relatively traditional, rigid social structures with predetermined life courses and career paths (Sugimoto 2010). These features suggest that gender and age differences in subjective well-being are more evident in Japan than in other societies. The World Value Survey data show for example that Japan (20.8%) ranks together with Bangladesh (16.5%), Iran (22.7%), the Philippines (15.5%), Saudi Arabia (8.6%) and Morocco (7.9%) among the lowest countries regarding “norms on gender inequality” (see Tesch-Römer, Motel-Klingebiel and Tomasik 2007). The numbers in parenthesis show the percentage of women disagreeing with the statement that “When jobs are scarce, men should have more right to a job than women”. Further, Veenhoven (2008) develops a happiness indicator called Happy Life Years (HLY) which is the product of a country’s average life expectancy ($L$) multiplied by the happiness index taken from the World Database of Happiness which is transformed into a scale ranging from “0” to “1” ($H$). $HLY = L \times H$. Regarding Japan he observes that “[t]he rank-order of HLY is quite similar to the rank order in average happiness, the rank-order correlation being +.94. The correlation is not perfect however, in some countries people live long, but are not too happy (e.g. Japan)”, Veenhoven (2008).

The Japanese government has recently jumped onto the bandwagon of policy makers considering alternative indicators to Gross National Product (GNP), such as Gross National Happiness (GNH) and set up a Commission on Measuring Well-Being in late 2010.1 Earlier in the same year, the Cabinet Office has set the focus of the annual National Survey on Lifestyle Preferences (NSLP) on happiness and its impact factors.

Despite the government’s efforts to promote alternative well-being measures, the Japan-related literature in happiness economics, however, shows a relative scarcity of studies compared to other countries. Within the international literature Japan is mainly a topic in context of the discussion of the Easterlin Paradox where it is often treated as an outlier (Easterlin 1995; Hagerty and Veenhoven 2003; Easterlin 2005; Veenhoven and Hagerty 2006; Stevenson and Wolfers 2008; Suzuki 2009). Apart from this, Japan-related studies either focus on very narrow topics like income inequality (Oshio and Kobayashi 2010, 2011; Oshio, Noazaki and Kobayashi 2011) or social trust (Tokuda, Fujii and Inoguchi 2010; Tokuda and Inoguchi 2008). Others again are based on limited samples such as students (Tafarodi et al. 2012b; Tafarodi et al. 2012a). Inoguchi and Fuji (2009) is one of the few broad-scale studies on Japan based on data from the Asianbarometer. However, the study has a number of drawbacks: The data from the 2006 Asianbarometer is not very recent, the sample is relatively small (n=1003) and the analysis is not comprehensive, since many standard variables are not being controlled for.

---

1 Literally “commission on measuring happiness”: http://www.esri.go.jp/en/proc/current_research/koufukudo/koufukudo-e.html. Unfortunately, with the change in government in late 2012, the new administration has dissolved this commission with the start of the new fiscal year in April 2013.
Given this state of the field, we have conducted an econometric analysis of the Japanese National Survey on Lifestyle Preferences (NSLP) of the years 2010 to 2012. The purpose of our paper is twofold. First, based on a very recent and comprehensive dataset we add to the discussion of gender and age effects on happiness from a Japanese perspective. Second, since a subset of the data includes two different measures of well-being, we further examine differences in perceived life satisfaction and happiness from a gender and age perspective and by doing so adding another dimension to the discussion.

2. Literature

While a number of international studies in the field of happiness research have shown remarkably similar results regarding the effects of income, unemployment and marriage (Blanchflower and Oswald 2011), the effects of basic control variables, such as age and gender, are still discussed controversially. Regarding gender differences the international literature – with the exception of Eastern Europe (see Hayo and Seifert 2003) – finds that women are happier than men (e.g. Blanchflower and Oswald 2004; Frey and Stutzer 2002; Praag and Ferrer-i-Carbonell 2008). However, in most of these studies the size of the gender effect is small or negligible.  

Regarding the well-being effects of age the international literature finds a U-shaped age effect (Frey and Stutzer 2002; Oswald 1997; Blanchflower and Oswald 2008). Easterlin (2006) however, refers to a number of psychological studies which show that, although the marginal age effect is still U-shaped, happiness over the lifespan –without keeping all other variables constant– describes an inverted U-shape (see also Myers 2000; Argyle 1999; Diener et al. 1999). In a similar vein (Blanchflower and Oswald 2008) conclude their own analysis with the observation that depending on the country, the U-shape holds also in the raw data or only when controlling for other variables in a multiple regression. Using fixed-effects estimations on large panel datasets from Germany, the UK and Australia Frijters and Beatton (2012) find almost no change in subjective well-being between the age of 20 and 50. Using the same fixed-effects estimations on the same UK panel data Clark (2007) as well as Baird et al. (2010) find a U-shaped age effect between the age of 20 and 50, indicating that even the analysis of panel data yields no consistent results.

In contrast to the international literature, most of the Japan-related studies find rather big happiness gaps between men and women (Sano and Ohtake 2007; Kusago 2008; Urakawa and Matsuura 2007a; Tsuji 2011; Ohtake 2012). Deviating results are reported by Yamane et al. (2008) who, similar to the international literature, find only a small coefficient of the gender variable. Further, in Oshio (2011) the gender coefficient is not significant. Tiefenbach and Kohlbacher (2013), however, find a coefficient of 0.45 (on a scale from 0-10) that lends further evidence to both, the

---

2 Although most studies on life satisfaction find that women are more satisfied with their lives, there is a body of literature suggesting that women report more negative emotions than men Costa, JR., Terracciano and McCrae (2001), Feingold (1994), Nolen-Hoeksema (1987), Smith and Reise (1998).
universal finding that women are happier than men and to the country specific result that the gender gap in happiness is rather big in Japan compared to other countries.

Results on age effects in the Japan-related literature are not consistent. While some studies more or less confirm the U-shaped age effects (Oshio and Kobayashi 2011; Ohtake 2012; Kusago 2007; Tsuji 2011), others show different results such as downward sloping effects (Yamane, Yamane and Tsutsui 2008), inversed U-shapes (Tsutsui, Ohtake and Ikeda 2010) or no significant relationship at all (e.g. Inoguchi and Fuji 2009; Sano and Ohtake 2007). Finally, Tiefenbach and Kohlbacher (2013) find in their study on Japan a U-shaped trend in both the raw data and the multivariate happiness estimation. A very unique result of their study is that the age effects can only be found among men, whereas the age groups dummies have almost no statistically significant coefficients for women.

Regarding the concepts of happiness and life satisfaction, two positions can be found in the literature. While one side argues that not only the label but also the measures of “happiness” and “life satisfaction” can be used interchangeably (Veenhoven 1991, 2008; Frey 2008; Frey and Stutzer 2002), other authors, however, argue that there are significant differences between those concepts, not only theoretically (Lane 2000), but also when analyzing empirical data (Gundelach 2004), especially when analyzing sub-groups like Russian students (Balatsky and Diener 1993) or older women with heart diseases (Friedman 1993).

3. Data and analytical strategy

The present study uses regression analysis to analyze data from the National Survey on Lifestyle Preferences (kokumin seikatsu senkōdo chōsa) of the years 2010 to 2012 in Japan. This survey has been introduced in 1972 and is commissioned on an annual basis since 1984 by the Japanese cabinet office. Since 2010 the focus has been placed on individual happiness and its determinants. The population of the survey includes men and women in Japan between 15 to 80 years of age and the sample is generated via a 2-stage randomized stratified procedure and includes 4000, 5000 and 4000 persons respectively for the years 2010, 2011 and 2012. Due to the relatively high response rates, there are 9280 completed questionnaires available for analysis. Unfortunately, the NSLP is not a panel survey, and therefore only allows for a pooled cross-sectional analysis. Although pooling the three datasets from 2010 to 2012 yields a large sample size, it comes with the downside of limiting the number of control variables. This is due to the fact that the questionnaire items and their coding have been subsequently changed over the years.

---

3 The cabinet office labels the years in accordance with the Japanese fiscal year system, which runs from the beginning of April of one year to the end of March of the following year. Thus, the surveys are from the fiscal years 2009, 2010, and 2011. However, as the surveys are always conducted at the end of the fiscal years, they were actually conducted in 2010, 2011, and 2012.

4 Note that questions on happiness and life satisfaction have already been included in questionnaires prior to 2009 but not necessarily as the main focus.
leaving only a limited number of variables which can be consistently included in a cross-sectional estimation.

Against this backdrop, our analytical strategy is as follows. In a first step we run a regression analysis using the pooled data of the years 2010 to 2012. Since pooling the datasets results in a substantial loss of a number of control variables, we then estimate regression models only using the 2010 data. This allows us to include more control variables (albeit with a smaller sample size (n=2802)). In each step we run three regression models: one using the whole sample followed by two separate models for men and women. The reason for focusing particularly on the 2010 dataset lies in the fact that it includes not only a happiness measure, but also a question regarding the general life satisfaction of the respondents. This allows us to control for differences in perceived happiness and life satisfaction levels stratified by gender. As analytical method we use ordinary least square (OLS) as well as ordered probit regressions, but since the results of the latter are consistent with our findings only the OLS results are reported (see also Tiefenbach & Kohlbacher 2013).

4. Pooled cross-sectional analysis of the years 2010 to 2012

In the following sections we first describe the variables of interest used in the regression models for the pooled dataset of the years 2010 to 2012. We then look at the raw data regarding the average happiness level stratified by gender and age. Finally we introduce our regression models and discuss their results.

4.1 Variables of interest

Our dependent variable is the current happiness level of the respondent. The corresponding survey item reads: “How happy are you currently?” Answer options range from 0 to 10 on an 11 point scale. On the right hand side of the equation we are mainly interested in the gender and age group variables. But in order to control for distortions we further introduce a number of control variables that are common in happiness estimations. Apart from basic socio-demographic variables (income, income squared, age groups, gender) we control for family relations (cohabitation with spouse, number of children, children under 6 years dummy), employment relations (student, housewife, without work) as well as standard control variables including survey year and prefecture dummies. Unfortunately, the items asking the age and number of children as well as the items asking about the employment relations of the respondents as well as the class of their yearly household income, were changed over the years, which is the reason why we can only

---

5 In the Japanese original, the word shiawase is used for happiness. Note that the choice of words could have an impact on response behavior (on the issue of different happiness terms in the Japanese language see e.g. Coulmas (2010); on the differences in happiness terms in other languages, see Coulmas (2012).
use a rather limited number of standard controls. We also include an array of items regarding volunteer activities as these have gained in importance in the aftermath of the 3/11 disaster in 2011 in Japan (Avenell 2012), a category which has, fortunately, not been subject to change over the years in the survey instrument. The items ask the respondents, (i) how many times a month they engage in volunteering activities, (ii) whether they are the beneficiary of voluntary services and (iii) whether they make donations.

4.2 A look at the raw data: age and gender

The graphs 1a to 1c show the average happiness over the age groups from 15 to 19 years to 75 to 80 years for the whole sample (a) as well as stratified by gender (b=women, c=men). Apart from the average happiness of each age group the graphs include the total average happiness as well as a bipolynomial trend line. The following observations can be made. With an average happiness level of 6.21 men are about 0.24 points less happy than the overall average (6.45) as well as 0.46 points less happy than women (6.67). The raw data for all three graphs is W-shaped with peaks at the lower and higher age groups as well as in the years between 30 and 34. Looking at the bipolynomial trend line reveals that while the trend for men is U-shaped, the trend for women shows a downward slope. Taken together, the trend for the total sample shows only the left side of a U-shape flattening out around the age of 55 and rising slightly again in the age from 75 to 80.

---

6 One problem that occurred when pooling the data was that the household income classes had changed in the 2012 questionnaire (compared to the questionnaires in 2010 and 2011). For this reason the average values of each income class are used according to the transformation function \( z_i = (x_i - y_i)/2 \), where \( z_i \) is the average household income of income class \( i \), \( x \) is the upper income limit of class \( i \) and \( y \) is the lower income limit of class \( i \).

For the last open end income classes (above 100,000,000 JPY and above 140,000,000 JPY) the average values 110,000,000 JPY and 150,000,000 JPY were chosen.

7 T-test significant with \( t(9252) = -11.0121 \) and \( p<0.001 \).
Graphs 1a-1c: Average happiness stratified by gender and age.
Pooled raw data from the National Survey of Lifestyle Preferences of the years 2010 to 2012.
4.3 Analysis and discussion

Table 1 (see below) shows the regression results for the model specified above. As mentioned, we ran the regression not only for the whole sample (model 1), but also separately for women (2) and men (3). The variances explained as represented by adjusted R-squared values are 0.127 (1), 0.106 (2), and 0.135 (3) respectively.

Looking at the estimation results, women are about 0.41 points happier than men (on a scale from 0-10), even when controlling for an array of other variables. As for age, the regression results basically confirm the descriptive findings presented above. For the whole sample, all age groups – except for the group 50-59 years – are significantly happier than the reference group (45-49 years). The male sample shows a similar picture, but the situation is less clearly pronounced for the female sample (since here in addition to the group of 50-59 year olds, also the 35-39 as well as the 60-64 year age group are also not significantly happier than the reference group). Graphs 2a-c show the marginal age effects visually, highlighting the classic U-shaped curve. It is interesting to note, that the U-shape of the marginal age effects is much more pronounced in the regression analysis compared to the bipolynomial trend depicted in the raw data. This is especially the case for the women subsample which shows a declining trend line in the raw data, but a rising marginal age effects in the older age groups in the regression analysis.

As for income effects, we find that income positively contributes to the happiness level in all three models, with the coefficient being slightly higher for men than for women. The income squared term is also significant with a negative coefficient. This shows again that happiness increases with income, however at diminishing returns.

The question of whether the respondent lives together with his/her spouse indicates that those co-habiting are significantly happier than those who do not. This effect is much stronger for men than for women.8

As for the effects of children, we find that the number of children contributes positively to the happiness level, but the statistical significance is only given for the whole sample and disappears when separating the sample into men and women. Exploring this issue further, we find however, that those with children under 6 years of age are significantly happier than those without children or with children over the age of 6 years.

Next, we examine working conditions. Being a student does not make a significant impact, but being without work has a negative impact on happiness. However, this finding is statistically significant only at the 10% level (whole sample, men) or not significant at all (women). This fits with the finding that women are significantly happier if they are housewives. This finding is not statistically significant for (house)men, but this may be partly due to the small sample size (N=85).

---

8 T-test with t(8804) = -12.5998 and p<0.001.
### Regression table 1

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1) Model 1 All happiness</th>
<th>(2) Model 2 Women happiness</th>
<th>(3) Model 3 Men happiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household income (per 100,000 JPY/year)</td>
<td>0.028***</td>
<td>0.028***</td>
<td>0.030***</td>
</tr>
<tr>
<td>Household income squared</td>
<td>-0.000987***</td>
<td>-0.000983***</td>
<td>-0.001068***</td>
</tr>
<tr>
<td>Age between 15 and 19 years</td>
<td>0.800***</td>
<td>0.697*</td>
<td>0.940***</td>
</tr>
<tr>
<td>Age between 20 and 24 years</td>
<td>0.455**</td>
<td>0.333+</td>
<td>0.608**</td>
</tr>
<tr>
<td>Age between 25 and 29 years</td>
<td>0.493***</td>
<td>0.510**</td>
<td>0.471**</td>
</tr>
<tr>
<td>Age between 30 and 34 years</td>
<td>0.458***</td>
<td>0.379*</td>
<td>0.596***</td>
</tr>
<tr>
<td>Age between 35 and 39 years</td>
<td>0.271**</td>
<td>0.204</td>
<td>0.340*</td>
</tr>
<tr>
<td>Age between 40 and 44 years</td>
<td>0.339**</td>
<td>0.352**</td>
<td>0.306*</td>
</tr>
<tr>
<td>Age between 45 and 49 years</td>
<td>Reference group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age between 50 and 54 years</td>
<td>0.132</td>
<td>0.039</td>
<td>0.189</td>
</tr>
<tr>
<td>Age between 55 and 59 years</td>
<td>0.193+</td>
<td>0.257+</td>
<td>0.080</td>
</tr>
<tr>
<td>Age between 60 and 64 years</td>
<td>0.285**</td>
<td>0.231+</td>
<td>0.308*</td>
</tr>
<tr>
<td>Age between 65 and 69 years</td>
<td>0.428***</td>
<td>0.321*</td>
<td>0.460**</td>
</tr>
<tr>
<td>Age between 70 and 74 years</td>
<td>0.569***</td>
<td>0.375*</td>
<td>0.670***</td>
</tr>
<tr>
<td>Age between 75 and 80 years</td>
<td>0.680***</td>
<td>0.590***</td>
<td>0.648***</td>
</tr>
<tr>
<td>Women</td>
<td>0.406***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-habitation with one's spouse</td>
<td>0.395***</td>
<td>0.225**</td>
<td>0.649***</td>
</tr>
<tr>
<td>Number of Children</td>
<td>0.047*</td>
<td>0.033</td>
<td>0.043</td>
</tr>
<tr>
<td>Children under 6 years (dummy)</td>
<td>0.666***</td>
<td>0.681***</td>
<td>0.597***</td>
</tr>
<tr>
<td>Student</td>
<td>0.252</td>
<td>0.212</td>
<td>0.298</td>
</tr>
<tr>
<td>Without work</td>
<td>-0.127+</td>
<td>-0.015</td>
<td>-0.183+</td>
</tr>
<tr>
<td>Housewife(/men)</td>
<td>0.146*</td>
<td>0.224**</td>
<td>0.145</td>
</tr>
<tr>
<td>Volunteering activities (times per month)</td>
<td>0.036***</td>
<td>0.042***</td>
<td>0.032***</td>
</tr>
<tr>
<td>Receiving voluntary services (dummy)</td>
<td>0.069</td>
<td>0.026</td>
<td>0.101</td>
</tr>
<tr>
<td>Donation to volunteer activities (dummy)</td>
<td>0.161**</td>
<td>0.176*</td>
<td>0.166*</td>
</tr>
<tr>
<td>Year 2012</td>
<td>-0.192***</td>
<td>-0.250***</td>
<td>-0.151*</td>
</tr>
<tr>
<td>Year 2011</td>
<td>Reference group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prefecture controlled for</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>7,963</td>
<td>4,095</td>
<td>3,868</td>
</tr>
<tr>
<td>Adj. R-squared</td>
<td>0.127</td>
<td>0.106</td>
<td>0.135</td>
</tr>
<tr>
<td>F test model</td>
<td>17.078</td>
<td>7.850</td>
<td>9.508</td>
</tr>
</tbody>
</table>

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10
OLS regression estimation.
Graph 2 a-c: Marginal age effects based on a pooled OLS regression with data from the National Survey on Lifestyle Preferences of the years 2010 to 2012.

The average happiness of the 45-49 year olds is used as reference group. Bars in light colors indicate marginal effects that do not meet the p<0.05 condition.
Volunteering and donating are two activities that contribute significantly to the happiness of our respondents. It is interesting to note that while doing volunteering (for others) makes a significant impact, receiving volunteering services (from others) does not.

Finally, we have included two dummy variables about the time of the survey to control for the potential impact of the March 2011 triple disaster in Japan. The findings show that respondents were significantly unhappier in 2012 (i.e. after the disaster) than they were in 2010 and 2011 (i.e. before the disaster). However, there is no significant difference between the individual happiness levels of 2010 and 2011, lending further support to the assumption that 3/11 had a significant (negative) impact.

5. The 2010 data: life satisfaction and happiness in a gender perspective

In the following section we refine our analysis by focusing on the 2010 data which allows us to add more controls to the regression models. This section is structured as follows. We first describe what kind of variables we added in the new model compared to the regression of the pooled dataset. Then we will have a look at the raw data and see how happiness and life satisfaction differ between men and women as well as how they develop with increasing age. Finally, we present and discuss the results of the refined regression models.

5.1 Variables of interest

Since the 2010 data include a life satisfaction question, we ran two series of regressions: one using the happiness variable described under 3.1 as dependent variable and one series using the life satisfaction variable instead. Both series of regression models contain one model for the whole sample and two models splitting the sample up between men and women. Unlike the happiness question, the life satisfaction question is placed in the middle of the survey and reads “How satisfied are you regarding the following items” and here the first out of a list of 61 items is “life as a whole” (seikatsu zenpan). The answer options range from “satisfied” to “dissatisfied” on a five-point scale. To compare the happiness level with the level of life satisfaction we had to bring both measures onto the same scale.10

---

9 The 2011 survey was conducted in March and was actually interrupted by the disaster on March 11. Analyzing the data in terms of comparing those who replied to the survey before March 11 and those who responded after that date, Tiefenbach and Kohlbacher (2013) did not find any significant differences. This is why we treat the whole 2011 data as “before the disaster” in this paper.

10 To rescale from a 1-5 response scale (with 1 being most satisfied with one’s life) to a 0-10 response scale (with 10 being most happy), we first reversed the order of the 1-5 scale (so that 5 equals a most satisfied life). We then assumed that a response of 5 on the life satisfaction scale corresponds to a response of 10 on the happiness scale. Similarly we assumed a response of 1 on the life satisfaction scale corresponds to a response of 0 on the happiness scale. Finally, for the rest of the values we made a linear transformation using the formula: y = 2.5 (x-1), where

y = life satisfaction on the new recoded scale
x = life satisfaction on the scale used in the NSLP survey.
On the right hand side of the equation the following variables remain unchanged compared to the models of the pooled dataset: gender, co-habitation, student, housewife, without work, as well as the set of variables regarding volunteering and the prefecture controls. The income variables are slightly changed. We now include five classes of *annual household income* and five classes of *total household savings*.\(^{11}\) For the sake of parsimony we did not use age groups but rather the *age* and *age squared* variable to shorten the list of variables. We further use four variables regarding the number of children in different age groups.\(^{12}\) We also extend the employment relations variables with the following categories: normal employee, managerial position, member of board of directors of a private company, employee of a non-private organization (including board members), irregular employee (including agency work, temporary jobs and part time work), civil servant and entrepreneur. Further, we add a dummy variable taking “one” in case that the respondent or one of his family members is currently unemployed. Finally, the year dummies are dropped and control variables regarding different city sizes are added.

5.2 A look at the raw data: Happiness and life satisfaction stratified by gender

The graphs below show the average happiness (3a-c) and the average life satisfaction (3d-f) over the age groups from 15 to 19 years to 75 to 80 years for the total sample (a, d) as well as for women (b, e) and men (c, f) separately. Apart from the average happiness or life satisfaction of each age group, the graphs include the total average as well as a bipolynomial trend line. The following observations can be made. Men are not only less happy (6.24) but also less satisfied with their lives (6.09) than women (6.69 and 6.35).\(^{13}\) Looking at the levels of life satisfaction and happiness across different age groups among men reveal a stark contrast. Although both graphs (c, f) can be described as W-shaped, the middle peak in the happiness data covers a wide range from 30 to 59 years and doesn’t differ very much from the peaks at the youngest and oldest age groups. The life satisfaction levels, however, show extreme peaks at the upper and lower end of the age groups compared to the much smaller peak from 40 to 59 years. Given those differences, the bipolynomial trend line for men describes a clear U-shape for life satisfaction, while it shows a somewhat downward sloping trend for happiness.

\(^{11}\) For a similar rescaling scheme see Easterlin and Angeleseu (2009).

The household income come classes are: (1) under 1.000.000 JPY, (2) between 1.000.000 JPY and 3.000.000 JPY, (3) between 3.000.000 JPY and 5.000.000 JPY, (4) between 5.000.000 JPY and 7.500.000 JPY, (5) over 10.000.000 JPY a year.

The household saving classes are: (1) no savings, (2) under 3.000.000 JPY, (3) between 3.000.000 JPY and 5.000.000 JPY, (4) between 5.000.000 JPY and 10.000.000 JPY, (5) over 10.000.000 JPY.

The age groups are: (i) children from zero to six, (ii) children in elementary and junior high school, (iii) children in high school and university students under the age of 20 years and (iv) children over the age of 20 years. The variables are coded from 0 to 3 with “3” including all respondents with more than three children.

\(^{13}\) Happiness: t-test with $t(2893) = -6.0937$ and $p<0.001$.

Life satisfaction: t-test with $t(2889) = -3.0648$ and $p<0.002$. 

\(^{11}\) The household income come classes are: (1) under 1.000.000 JPY, (2) between 1.000.000 JPY and 3.000.000 JPY, (3) between 3.000.000 JPY and 5.000.000 JPY, (4) between 5.000.000 JPY and 7.500.000 JPY, (5) over 10.000.000 JPY a year.

The household saving classes are: (1) no savings, (2) under 3.000.000 JPY, (3) between 3.000.000 JPY and 5.000.000 JPY, (4) between 5.000.000 JPY and 10.000.000 JPY, (5) over 10.000.000 JPY.

The age groups are: (i) children from zero to six, (ii) children in elementary and junior high school, (iii) children in high school and university students under the age of 20 years and (iv) children over the age of 20 years. The variables are coded from 0 to 3 with “3” including all respondents with more than three children.
In contrast to this, the happiness and life satisfaction levels for women are rather similar (b, e). They start with a peak at the youngest age group followed by a substantial drop in the age group from 20 to 24 years. The levels then rise until they reach their peak between 30 to 34 years and then slope downwards. Two significant differences between the two groups are that (i) the peak of the youngest age group is higher in the life satisfaction than in the happiness data and further that (ii) the life satisfaction levels start to rise again after the age of 60 years, while the happiness levels show no such trend. According to the difference in the two data for women the trend in the happiness data describes a downward sloping curve, while the trend in life satisfaction describes a skewed U-shape.

When comparing the differences between happiness and life satisfaction in the total sample, the most prominent feature is the downward-sloping trend in life satisfaction compared to the U-shaped trend seen in the happiness graph. This indicates that (a) the drop in well-being in middle age is more visible in happiness than in life satisfaction and that (b) the increase in well-being in later life is more visible in life satisfaction than in happiness. Since women show only marginal differences between happiness and life-satisfaction the different shapes of the graphs of the total sample are significantly influenced by the male subsample.
5.3 Analysis and discussion

Table 2 shows the regression results for the model specified above. As mentioned, we ran the regression separately for happiness as the dependent variable (models 1-3) and for life satisfaction (models 4-6) as well as the whole sample (model 1; model 4), and separately for women (2; 5) and men (3; 6). The variances explained as represented by adjusted R-squared values range from 0.116 to 0.203. Below we point out the most significant differences between happiness and life satisfaction as well as between the subsamples of men and women.

Regression table 2:

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>ALL</th>
<th>WOMEN</th>
<th>MEN</th>
<th>ALL</th>
<th>WOMEN</th>
<th>MEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>model1</td>
<td>model2</td>
<td>model3</td>
<td>model4</td>
<td>model5</td>
<td>model6</td>
</tr>
<tr>
<td>Income very low</td>
<td>-0.846***</td>
<td>-0.720**</td>
<td>-1.148***</td>
<td>-0.626**</td>
<td>-0.407</td>
<td>-0.824*</td>
</tr>
<tr>
<td>Income low</td>
<td>-0.326**</td>
<td>-0.463**</td>
<td>-0.181</td>
<td>-0.389**</td>
<td>-0.476**</td>
<td>-0.235</td>
</tr>
<tr>
<td>Income middle</td>
<td></td>
<td></td>
<td>Reference group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income high</td>
<td>0.344***</td>
<td>0.226+</td>
<td>0.399**</td>
<td>0.445***</td>
<td>0.384*</td>
<td>0.536**</td>
</tr>
<tr>
<td>Income very high</td>
<td>0.685***</td>
<td>0.554*</td>
<td>0.813***</td>
<td>0.780***</td>
<td>0.738**</td>
<td>0.838**</td>
</tr>
<tr>
<td>No savings</td>
<td>-0.599***</td>
<td>-0.635***</td>
<td>-0.535**</td>
<td>-1.102***</td>
<td>-1.361***</td>
<td>-0.782***</td>
</tr>
<tr>
<td>Savings low</td>
<td>0.053</td>
<td>0.035</td>
<td>0.109</td>
<td>-0.093</td>
<td>-0.228</td>
<td>0.170</td>
</tr>
<tr>
<td>Savings middle</td>
<td></td>
<td></td>
<td>Reference group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Savings high</td>
<td>0.159</td>
<td>0.070</td>
<td>0.287</td>
<td>0.158</td>
<td>0.070</td>
<td>0.311</td>
</tr>
<tr>
<td>Savings very high</td>
<td>0.405**</td>
<td>0.331+</td>
<td>0.613**</td>
<td>0.433**</td>
<td>0.248</td>
<td>0.753**</td>
</tr>
<tr>
<td>Women</td>
<td>0.496***</td>
<td></td>
<td></td>
<td>0.355***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-habitation with spouse</td>
<td>0.480***</td>
<td>0.164</td>
<td>0.899***</td>
<td>0.249*</td>
<td>-0.124</td>
<td>0.685***</td>
</tr>
<tr>
<td>Age</td>
<td>-0.057**</td>
<td>-0.071**</td>
<td>-0.053+</td>
<td>-0.084***</td>
<td>-0.063*</td>
<td>-0.109***</td>
</tr>
<tr>
<td>Age2</td>
<td>0.001**</td>
<td>0.001*</td>
<td>0.000+</td>
<td>0.001***</td>
<td>0.001*</td>
<td>0.001***</td>
</tr>
<tr>
<td>Children over 20 years</td>
<td>0.040</td>
<td>0.117</td>
<td>-0.074</td>
<td>0.070</td>
<td>0.064</td>
<td>0.032</td>
</tr>
<tr>
<td>Child in high school or student under 20 years</td>
<td>0.029</td>
<td>0.097</td>
<td>-0.085</td>
<td>-0.043</td>
<td>0.032</td>
<td>-0.138</td>
</tr>
<tr>
<td>Child in elementary school or junior high</td>
<td>0.175**</td>
<td>0.220*</td>
<td>0.111</td>
<td>0.094</td>
<td>0.215*</td>
<td>-0.059</td>
</tr>
<tr>
<td>Child under 6 years</td>
<td>0.401***</td>
<td>0.448***</td>
<td>0.225+</td>
<td>0.220*</td>
<td>0.286*</td>
<td>0.089</td>
</tr>
<tr>
<td>Company Employee</td>
<td></td>
<td></td>
<td>Reference group</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Looking at the estimation results, women are about 0.496 points happier and 0.355 points more satisfied than men. As for age, the regression results show a negative age effect and a significant age-squared term indicating U-shaped marginal age effects. As for income, we basically find the same positive effect for all models. The effects of savings are only visible in the lowest and highest savings groups. It is interesting to note that the effects of no savings are statistically stronger on life satisfaction than on happiness, and here the effects are further significantly stronger for women than for men.\textsuperscript{14} The highest savings group, however, shows opposite gender effects: here

\textsuperscript{14} Difference between the coefficients of life satisfaction and happiness is significant with $\text{chi}^2(1) = 12.20$ and $p<0.001$. Difference between the coefficients of life satisfaction for men and women is significant with $\text{chi}^2(1) = 3.34$ and $p<0.067$. 

\begin{tabular}{|l|ccc|ccc|}
\hline
 & ALL & WOMEN & MEN & ALL & WOMEN & MEN \\
 & (1) & (2) & (3) & (4) & (5) & (6) \\
\hline
Managing Position & 0.468** & -0.048 & 0.368+ & 0.640** & 0.307 & 0.665** \\
Directorial Board & 0.272 & 0.652 & 0.118 & 0.108 & 1.233+ & -0.074 \\
(company) & & & & & & \\
Non-private & 0.014 & 0.328 & -0.198 & -0.072 & 0.248 & -0.285 \\
company (incl. & & & & & & \\
directorial Board) & & & & & & \\
Civil Servant & 0.370+ & 0.515 & 0.277 & 0.276 & 0.138 & 0.306 \\
Entrepreneur & -0.103 & 0.176 & -0.241 & 0.049 & 0.434 & -0.182 \\
Irregular employee & -0.192 & 0.218 & -0.729** & -0.243 & -0.031 & -0.567* \\
Housewife & 0.130 & 0.482* & -1.487 & 0.055 & 0.277 & -0.827 \\
Student & 0.203 & 0.186 & 0.324 & 0.159 & 0.244 & 0.269 \\
Without work & -0.109 & 0.235 & -0.253 & 0.060 & -0.105 & 0.153 \\
Unemployed in & -0.438** & -0.354+ & -0.511* & -0.908*** & -0.910*** & -0.834*** \\
family & & & & & & \\
Volunteering activity & 0.031* & 0.039+ & 0.019 & 0.019 & 0.015 & 0.017 \\
times a month & & & & & & \\
Receiving volunteer & 0.017 & -0.218 & 0.273 & -0.134 & -0.256 & -0.053 \\
services & & & & & & \\
Donation to & 0.120 & 0.067 & 0.167 & -0.121 & -0.221 & -0.020 \\
volunteer activities & & & & & & \\
Very big city & -0.079 & -0.077 & -0.130 & -0.151 & -0.035 & -0.289 \\
Big city & -0.213+ & -0.086 & -0.361+ & -0.164 & -0.034 & -0.311 \\
Medium sized & & & & & & \\
city & & & & & & \\
Reference group & & & & & & \\
Small City & -0.044 & 0.055 & -0.149 & -0.030 & 0.030 & -0.088 \\
Town or village & -0.170 & -0.387+ & 0.020 & -0.132 & -0.252 & -0.039 \\
Prefectures & yes & yes & yes & yes & yes & yes \\
controlled & & & & & & \\
Observations & 2,503 & 1,298 & 1,205 & 2,498 & 1,293 & 1,205 \\
Adj. R-squared & 0.163 & 0.116 & 0.203 & 0.159 & 0.147 & 0.186 \\
\hline
*** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.10$ 
\end{tabular}
the coefficient on the life satisfaction of men is significantly higher. In total the savings effects suggest the interpretation that women are rather concerned about having a minimum amount of savings, while a larger amount doesn’t increase their well-being (neither life satisfaction nor happiness).

We further find that married people are significantly happier and satisfied than those who are not. Being married contributes also more strongly to being happy than to being satisfied. Looking at the separate analyses for the subsamples, we find however that this is only true for men, but not for women.

As for children, we find significant results only for elementary and junior high school age children and the children below the age of 6 years. Both make our respondents significantly happier, but only children under age 6 make them also significantly more satisfied. The impact of children under 6 years on happiness is also much stronger than on life satisfaction. Looking at the gender differences, the results show that these relationships are only significant for women but not for men.

Regarding the working conditions we find that people in management positions are significantly happier and more satisfied than regular employees. In terms of gender differences however, this finding is only significant for the life satisfaction of men. Male irregular employees are unhappier and less satisfied than male regular employees. Further, people who have an unemployed person in their family are also unhappier and less satisfied (whole sample as well as men and women separately), with the effect being more strongly pronounced for life satisfaction than for happiness.

6. Conclusion

Our analysis of the National Survey on Lifestyle Preferences of the years 2010 to 2012 contributes to the discussion regarding gender and age effects in the following ways. First, the universality of U-shaped age effects reported by Blanchflower and Oswald (2008) could be confirmed. While a U-shape can be seen already in the raw data of the male subsample, the regression analysis shows that also the marginal age effects of women describe a U-shaped pattern. Second, regarding the gender effects our analyses lend further support to our previous finding (reported in Tiefenbach and Kohlbacher 2013) that women in Japan are significantly happier than men. These results

15 Chow test with chi2(1) = 3.20 and p<0.073.
16 Chow test with chi2(1) = 3.83 and p<0.050.
17 Chow test with chi2(1) = 4.94 and p<0.026.
18 Due to the small sample size of females in management positions (N=22) the happiness effects for women might not be visible in the analysis.
19 Chow test with chi2(1) = 9.98 and p<0.0016.
20 “In some nations, that U-shape holds in raw data; in other countries it is necessary to use multiple regression” Blanchflower and Oswald (2008).
indicate further that women are not only happier, but also more satisfied with their lives. Third, regarding gender differences in the control variables we find for (a) family relations that while the happiness effects of co-habitation are larger for men than for women, the opposite holds true for the effects of children. Children under the age of 6 years as well as children of elementary and junior high school age only affect the subjective well-being of women. We further find for (b) financial relations that having no savings has a very high negative impact on Japanese women, while they do not show a significant positive happiness effect when having very high amounts of savings. Finally we find for (c) work relations that being a manager (as compared to a regular employee) has positive happiness effects on men, while being an irregular employee has a highly negative effects on the happiness and life satisfaction of Japanese men. Forth, we contribute to the discussion whether happiness and life satisfaction should be treated and analyzed differently. Although we find significant difference in the effect sizes of some variables (i.e. savings, children, marriage and unemployment) the differences do not affect or distort the overall picture of the key well-being indicators. In analogy to Veenhoven (1991 and 2008) and Frey (2008) we conclude that the concepts can be used interchangeably, at least in the case of Japan.
References


Coulmas, F. (2012). Nitteiru' to ha 'onaji' de ha nai - Nichidoku Daigakusei no Kôfuku ni tsuite no Hyôtei (Being 'similar' does not mean being the 'same' - An assessment of the definition of happiness of Japanese and German university students). *Kansai Gakuindaiigaku Sentan Shakai Kenkyûjo Kiyô (Annual review of the institute for advanced social research), 7*, 1–16.


DIJ Working Papers

In 1994 the DIJ launched a series of working papers intended to convey the preliminary results of our ongoing research. Many DIJ Working Papers can still be accessed from our website (www.dijtokyo.org).

00/1 René Haak: Von der Mechanischen Technologie zur Produktionswissenschaft. Ein Beitrag zur Entstehung und Entwicklung der Wissenschaft vom Fabrikbe-trieb im deutschen, amerikanischen und japanischen Kontext.

00/2 Jörg Raupach-Sumiya: Reforming Japan’s Corporate Governance System: Will the Markets gain Control?

00/3 Jochen Legewie: Control and Coordination of Japanese Subsidiaries in China – Problems of an Expatriate-Based Management System.

00/4 Jörg Raupach-Sumiya: Chinese Firms as Emerging Competitors – Challenges for Japan’s Industry.

01/1 René Haak: Produkt- und Prozeßinnovationen in der Produktion – Schlaglichter auf die Entwicklung der japanischen Fertigungstechnologie

01/2 René Haak: Kooperationsmanagement der japanischen Industrie in der Globalisierung

01/3 René Haak: Market Leadership in the Chinese Automobile Industry – Strategic Management in a Dynamic Environment

01/4 René Haak: Internationalization of Japanese Companies. Recent Strategies towards China – A Theoretical Approach –

02/1 René Haak: Internationalisierung – Herausforderung an das japanische Management. Der Wirtschaftsraum Mittel- und Osteuropa

02/2 René Haak: Strategy and Organization of International Enterprises. German-Japanese Business Cooperation in China

02/3 Harald Conrad: Towards a New Public-Private Pension Mix in Japan

02/4 Sven Saaler: Pan-Asianism in Meiji and Taishō Japan – A Preliminary Frame-work

02/5 Harald Dolles: Spielt Vertrauen eine Rolle? Analysen deutsch-japanischer Unternehmenskooperationen

02/6 Isa Ducke: The History Textbook Issue 2001. A successful citizens’ movement or foreign intervention?

02/7 Andrea Germer: On the Genesis of Feminist Historiography in Japan: National and International Perspectives

03/1 Harald Dolles and Michael Babo: The Development of Entrepreneurship in Transitional Economies: The Perspective of Chinese and South African Entrepreneurs

03/2 Isa Ducke: Citizens’ groups in Japan and the Internet
03/3 Sven Saaler: Japanese Foreign Policy After World War I: National Sovereignty, International Cooperation and Regional Integration

03/4 Monika Schrimpf: Counseling in New Religious Movements – the case of Shin-nyo-en and PL Kyōdan

04/1 Andrea Germer: “A History of Woman”: Nature, Culture, and the Category of the Slave

04/2 Andrea Germer: “The Inner and the Outer Domain”: Sexuality and the Nation-State in Feminist Historiography in Japan

04/3 Andreas Moerke and Harald Dolles: Corporate Governance in Multinational Corporations during Turbulent Times – Cases from the Automotive Industry

05/1 Harald Dolles and Sten Söderman: Globalization of Sports – The Case of Professional Football and its International Management Challenges

05/2 Isa Ducke and Andreas Moerke: Aging Population, Knowledge Spill-Over and Civil Society


05/4 Andreas Moerke und Simon Kamann: Herausforderungen des demographischen Wandels: Fallbeispiel Automobilindustrie

05/5 Harald Dolles and Sten Söderman: Ahead of the Game – The Network of Value Captures in Professional Football

05/6 Harald Dolles and Sten Söderman: Implementing a Professional Football League in Japan – Challenges to Research in International Business

05/7 Harald Dolles and Niklas Wilmking: International Joint Ventures in China after WTO Accession: Will Trust Relations Change?

06/1 Annette Schad-Seifert: Japans kinderarme Gesellschaft – Die niedrige Geburtenrate und das Gender-Problem

06/2 Gabriele Vogt: Japan’s Green Networks: Going Transnational?

06/3 Gabriele Vogt: Doors wide shut? The current discourse on labor migration to Japan

06/4 Annette Schad-Seifert: Coping with Low Fertility? Japan’s Government Measures for a Gender Equal Society

06/5 Gabriele Vogt: Facing the Challenge of Immigration? The State, Civil Society and Structures of Interdependence

06/6 Peter Backhaus: Care, control, and communication: Linguistic interaction between staff and residents in a Japanese nursing home for the elderly


06/8 Andreas Moerke: Internationalization Strategies of the German and Japanese Automobile and Supplier Industries

07/1 Gabriele Vogt, Philipp Lersch: Migrant Support Organizations in Japan – A Survey
08/1 Andrea Germer, Barbara Holthus: Gender Inequalities and Work-life Balance: Social Change and Low Fertility in Germany

08/2 Michael Prieler, Florian Kohlbacher, Shigeru Hagiwara, Akie Arima: The Representation of Older People in Japanese Television Advertising

08/3 Hiromi Tanaka-Naji: Low fertility, the wish for children, and social inequalities in contemporary Japanese society

09/1 Florian Coulmas: The Quest for Happiness in Japan

09/2 Michael Prieler, Florian Kohlbacher, Shigeru Hagiwara, Akie Arima: Gendered Portrayals of Older People in Japanese Television Advertising

10/1 Axel Klein, Barbara Holthus: The Fertility Rate and the Economic Crisis. Discussing a Theoretical Attempt to Predict Demographic Development in Japan

10/2 Carola Hommerich: The Advent of Vulnerability: Japan’s Free Fall Through a Porous Safety Net


10/4 Schulzer, Rainer: Philosophischer Geist an der frühen Tokyo Universität

12/1 Tim Tiefenbach and Florian Kohlbacher: Subjektives Glückempfinden und seine Einflussfaktoren im japanischen Kontext

13/1 Tim Tiefenbach and Florian Kohlbacher: Happiness from the Viewpoint of Economics: Findings from Recent Survey Data in Japan