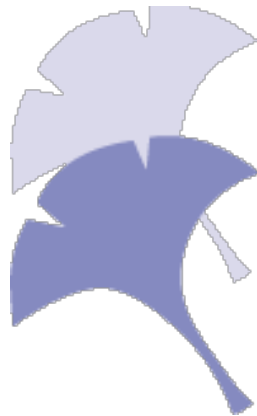


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Happiness from the Viewpoint of Economics

Findings from Recent Survey Data in Japan

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Abstract

Happiness economics has become an established field of research, and happiness and life satisfaction are increasingly considered important policy goals by governments around the globe. The Japanese government has recently started to follow this trend by regularly collecting data on personal happiness and its determinants through nationwide surveys since 2010. Analyzing data from the 2011 National Survey on Lifestyle Preferences, this paper has three aims: First, we use the Japanese happiness data to check for similarities and differences compared to well-known findings established in the international literature. Second, from a Japanese perspective we contribute to ongoing debates regarding inconclusive findings. Third, we analyze the happiness effects of variables neglected by previous research, such as loneliness and of new variables such as the impact of the Great East Japan Earthquake of March 11. Overall, our results confirm the majority of determinants established by previous studies in the field of happiness economics, such as income, unemployment and marriage. But we find significant differences regarding the effects of entrepreneurship and political participation. In addition, we identify loneliness as the most influential determinant of happiness in Japan. Finally, we find no statistically significant drop in happiness after the March 11 disaster.

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1 Introduction

Happiness and life satisfaction have received increasing attention by academic scholars as well as policy makers around the globe in recent years (Frey and Stutzer 2009; Layard 2011). In academic research these topics have been studied from the perspective of various fields including philosophy, psychology and sociology. In economics this has even led to the establishment of a new stream of research: happiness economics (see e.g. Frey and Stutzer 2002; Dolan, Peasgood and White 2008). At the same time, policy makers have started to consider alternative indicators to Gross National Product (GNP), such as Gross National Happiness (GNH). The government of one of the world's largest economies, Japan, has recently jumped onto the bandwagon 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* on happiness and its impact factors.

For this paper we have conducted an analysis of the *National Survey on Lifestyle Preferences (NSLP) 2011* within the framework of happiness economics. The reason for this is two-fold. First, reviewing the Japan-related literature in happiness economics, we discovered a relative scarcity of studies compared to other countries. Although it has been argued that happiness economic studies have achieved remarkable consistency in their findings on an international scale (see e.g. Blanchflower and Oswald 2011 for a review), there are still country-specific differences to be accounted for (Uchida, Norasakkunkit and Kitayama 2004; Diener et al. 1995). 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, Nozaki 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) compared to the NSLP (n=3578), and the analysis is not comprehensive, since many standard variables are not being controlled for. Therefore, our present study can be considered as the first comprehensive analysis of a large, recent and representative sample of the Japanese population in the international literature of happiness economics. We chose the NSLP data, because it is a high quality survey commissioned by the Japanese Cabinet Office with a very high response rate (71.6% in 2011), and it has not been analyzed in the international literature so far.

¹ Literally "commission on measuring happiness": <http://www.esri.go.jp/en/archive/koufukudo/koufukudo-e.html>

Another reason for analyzing the NSLP 2011 data is that in March 2011 Japan was hit by a triple disaster: the Great East Japan Earthquake followed by a large-scale tsunami and a nuclear accident at the Fukushima Daiichi power plant. Given the scale of this compound disaster, it is likely that there will be vast consequences for Japan's society, economy and politics as well as for individual citizens in the whole country: "3/11 is the biggest crisis that Japan has faced since World War II ended in 1945." (Kingston 2012). Only a couple of month after the disaster, first studies have been published analyzing the effects of March 11 on people's well-being. Although the long-term implication for people's subjective well-being will not be known for some time, preliminary research findings seem to suggest that there is indeed an impact (Uchida, Takahashi and Kawahara 2011; Ishino 2012; Hommerich 2012; Kohlbacher 2012). Considering the magnitude of the event, it is expected that this is just the beginning of a new strand of research on disasters. Since the NSLP 2011 was conducted between March 3 and March 29 of 2011, it is the only official dataset in Japan which covers the effects of the event within *one* survey.

Overall, we contribute to the literature on happiness economics in the following ways: (1) We add to the existing literature of happiness economics in Japan, especially as we have a large nationally representative sample. Against this backdrop, it is interesting that even though Japan is one of the largest economies in the world, so far only relatively few studies have been conducted in this country. (2) With our Japanese sample we confirm several general findings in the international literature of happiness economics (e.g. regarding the impact of income, gender and age, etc.), thus adding confidence to the universality of these results. (3) Nevertheless, we find a number of variables which show very different effects than discussed in the literature (for example regarding political participation and entrepreneurship). (4) We add new insights on the impact of factors that have been neglected in previous research, such as loneliness, volunteering and donation activities. (5) We further have the unique opportunity to explore the impact of the triple disaster of March 11 on happiness, due to the fact that the period of data collection is March 3 to March 29 2011.

2 Survey data and analysis

2.1 The National Survey on Lifestyle Preferences

The present study uses regression analysis to analyze data from *National Survey on Lifestyle Preferences (kokumin seikatsu senkôdo chôsa) 2011* in Japan.² This survey is commissioned by the Japanese cabinet office and was initiated in 1972. Originally it was carried out on a three-year basis, but since 1984 it has been conducted annually. As mentioned above, since 2010, the focus has been placed on individual happiness and its determinants.³ The survey population includes

² The survey was conducted at the end of the fiscal year 2010, i.e. in March 2011.

³ Note that questions on happiness and life satisfaction have already been included in questionnaires prior to 2009 but not necessarily as the main focus.

men and women in Japan between 15 to 79 years of age and the sample is generated via a 2-stage randomized stratified procedure and includes 5000 individuals. Originally, the data collection of the 2011 survey was planned for the period between March 3 and 13 2011. The questionnaire is explained in person to the respondents in their homes. They are then left a few days to complete the survey, before the questionnaires are finally collected from them again. Due to the disaster of March 11, the collection process was significantly delayed and thus the last two questionnaires were collected on March 29. With a response rate of 71.6% there are 3578 completed questionnaires available for analysis. Of these, 719 (approx. 20%) were collected after the disaster (i.e. on March 12 or later).

2.1.1 Data

Since we are interested in the determinants and correlates of happiness, our dependent variable is the current happiness level of the respondent. The corresponding survey question asks: “How happy are you currently?”.⁴ Answer options range from 0 to 10 on an 11 point scale. In line with the literature in happiness economics, and subjective well-being in general, we control for several standard variables like gender, income, house ownership, age, job, family relations (spouse, children), city size and prefectures. Apart from those basic variables, we further include in our analysis survey specific variables regarding the social life and environment of the respondents. The items included asking the respondents, (i) how many times a month they engage in volunteering activities, (ii) whether they are the beneficiary of voluntary services, (iii) whether they make donations, (iv) whether they engage in community activities and (v) whether they are an active member of a neighbourhood or residence association (*chōnaikai / jichikai*). Another variable captures whether the respondent or someone in his/her family is currently unemployed. Further, we aggregate an overall loneliness index which is calculated as the average of four items (on a 1-5 scale) of loneliness in four different domains: family, region, workplace, and school.

Since the survey captures on which day the filled-in questionnaire was picked up, we construct a dummy variable taking a value of one for all days after 11 March 2011 and a value of zero in all other cases to control for differences before and after the triple disaster. As control variables we further include the degree of urbanization (size of the city) as well as the prefecture.

2.1.2 Descriptive Statistics

Table 1 shows the descriptive statistics of the variables.

⁴ In the Japanese original, the word *shiwase* is used for happiness.

Variable	Total Obs	Pos Obs	Freq	HAP	Mean	SD	Min	Max
Happiness								
Self-reported happiness level	3569				6.46	2.02	0	10
0		22	0.6%					
1		29	0.8%					
2		62	1.7%					
3		185	5.2%					
4		195	5.5%					
5		739	20.7%					
6		427	12.0%					
7		711	19.9%					
8		701	19.6%					
9		257	7.2%					
10		241	6.8%					
N/A	9							
Gender								
Woman	3578	1,834	51.3%	6.7	0.51	0.5	0	1
Man	3578	1,744	48.7%	6.2	0.49	0.5	0	1
Income and assets								
Very low income	3147	117	3.7%	5.22	0.04	0.19	0	1
Low income	3147	905	28.8%	5.88	0.29	0.45	0	1
Middle income	3147	940	29.9%	6.51	0.3	0.46	0	1
High income	3147	954	30.3%	6.93	0.3	0.46	0	1
Very high income	3147	231	7.3%	7.45	0.07	0.26	0	1
N/A	431							
Homeowner	3568	2,777	77.8%	6.54	0.78	0.42	0	1
Non-homeowner	3568	791	22.2%	6.17	0.22	0.42	0	2
N/A	10							
Age								
Age 15 to 19 years	3578	200	5.6%	6.82	0.06	0.23	0	1
Age 20 to 24 years	3578	201	5.6%	6.41	0.06	0.23	0	1
Age 25 to 29 years	3578	186	5.2%	6.42	0.05	0.22	0	1
Age 30 to 34 years	3578	261	7.3%	6.84	0.07	0.26	0	1
Age 35 to 39 years	3578	337	9.4%	6.52	0.09	0.29	0	1
Age 40 to 44 years	3578	294	8.2%	6.59	0.08	0.27	0	1
Age 45 to 49 years	3578	289	8.1%	6.13	0.08	0.27	0	1
Age 50 to 54 years	3578	306	8.6%	6.28	0.09	0.28	0	1
Age 55 to 59 years	3578	327	9.1%	6.53	0.09	0.29	0	1
Age 60 to 64 years	3578	448	12.5%	6.36	0.13	0.33	0	1

Variable	Total Obs	Pos Obs	Freq	HAP	Mean	SD	Min	Max
Age 65 to 70 years	3578	310	8.7%	6.35	0.09	0.28	0	1
Age 70 to 74 years	3578	257	7.2%	6.4	0.07	0.26	0	1
Age 75 to 80 years	3578	162	4.5%	6.54	0.05	0.21	0	1
Job								
Company Employee	3569	771	21.6%	6.37	0.22	0.42	0	1
Managing Position	3569	202	5.7%	6.89	0.06	0.23	0	1
Civil Servant	3569	138	3.9%	7.11	0.04	0.19	0	1
Directorial Boad (company)	3569	81	2.3%	6.84	0.02	0.15	0	1
Directorial Board (organisation)	3569	53	1.5%	6.62	0.01	0.12	0	1
Entrepreneur	3569	388	10.9%	6.17	0.11	0.31	0	1
Temporary employee	3569	604	16.9%	6.19	0.17	0.38	0	1
Housewife	3569	489	13.7%	7.02	0.14	0.34	0	1
Student	3569	274	7.7%	6.86	0.08	0.27	0	1
Without work	3569	569	15.9%	6.01	0.16	0.37	0	1
N/A	9							
Family								
Co-habitation with spouse	3359	2,342	69.7%	6.7	0.7	0.46	0	1
Not co-habiting with spouse	3359	1,017	30.3%	6.09	0.3	0.46	0	1
N/A	219							
Child over 20	3513	1633	46.5%	-	0.89	1.07	0	3
N/A	65							
Child in high school or student under 20	3503	324	9.2%	-	0.12	0.39	0	3
N/A	75							
Child in elementary school or junior high	3495	573	16.4%	-	0.25	0.61	0	3
N/A	83							
Child under 6 years	3518	407	11.6%	-	0.16	0.49	0	3
N/A	60							
Social life								
Vounteer activity (times a month)	3578	597	16.7%	-	0.76	2.78	0	40
Receiving volunteer services	3578	443	12.4%	6.77	0.12	0.33	0	1
Donation to volunteer activities	3578	583	16.3%	6.74	0.16	0.37	0	1
Regional activities	3553	555	15.6%	6.83	0.16	0.36	0	1
Political participation	3569	1097	30.7%	6.67	0.31	0.46	0	1

Variable	Total Obs	Pos Obs	Freq	HAP	Mean	SD	Min	Max
Loneliness	3499	2912	83.2%	-	1.14	0.86	0	4
Unemployed in family	3578	172	4.8%	5.22	0.05	0.21	0	1
Disaster								
After March 11	3578	719	20.1%	6.37	0.2	0.4	0	1
Before March 11	3578	2,859	79.9%	6.48	0.8	0.4	0	1
Urbanization								
Very big city	3578	926	25.9%	6.49	0.26	0.44	0	1
Big city	3578	1,515	42.3%	6.48	0.42	0.49	0	1
Small city	3578	802	22.4%	6.44	0.22	0.42	0	1
Town or village	3578	335	9.4%	6.31	0.09	0.29	0	1

Table 1: Descriptive statistics for all variables (excluding variables controlling for prefectures)

NB: *Pos Obs*: number of positively answered (all values greater than “0”) observations; *Freq*: frequency of those positively answered observations compared to the number of total observations; *HAP*: average happiness of positively answered observations (only dummy variables)

2.2 Statistical Analysis

We use a multivariate regression model with happiness as the dependent variable to analyse our data.

2.2.1 Analytical Strategy

In our model we assume that the happiness value (HAP) reported by the respondents (i) can be interpreted as a reporting function r of their *true* (that is their actually perceived) happiness h .

$$(1) \quad \text{HAP}_i = r(h)$$

For the purposes of our analysis here we accept the self-assessments that subjects make. We only consider the relative differences in the happiness levels as important. The actual content, that is the subjective *meaning* of happiness, is not relevant to our analysis. We further assume that true happiness is determined by a range of socio-demographic (d), economic (e), social (s) and environmental (v) variables.

$$(2) \quad h = f(d, e, s, v)$$

Following from (1) and (2), this also holds true for the reported happiness values:

$$(3) \quad \text{HAP}_i = r (f(d, e, s, v))$$

Although we are aware that our analysis cannot capture all influencing factors, we nevertheless assume that the variables of interest described above cover the most relevant determinants. Hence our empirical model can be specified as follows:

$$(4) \quad \text{HAP}_i = \alpha + \sum_j \beta_j E_{j,i} + \sum_k \gamma_k S_{k,i} + \sum_l \delta_l D_{l,i} + \sum_m \vartheta_m V_{m,i} + \varepsilon_i$$

where i refers to the individual respondents and j , k , l and m refer, respectively, to the number of economic (E), social (S), socio-demographic (D) and environmental (V) variables. The impact of those factors is indicated by the respective coefficients β_j , γ_k , δ_l and ϑ_m . Finally, an intercept (α) and an error term (ε) are added.

Although the response variable (happiness) is measured on an ordinal scale (0-10), we assume cardinality as Ferrer-i-Carbonell and Frijters (2004) have shown that linear models can be applied to ordinal scales without any significant differences in the results. In this paper, we report only the results from our ordinary least squares (OLS) analysis, as they are easier to interpret. Reanalyzing the data using ordered probit regressions led to consistent results which lends confidence to the overall robustness of our findings.⁵

2.2.2 Regression Results

Table 2 shows the regression results for the model specified above. We ran the regression not only for the whole sample (model 1), but also separately for women (2) and men (3) and for persons under (4) and above (5) the age of 60 years to account for differences in gender and age.⁶ The base model (1) yields an adjusted R^2 of 0.26, which can be considered as a relatively good model fit, especially in comparison with other studies in happiness economics.

Looking at the regression results, women are about 0.45 points happier than men (on a scale from 0-10), even when controlling for an array of other variables.⁷ Similarly, income is correlated with happiness. Compared to people in the *middle* income class, respondents in the *middle high* and *very high* income class are, respectively, 0.33 and 0.80 points happier. Likewise, respondents in the *middle low* and *very low* income class are 0.36 and 0.53 points less happy. It is interesting to note, that the coefficients in the higher income classes are larger for men, whereas they are larger for women in the lower income classes. Further, in most cases the coefficients are larger and on a higher level statistically significant for people under the age of 60 years.

The regression analysis further shows that respondents living in a house or apartment they own are about 0.24 points happier than the reference group. Looking at the differences in gender and age, it is interesting to note that only women but not men, and only people over 60 years are

⁵ Other happiness studies have also used both regression types without finding any significant differences (e.g. Rojas 2007, Ochsens and Welsch 2012, Metcalfe, Powdthavee and Dolan 2011).

⁶ Respondents who are exactly 60 years old are included in model 4.

⁷ If not further specified, the reported coefficients are *at least* statistically significant at the 5% level.

VARIABLES	All (1) happiness	Women (2) happiness	Men (3) happiness	Under 60y (4) happiness	Over 60y (5) happiness
Very low income	-0.534**	-0.857**	0.084	-0.705*	-0.558+
Low income	-0.362***	-0.443***	-0.262+	-0.307**	-0.448**
Middle income	<i>reference group</i>				
High income	0.328***	0.256*	0.412***	0.470***	-0.113
Very high income	0.803***	0.713***	0.856***	0.897***	0.646*
Woman	0.452***			0.535***	0.308*
Co-habitation w. spouse	0.590***	0.466***	0.656***	0.643***	0.269
Age 15 to 19 years	0.548	0.087	0.849+	0.585+	
Age 20 to 24 years	0.401+	-0.166	0.966**	0.407+	
Age 25 to 29 years	0.723***	0.510+	0.895**	0.689***	
Age 30 to 34 years	0.664***	0.377	0.865***	0.625***	
Age 35 to 39 years	0.269+	-0.183	0.607**	0.246	
Age 40 to 44 years	0.630***	0.303	0.855***	0.607***	
Age 45 to 49 years	<i>reference group</i>				
Age 50 to 54 years	0.322*	0.177	0.345	0.355*	
Age 55 to 59 years	0.464**	0.249	0.653**	0.520**	
Age 60 to 64 years	0.400*	0.090	0.687**	0.650**	-0.365*
Age 65 to 70 years	0.363+	-0.112	0.913***		-0.306+
Age 70 to 74 years	0.670**	-0.150	1.395***		<i>reference</i>
Age 75 to 80 years	0.472*	0.119	0.853*		-0.246
Homeowner	0.243**	0.428***	0.086	0.132	0.798***
Company employee	<i>reference group</i>				
Managing position	0.182	0.083	0.227	0.209	-0.285
Civil servant	0.301+	0.421	0.285	0.292	-0.475
Directorial board (company)	0.004	-0.136	0.042	0.103	-0.283
Working in a non- private organization (incl. directorial board).	0.091	0.288	-0.104	-0.121	1.223
Entrepreneur	-0.368**	-0.150	-0.516**	-0.391*	-0.624*
Temporary employee	-0.340**	-0.315*	-0.433*	-0.362**	-0.553+
Housewife	0.068	0.154	0.019	0.129	-0.334
Student	0.524+	0.268	0.637	0.521+	
Without work	-0.071	0.050	-0.238	-0.016	-0.411
Volunteering activity (times a month)	0.034**	0.054**	0.010	0.056***	0.017
Receiving volunteer services	0.145	0.222	0.094	0.147	0.102
Donation to volunteer activities	0.183*	0.233+	0.176	0.127	0.261+
Regional activities	-0.020	-0.054	-0.002	-0.053	0.047
Political participation	-0.039	-0.250*	0.137	-0.133	0.114
Loneliness	-0.788***	-0.867***	-0.718***	-0.813***	-0.686***
Unemployment in family	-0.673***	-0.646**	-0.678**	-0.701***	-0.358
Child over 20 years	-0.072	-0.077	-0.104	-0.122+	-0.033

VARIABLES	All	Women	Men	Under 60y	Over 60y
Child in high school or student under 20 years	-0.081	-0.272*	0.103	-0.094	-0.869
Child in elementary school or junior high	0.035	0.041	0.085	0.030	0.111
Child under 6 years	0.276***	0.199+	0.315**	0.263**	-0.118
After March 11	-0.034	0.032	-0.091	-0.082	0.059
Very big city	0.002	0.333+	-0.283	0.020	-0.076
Big city	0.109	0.392*	-0.133	0.075	0.160
Small City	0.005	0.338+	-0.235	0.015	-0.125
Town or villiage	reference group				
Controlled for Prefectures	yes	yes	yes	yes	yes
Observations	2,822	1,430	1,392	1,970	852
Adj. R-squared	0.259	0.269	0.248	0.287	0.197
F test model	12.058	6.977	6.205	10.223	3.641

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 2: Results from OLS regression on happiness

happier living in their own property, and these effects are substantial: women are 0.43 points and people over 60 years are about 0.80 points happier when living in their own property.⁸

The marginal age effects on happiness describe a skewed U-shape. Compared to the reference group of the 45 to 49 years old persons, all other age groups show positive happiness effects – most of them are statistically significant. Noticeable exceptions here are the very young age groups of the 15 to 24 years olds as well as the age group of the 35 to 39 year old persons: Although they show a positive coefficient it does not turn out to be statistically significant.⁹

Regarding the effects of cohabitation we find respondents living together with their spouse are 0.59 points happier.¹⁰ A closer look at the separate models for men and women reveals that this positive correlation is stronger for men (0.65) than for women (0.46) and not significant in the age groups above 60 years.

Although respondents in different employment relations show different average happiness levels in the descriptive statistics of Table 1, the regression analysis reveals that, in most cases, those differences cannot be explained by the status of the employment relationship. Only entrepreneurs

⁸ Note that men over 60 years are significantly happier when living in their own property (0.88).

⁹ In the separate regression models for men and women we find that the age group coefficients are only significant in the case of men, for women there is no significant age effect.

¹⁰ The survey used for this analysis has the disadvantage of not including a separate question regarding the marital status. Instead, the respondents are asked whether they are living together with other persons, and here they can report to be living together with their spouse.

and temporary workers¹¹ show significant negative effects on happiness. The former are -0.36 and the latter -0.34 less happy than the reference group of regular company employees. Looking at the separate regression models, the coefficients are larger for men (-0.52/-0.43) and persons over 60 years (-0.62/-0.55). Apart from that, civil servants and students are 0.30 and 0.52 points happier than company employees, but only at a statistical significance level of 10%. Further, we find an interesting difference between the descriptive statistics and the multivariate regression analysis: in the descriptive statistics, the happiness of people without work is lower than average, but in the regression analysis being without work does not show a negative effect on happiness.

Participating in volunteer activities one time a month positively affects the happiness level by 0.03 points.¹² Being the beneficiary of voluntary services shows no statistical significance, while donation behaviour is positively correlated with a rise in the happiness level by 0.18 points. Further, both participation in volunteer activities and donation behaviour have larger coefficients for women (0.05 and 0.23) and their coefficient is not significant for men. When looking at the two different age groups we see that donation behaviour has a larger coefficient for people over the age of 60 years (0.26), whereas volunteer activities show a larger coefficient for people under the age of 60 years (0.05). Apart from volunteer activities, the respondents are also asked whether they participate in regional activities –like nursing or helping with town festivals– but the coefficients here are not only close to zero, they also turn out to be not significant. Similarly, political participation in neighbourhood or residence associations (*chōnaikai* / *jichikai*) only has a small coefficient of 0.04 points which shows no statistical significance in the total sample. Interestingly, participation in neighbourhood or residence associations affects women negatively by -0.25 points.

The effects of loneliness on happiness are much more clear-cut. A one point increase on the aggregated loneliness index (scale: 1=not lonely to 5=very lonely) is correlated with a -0.79 point drop in the happiness level. This effect is not only substantial in size, but also statistically significant at the 0.1% level in all models considered. The impact of loneliness is further slightly higher for women (-0.87) and slightly lower for people over the age of 60 years (-0.69). Similarly, the effect of having an unemployed person in one's family is also highly negatively correlated with the happiness level. Respondents with an unemployed person in their family are -0.67 points less happy. The effects are slightly larger for men (-0.67) than for women (-0.64) and for people under the age of 60 years (-0.70), whereas they are almost not significant for people over the age of 60 years (-0.36).

¹¹ Here temporary workers include *temporary agency workers*, *freeters* (people in low skill and low paid jobs) and *arubaitos* (people doing side jobs).

¹² Accordingly, people should be about 0.1 points happier by participating in volunteer activities three times a month.

In contrast to the effects of loneliness and unemployment, the effects of children are rather ambiguous. Only children under the age of six years show a clearly positive correlation with happiness. The happiness of respondents stating to have one or more children under the age of six years increases about 0.28 points *with each child* (under the age of six). Interestingly, the coefficient is larger for men (0.32) and for people under the age of 60 years (0.26) than for women (0.20)¹³ and people over the age of 60 years (-0.12). In the latter case the coefficient turns out to be negative, but it is not statistically significant. Apart from that, children between 16 and 19 years have a negative impact on the happiness levels of women (-0.27) and children over the age of 20 years have a slightly negative effect on people under the age of 60 years (-0.12), but this latter result is only statistically significant at the 10% level.

Although people living in towns and villages (as compared to cities) as well as respondents who returned the questionnaire after March 11 show slightly lower happiness levels in the descriptive statistics, the regression analysis shows that those correlations only have a very small coefficient and are not statistically significant. A closer look reveals that the effect of the degree of urbanization is dependent on gender: women living in cities (of all sizes) turn out to be about 0.3 points happier than the control group of women living in towns or villages.¹⁴

3. Discussion

3.1 Income

Based on the results presented above, it generally can be said that money seems to buy happiness in Japan. This result is in line with the bulk of the international literature in happiness economics (see Clark, Fritjers and Schield 2008 for an overview). With the exception of Inoguchi (2009) and Oshio (2010) similar results are reported in most of the Japan-related literature (Kusago 2007; Ohtake 2004, 2012; Oshio and Kobayashi 2011; Kume 2011; Morikawa 2010; Asano and Kenjô 2011; Kume 2009; Shiraishi and Shiraishi 2007; Ueda 2010). Our results thus confirm the positive relationship between happiness and income for the Japanese context and add further evidence to the universality of this finding in the international literature.

3.2 Gender

Our regression results allow the conclusion that, all things held constant, women are in general happier than men. In the international literature –with the exception of Eastern Europe (see Hayo and Seifert 2003)– women are found to be happier, too (e.g. Blanchflower and Oswald 2004; Frey and Stutzer 2002; Praag and Ferrer-i-Carbonell 2008). However, in these studies the size of the gender effect is small or negligible. In contrast to this, most of the Japan-related studies find rather

¹³ In the case of women the coefficient of 0.20 is only significant at the 10% level.

¹⁴ The statistical significance lies between 5% and 10% depending on the size of the town or village.

big happiness gaps between men and women (Sano and Ohtake 2007; Kusago 2008; Urakawa and Matsuura 2007a; Tsuji 2011; Ohtake 2012, 2004).¹⁵ The coefficient of 0.45 reported in this study lends further evidence to both, the 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.

3.3 Co-habitation

The results reported above indicate that people living together with their spouses are about 0.59 points happier than the control group. This result is in line with literature using cross-sectional analysis on the effects of marriage (see Frey 2008 for a review). Men seem to benefit –at least in terms of happiness points– a little bit more from living together with their partner than women. Further, the results indicate that the effects of marriage and co-habitation wear off with increasing age. If we assume that people of high age are, on average, married for a longer time than young people, then the results seem to be in line with the international literature on the long-term effects of marriage. For example, Lucas and Clark (2006) show that marriage does not entail lasting changes in life satisfaction. They further analyse both effects co-habitation and being married showing that the coefficient for co-habitation, although being statistically significant, is rather small compared to the coefficient of the legal marital status itself. Therefore, for the current study it can be assumed that the happiness effects observed in the regression analysis are rather due to marriage itself than to co-habitation. This explanation seems plausible in light of the findings of Schultz Lee and Ono (2012) which suggest that married people are happier than cohabiting persons.¹⁶ With the exception of Ueda (2010) the effects of marriage are confirmed in most of the Japan-related cross-sectional studies (Oshio and Kobayashi 2011; Oshio, Nozaki and Kobayashi 2011; Kusago 2007; Kume 2011; Kusago 2008; Tsuji 2011; Yamane, Yamane and Tsutsui 2008; Oshio and Kobayashi 2009, 2010).

3.4 Age

The U-shaped age effect that we found can also be observed in the international literature (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 and 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

¹⁵ 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.

¹⁶ Note that this study did not include Japan.

in a multiple regression. 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 2004, 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). In our data from Japan, we can see a U-shaped trend in both the raw data –as seen in the descriptive statistics (Table 1)– and the multivariate happiness estimation. A very unique result of the current 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. Finding the U-shaped age effects lends further support to the assumption of the universality of this effect across countries. The result of the difference between men and women however, deviates from the literature and calls for further research.

3.5 Children

In the international literature, the effects of children on happiness and life satisfaction are inconclusive and depend on the country as well as on the measurement variable (see Dolan, Peasgood and White 2008 for a review). In the Japan-related literature most studies do not control for having children. In those studies, that include the number of children, no statistically significant correlation with happiness can be found (e.g. Kume 2011; Oshio and Kobayashi 2010). This changes when men and women are analysed separately. In that case, women turn out to become unhappier with a growing number of children, whereas men show no statistically significant changes (e.g. Urakawa and Matsuura 2007a, 2007b; Ueda and Kawahara 2013).¹⁷ Kume (2009) further controls for the age of the children and finds that children under the age of six are positively correlated with happiness (for the whole sample), whereas children between 7 and 22 years show a negative correlation with happiness, but only for women. Our findings are in line with these results. However, given the overall state of the research, further studies (or analyses) are needed.

3.6 Employment relationships

Regarding different types of employment relations, the international literature focuses especially on two issues: unemployment and entrepreneurship. Unemployment shows a clearly negative correlation with happiness in international as well as Japan-related studies (Dolan, Peasgood and White 2008; Frey and Stutzer 2002; Ohtake 2012). Although the respondents are asked whether they or one of their family members are currently unemployed, our results are in line with existing

¹⁷ For marital happiness, however, Lee Schultz and Ono (2008) find that children have a negative effect for both men and women.

research: Respondents who are unemployed or who have a family member which is unemployed are much less happy than the control group.

Previous research is inconclusive about the relationship between happiness and the type of work (see Dolan, Peasgood and White 2008). Regarding entrepreneurship for example, some studies have found a positive correlation with life and job satisfaction (Frey 2008; Benz and Frey 2008; Blanchflower and Oswald 1998), while others have not found a significant effect (Dolan, Peasgood and White 2008). Japan-related studies, too, show rather mixed results. While Oshio et al. (2011) show that entrepreneurs are significantly happier, there is no significant relationship reported in Urakawa and Matsuura (2007a) and Oshio et al. (2011). Finally, Tsuji (2011) finds that entrepreneurship has no effect on the happiness level, but that there is a negative correlation with life satisfaction. Our results indicate that entrepreneurship is also negatively correlated with happiness, especially among men. One interpretation is that in Japan careers paths and family plans are more rigid and homogenous than in Western societies, which is the reason why income and employment security are highly valued compared to the 'risky and unstable' life of an entrepreneur. Those diverging results indicate that further research is needed to clearly identify how and why entrepreneurship shows different results in Japan.

Although there is not much research regarding the effects of non-standard employment on happiness and life satisfaction the existing studies show a negative (Bardasi and Francesconi 2004) or an insignificant (Cuyper and Witte 2006) relationship with life satisfaction. Most of the studies, however, focus mainly on the correlation with job satisfaction and even here evidence is still inconclusive (see Cuyper et al. 2008 for a review).

In the Japan-related literature there are only a few studies accounting for non-standard employment. While it is negatively correlated with life-satisfaction in Urakawa and Matsuura (2007a) and Tsuji (2011), no such correlation is found for happiness (Tsuji 2011; Oshio and Kobayashi 2011). Further, Kume et al. (2011) show in their study that it is not the *type* of contract but its *length* that shows a significant correlation with the workers' happiness. Even though not controlling for the length of contract, our results suggest that there is a negative relationship between non-standard employment with happiness. Considering the overall state of the research further studies are needed, in Japan as well as in other countries.

3.7 Homeownership

The happiness effects of homeownership are still under-researched (Hu 2011). Existing international studies show a consistent picture of a positive correlation between homeownership and happiness (Hu 2011; Diaz-Serrano 2009; Ruprah 2010). In the Japan-related literature the majority of the studies are in line with the international literature (e.g. Kusago 2007; Urakawa and

Matsuura 2007a, 2007b; Ohtake 2004, 2012).¹⁸ Our findings lend further support to this relationship.

3.8 Volunteering, donations and political participation

Similar to homeownership, the research on the effects of volunteering, donating and political participation on happiness is still in its infancy. The fact that the variables have not been investigated in the Japan-related literature reviewed above is indicative for the apparent neglect of this field of research. In the international literature a number of studies report a positive correlation between happiness and volunteer activities (for example Meier and Stutzer 2007; Frey 2008) and donations (Dunn, Aknin and Norton 2008; Aknin, Dunn and Norton 2012; Aknin et al. 2010).¹⁹ Aknin et al. (2010) find in their study on 136 nations that pro-social spending is positively correlated with happiness. Our findings contribute additional evidence to this finding. The same holds true for volunteering.

While international studies show a positive effect of political participation (Weitz-Shapiro and Winters 2008; Leung et al. 2011; Flavin and Keane 2012)²⁰, our analysis shows either no or in the case of women even a negative correlation with happiness. Our favourite interpretation of this result is that, in the case of Japan, women are politically less powerful than men, which can lead to frustration and dissatisfaction among politically active females.²¹

3.9 Loneliness

Regarding the loneliness index, the regression analysis showed a significant correlation with happiness of a substantial size. A drop of one point on the loneliness scale leads to a decrease in happiness of about 0.79 points. Considering that the index scale ranges from “one” to “five” loneliness turns out to be one of the most influential determinants of happiness. In the literature of happiness economics, loneliness has so far not received any attention at all. In psychological studies, however, loneliness and its correlation with happiness and life satisfaction have been investigated to some extent. These studies find a negative correlation between loneliness and life satisfaction or happiness (Hombrados-Mendieta, García-Martín and Gómez-Jacinto 2012; Russell,

¹⁸ However, there are also studies in which the correlation is either not clearly visible or not statistical significance at all (e.g. Tsutsui, Ohtake and Ikeda 2010, Ueda 2010, Tsuji 2011).

¹⁹ Note that the relationship for donations is more evident than for volunteer activities, as some studies have not found a significant relationship for the latter (e.g. Haller and Hadler 2006).

²⁰ Note however that Flavin and Keane argue for an inverse causal relationship of life satisfaction raising the likelihood of political participation.

²¹ Women could realize the futility of their political endeavors, which then leads to frustration and dissatisfaction: “The major results of social choice theory [...] call into question the idea that any democratic system can successfully aggregate individual preferences [...]. To a certain extent, this suggests the futility of participation—voters and town meeting participants alike are doomed to see their preferences go unrealized despite their participation”, Weitz-Shapiro and Winters (2008).

Peplau and Ferguson 1978; Yuan and Golpelwar 2012; Goodwin, Cook and Yung 2001).²² The only available study on Japan is Schumaker et al. (1993) who find in their comparative study that the Japanese respondents, unlike the Australian ones, do not show a significant relationship between loneliness and general life satisfaction.²³ However, the size and the representivity of our sample lends confidence to the universality of the negative relationship between loneliness and happiness.

3.10 Urbanization

The international literature indicates that people who are living in large cities are less happy than people living in rural areas (Hudson 2006; Dockery; Gerdtham and Johannesson 2001; Graham and Felton 2006; Hayo 2004). The findings for Japan contradict those results in two diverging ways: On the one hand there are studies showing no significant correlation between the two variables (Shiraishi and Shiraishi 2007; Ueda 2010), while on the other hand some studies find the opposite relationship that people living in a rural environment are less happy than people living in urban areas (Tsutsui, Ohtake and Ikeda 2010; Morikawa 2010). Although the Japan-related results seem to be inconsistent, our study shows how this inconsistency can be resolved. When splitting up the dataset between men and women we find that while a statistically significant relationship cannot be found for the whole sample, women showed higher levels of happiness when living in cities instead of towns and villages. For the time being, it can be concluded that the level of urbanization has different effects in Japan than in other countries, but more elaborate research is needed to affirm this conclusion.

3.11 March 11, 2011

Although the respondents who returned their questionnaire after March 11 have been reported to be slightly less happy in the descriptive statistics, the regression analysis showed that this correlation is not statistically significant. The existing literature on the happiness effects of March 11 is still limited. We identified only four studies on this topic, which suggest that the effects of March 11 on happiness and well-being in Japan are rather inconclusive: Uchida et al. (2011) can find no statistically significant effect on people's happiness on average. However, differentiating between persons who did and those who did not think about the earthquake when responding to the happiness question, they find that the former show significantly higher levels of happiness after March 11. Ishino et al. (2012) analyzed the retrospectively perceived changes in happiness levels after March 11. Overall they found no significant drop, but there was a tendency for those in the disaster area to report a decrease in happiness. Drawing from a sample taken from the disaster area of Tohoku and the Kanto area around Tokyo in September 2011, Hommerich (2012)

²² Note however, that these studies use either small or very specific samples.

²³ Again, this study is based on a very limited sample of 121 residents of Fukoku (sic!) [Fukuoka] in southern Japan.

shows that living in Kanto (instead of Tohoku) has a slightly positive impact on well-being. Kohlbacher (2012), using a national, representative sample of middle-aged and older Japanese, found a significant negative effect of March 11 on life satisfaction and perceived quality-of-life.

Overall, the extant literature on the impact of March 11 on happiness/subjective well-being seems to suggest that there are effects in place. Our data however, do not confirm this finding. Taking into account that the other studies only used a limited number of control variables, this difference may be due to the fact that the observed relationships are only spurious and disappear when controlling for relevant other factors, as is the case in our study. This interpretation is supported by Kohlbacher (2012) who found that the effects of March 11 on perceived quality-of-life disappear when controlling for self-esteem. Finally, it may also be the case that the effects are –if existing at all– regionally limited to the disaster area. Unfortunately, due to lack of responses from the disaster areas after March 11, our dataset does not allow for such an analysis. It is up to future research to shed more light on the effects of March 11 on people’s happiness.

4. Conclusion

Our analysis of the *National Survey on Lifestyle Preferences 2011* contributes to the state of the field of happiness economics in several ways. First, established results of existing international as well as Japan-related studies were confirmed: the positive correlations between happiness and *income*, *gender* and *co-habitation*; the negative correlation with *unemployment*. The often observed U-shaped trend of the marginal *age* effects could also be reproduced. Further, our results confirm preliminary results on under-researched issues. *Temporary employment* is associated with lower happiness levels. The effects of *children* depend on gender and age of the parents as well as on the age of the children themselves. In particular, we find that children under the age of six have a positive effect on happiness. *Homeownership* in Japan is associated with a higher happiness level in the cases of women and people over the age of 60 years. Moreover, the results of international studies regarding the correlation between *volunteering* and *donating* with an increase in happiness can be reproduced for Japan. Second, some findings substantially differ from existing research. Foremost, the results of the current study contradict the internationally well established result that *entrepreneurship* is associated with higher happiness levels. This calls for an explanation as to why entrepreneurship shows different effects in Japan. Further, both *political participation* and *living in rural areas* are negatively correlated with happiness in the case of women. Third, the paper makes two completely new contributions to the field of happiness economics. On the one hand, it is shown that *loneliness* is the most influential determinant of happiness. Assuming that causality runs mainly from loneliness to happiness, then this result has profound implications for policy makers. On the other hand, this paper is the first to comprehensively analyse the effects of March 11 on Japan. Our data suggests that, once relevant other factors are controlled for, there is no significant impact of March 11 on the individual happiness levels.

State of the field	Our findings
Conclusive findings	Income (+) Female (+) Age (U-shaped) Unemployment (-) Donations (+) Homeownership (+)
Inconclusive findings	Entrepreneurship (-) Voluntary activities (+) Non-standard employment (-) Children under 6 (+) Political participation (-) [female only] Living in rural areas (-) [female only]
New findings	Loneliness (+) 3-11 (ns)

Table 3: Summary of the results

NB: (ns) = not significant, (+) positive relationship, (-), negative relationship.

The dataset has a number of limitations. First, the questionnaire lacks relevant items which are usually included in happiness analyses such as questions regarding subjective health, the level of education as well as a question regarding the marital status (not only co-habitation). Second, the percentage of single households in the sample is only 5.83% and therefore much lower than in the total population. Third, since the current data was collected in the month of the disaster, it may have been too early to capture significant happiness effects. Notwithstanding these caveats, it can be concluded that the present analysis not only confirms established determinants of happiness in Japan, but also sheds new light on ongoing discourses as well as on new variables yet to be explored.

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