Unemployment and Happiness

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Are unemployed people unhappier than employed people? To answer this question, this paper presents an extensive review of previous overseas studies and conducts an empirical analysis of the determinants of happiness in Japan. The main result in this study is consistent with that of previous studies; even when the income level and other individual characteristics are held constant, unemployment reduces people's happiness. This conclusion, if it is true, suggests that under budget constraints, to create jobs rather than to redistribute wealth to the unemployed may be more effective to raise people's levels of subjective well-being (happiness).

I. Introduction

Are unemployed people really unhappy? It might be common knowledge that unemployment makes people unhappy. However, according to neoclassical economic point of view that emphasizes the market equilibrium, unemployment is voluntary. Suppose that the wage flexibly adjust to equilibrate the labor market, people choose to be jobless, rather than engage in work at a low wage, to find better jobs through ongoing job search activities. If people choose to leave employment, the voluntarily unemployed people, everything else being equal, should be happier than the employed as long as they do not work or there should be no difference in the degree of happiness.

If, on the contrary, the employed are happier than the unemployed, when the income level and other conditions are held constant, the assumption of neoclassic economics that people become voluntarily unemployed needs to be modified. Even when unemployment is assumed to arise under conditions of downward wage rigidity, the unemployed should be at a higher utility level than the employed. In other words, in case that people with high income are unemployed and people with the same level of income are employed, the utility level of the unemployed should be higher, as long as labor involves disutility. However, if being employed provides not only pecuniary benefit but also a sense of happiness to people, economic policies should be revised accordingly based on such recognition. It implies that compensation in money would not increase the levels of subjective well-being of the unemployed, although their income levels reach those of the employed. Under the budget constraints, creating more jobs than compensating the unemployed will be more effective to improve the level of well-being.

In this regard, for the policy-making as well as economic analysis, studying how unemployment affects people's happiness is very critical. Then, how can we measure people's feeling of subjective well-being, "happiness"? Happiness is usually measured by using data from attitude surveys, which typically ask, "Taken all together, to what extent are you cur-

rently feeling happy?" People's answers to this question are coded on a 10-point scale ranging from 0 for "very unhappy" and 5 for "neither happy nor unhappy" to 10 for "very happy."

Happiness, an individual's subjective feeling of well-being, has not been much studied theoretically and examined empirically by economists because of its subjectivity and difficulty in making comparison between individuals. However, the recent empirical studies on "happiness" and "satisfaction" have revealed that the effects of personal characteristics and economic variables on the level of happiness are quite robust and the significant relations are widely recognized in the international academic filed. For example, Frey and Stutzer (2002) state that the recent empirical studies on happiness have well proved that unemployment has a significant negative effect on happiness even when other factors are controlled for.[1]

The effects of unemployment on happiness can be analyzed from two different aspects. One is a personal-level effect that concerns how individuals' employment state or any experiences of unemployment affect one's happiness. The other is a macro-level effect that focuses on how the macro-level unemployment rate affects the level of happiness. Increase in the macro-level unemployment rate could affect happiness in two ways: (i) as the number of unemployed people increases, the number of happy people in the entire society decreases; (ii) even for the employed, a rise in the macro-level unemployment rate increases a fear of unemployment, which eventually leads to lowering the level of happiness.

Di Tella, MacCulloch, and Oswald (2001) analyze how the unemployment, the unemployment rate, and the inflation rate affect the level of happiness based on micro data on happiness for 12 European countries. They argue that everything else same, the unemployed are less happy than the employed. Clark and Oswald (1994) also conduct an empirical analysis using the UK micro data, and clarify that unemployment significantly reduces people's happiness. Wolfers (2003) and Blanchflower and Oswald (2004) find using the US and UK data that unemployment has a negative effect on happiness.

Earlier studies on the relation between unemployment and happiness may have some limitations if they are based on cross-sectional data. The negative correlation between unemployment and happiness does not necessarily indicate that unemployment has a cause-and-effect relationship with happiness. For example, unhappy people may be more likely to become unemployed and in this case, the causality runs in the opposite direction. One possible approach to overcome this problem is to analyze fluctuations in the level of happiness of the same individual, or to treat the time invariant happiness level as the fixed effect. With this method, the adverse relation that people who feel less happy by nature are more likely to jobless can be explained as the fixed effect. Then, the actual effect of unemployment on happiness can be analyzed. Using the German panel data, Winkelmann and

[1] Hamermesh (2004) made a critical review of the economic analysis that use subjective indicators.

Winkelmann (1998) analyze unemployment and its effect on happiness by eliminating the fixed effects. Their results indicate that even when the fixed effect of individuals is taken into consideration, unemployment still has a large, negative effect on happiness. In other words, the negative correlation between unemployment and happiness is not attributed to the reverse causality that those who are unhappier than average tend to be easily unemployed; rather, the negative correlation is resulted from the fact that becoming unemployed has a negative effect on people's happiness.

Does the effect of unemployment on happiness differ by the circumstances of the unemployed? For example, if people become unemployed in the situation where the unemployment rate is high, and unemployment is a common occurrence or an unusual event, the effects of unemployment may differ. Many studies in the United Kingdom show that unemployment has a smaller effect on happiness in high unemployment areas than in low employment areas. Clark and Oswald (1994) find that the negative effect size of unemployment on happiness is small among young and elderly people who experience a high unemployment rate, compared with the 30-49 age group who has a low unemployment rate. However, Winkelmann and Winkelmann (1998) conduct the empirical analysis using German panel data and present a quite different result that young people suffer most from the unemployment and they report the lowest happiness. This remarkable difference may be an indication of the possibility that for some countries, being unemployed at a young age acts as a permanent shock to the person but not for other countries.[2]

Di Tella, MacCulloch, and Oswald (2001) and Wolfers (2003) analyze the effect of the macro-level unemployment rate on happiness, in addition to the effect of individuals' unemployment on subjective well-being. They report that a rise in the macro-level unemployment rate reduces individuals' happiness. The magnitude of the negative effect caused by increasing unemployment rate at macro level is bigger than that caused by increasing inflation rate. Wolfer (2003) further discovers that fluctuations in the unemployment rate also have a negative effect on the level of happiness.[3]

Comparatively, there have been only few studies on the effect of economic variables on people's level of happiness in Japan.[4] This paper, in this regard, aims to fill this gab by examining how unemployment affects individual happiness, using Japanese data. Two sets of data are used for this study. One is the data collected from the Questionnaire Survey on Lifestyle and Society (2002), conducted independently by the author. This survey investigates the level of happiness of individuals and their employment status. The other is the data from the National Survey on Lifestyle Preference (1978-1999), conducted by the Economic Planning Agency. This survey asks the level of happiness throughout all survey years and also includes a question on the perceived level of fear of unemployment. The main estimated results based on these two data are: (i) with level of income held constant, the unem-

[2] Korpi (1997) conducted an empirical analysis using data of young people in Sweden.
[3] For macroeconomics and happiness, see Darity and Goldsmith (1996), Oswald (1997).
[4] For the study on happiness and inequality, see Ohtake and Tomioka (2002, 2003).

ployed are less happy than those with jobs; (ii) the fear of unemployment reduces people's happiness.

Section II explains two data sets used for this study, and Section III reports the results of the empirical analysis on the effect of unemployment on happiness. Section IV presents conclusions and discusses future issues.

II. Data

1. Questionnaire Survey on Lifestyle and Society

The first data used for the analysis of the relation between happiness and unemployment are collected from the Questionnaire Survey on Lifestyle and Society (hereafter, QSLS) (2002), conducted independently by the author during the period 13-26 February 2002. A sample of 6,000 people aged between 20 and 65 was drawn by two-phase stratified random sampling. The questionnaires were sent to respondents by mail. The total number of responses collected was 1,943, among whom 1,928 were valid responses (valid respondent rate: 32.1%). The questions can be roughly divided into the following categories: (i) Japanese economy (determining factors of income level and normative evaluation thereof, past and future changes in income distribution, opinions on income redistribution policy); (ii) respondent's financial situation (current income, assets, expected income, expected inflation rate, experience of unemployment, level of happiness, class consciousness); (iii) respondent's utility function (time preference, risk aversion rate); (iv) other individual characteristics (e.g., gender, age, individual and parental educational attainment).

Studies on the effect of unemployment on happiness using cross-sectional data have limitations to completely control for personal characteristics, which makes it difficult to eliminate the adverse cause-and-effect relationship between unemployment and happiness. The analysis using the QSLS may pose the same problem, but the main difference from previous studies is that this study adds an indicator for the degree of risk aversion to better control for individual characteristics.

The degree of risk aversion is constructed by subtracting from 100% the individuals' responses to the question "When you go out, how high a probability of rainfall makes you carry an umbrella (0~100%)?": high values implies a tendency to avoid taking risks. This indicator is advantageous because it uses the day-to-day situation which is easily understandable for the Japanese respondents and the continuous variable is simply generated from answers for the probability of rainfall. The risk aversion measured from the "reservation price of a hypothetical lottery ticket" may be affected by the respondent's income level or asset level. If that happens, the degree of aversion with the same risk level may not be accurately measured. Another limitation is that there may be some respondents who have difficulties in making self-assessment of risk attitudes regarding the hypothetical lottery question. The potential problem posed by the rainfall indicator, on the other hand, is that the magnitude of disutility from being caught in a rain may itself vary depending on the res-

pondent's age, gender, income and other individual characteristics. However, in multiple regression analysis, we can estimate the net effect by controlling for any other factors.

2. National Survey on Lifestyle Preference

Another data used in this paper are collected from the National Survey on Lifestyle Preference (hereafter NSLP). This survey has been carried out by the Economic Planning Agency (currently the Cabinet Office) every year, and the survey includes a time-series component every three years for a chronological comparison. The successive waves of the NSLP survey with the interval of three years have asked the same question on happiness. This paper uses individual data from time-series survey collected at 8 points in time between 1978 and 1999. The NSLP has a nationwide sample of both sexes from the age of 15 to 75 drawn by two-phase stratified random sampling and the drop-off survey method is used. The total sample size is 30,007 across the eight successive surveys. In contrast to the cross-section data from the QSLS, the data from the NSLP make it possible to analyze the effect of changes in the macro-level unemployment rate on happiness. However, it was not possible to examine the effect of individual unemployment on happiness because the NSLP does not include questions about a respondent's job search activities. Instead, this survey asks, "To what extent are you currently satisfied with the following aspect of your job: *work without fear of unemployment.*" Using this question, how "fear of unemployment" affects individual happiness can be analyzed. Responses to this question are given in the form of a 5-point rating scale running from "hardly sufficiently satisfied" to "sufficiently satisfied." Reported results are converted to a binary variable: those who answered either "not very satisfied" or "hardly satisfied" are defined as persons who have "fear of unemployment (=1)."

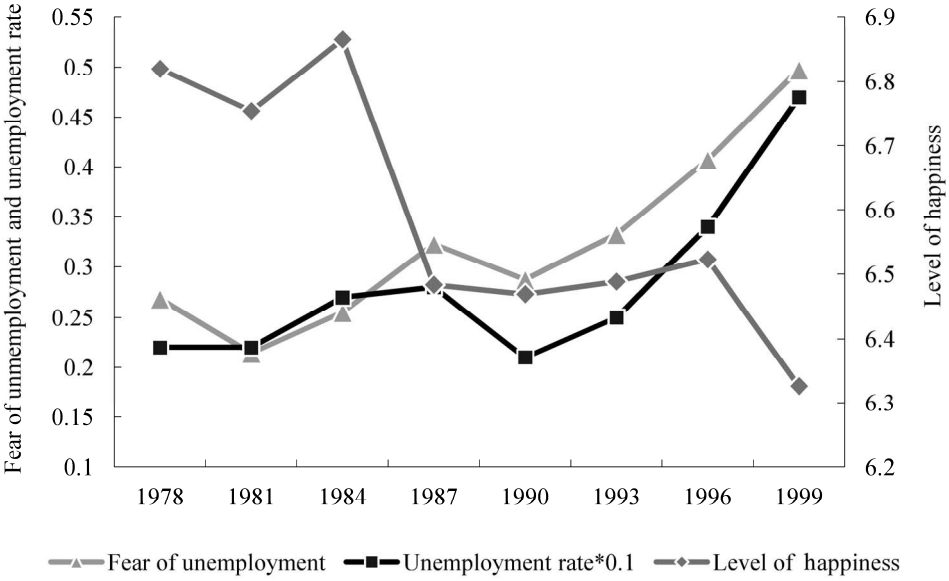
3. Descriptive Statistics

Trends in Time-Series

Figure 1 shows the trend in the mean level of happiness calculated from the NSLP. The average happiness level declined until 1987, remained nearly flat between 1987 and 1996, and then further declined thereafter. The change in unemployment rate shown in Figure 1 corresponds to a slow increase of the percentage of people who have fear of unemployment. The decline in happiness over time and the increase in unemployment rate (fear of unemployment) suggests that there is a negative correlation between happiness and the rest of two.

Distribution of the Level of Happiness

The QSLS and the NSLP were conducted by the method of mailing survey and household drop-off survey respectively and obtained different response rates. Due to these differences in survey method and responses rate, two surveys may provide different



Sources: Level of happiness and fear of unemployment are calculated by the author from the NSLP and unemployment rate is from the Labor Force Survey.

Figure 1. Level of Happiness, Unemployment Rate, and Fear of Unemployment

distribution of the level of happiness. Figure 2 to 4 enable us to compare the distribution of happiness level. Figure 2 and Figure 3 show the distribution of average happiness based on the QSLS and the NSLP, respectively. Figure 4 shows distributions of happiness level by successive survey year between 1987 and 1999. Similar patterns in the shape of the distribution of happiness are observed from both surveys. First, the distribution is skewed to the right of the median of "neither happy nor unhappy." Next, the distribution has two peaks at level 5 and level 7-8, while relatively small number of respondents answered level 6. The QSLS, despite a lower response rate, has a fair number of responses below level 4 or lower, so it is unlikely that data are too skewed to the responses with higher happiness levels. Figure 4 ensures that these patterns in the shape of distribution are stable over time.

Unemployment and Happiness

Table 1 to 3 report the happiness levels of people who are unemployed, who have ever experienced unemployment, or who currently have fear of unemployment in comparison with their counterparts. First, Table 1 compares the levels of happiness between the unemployed and the others. Here, happiness levels measured on a 10-point rating scale are divided into three categories: "happy" for level 6 and higher; "unhappy" for level 4 and

Figure 2. Distribution of the Level of Happiness (QSLS)

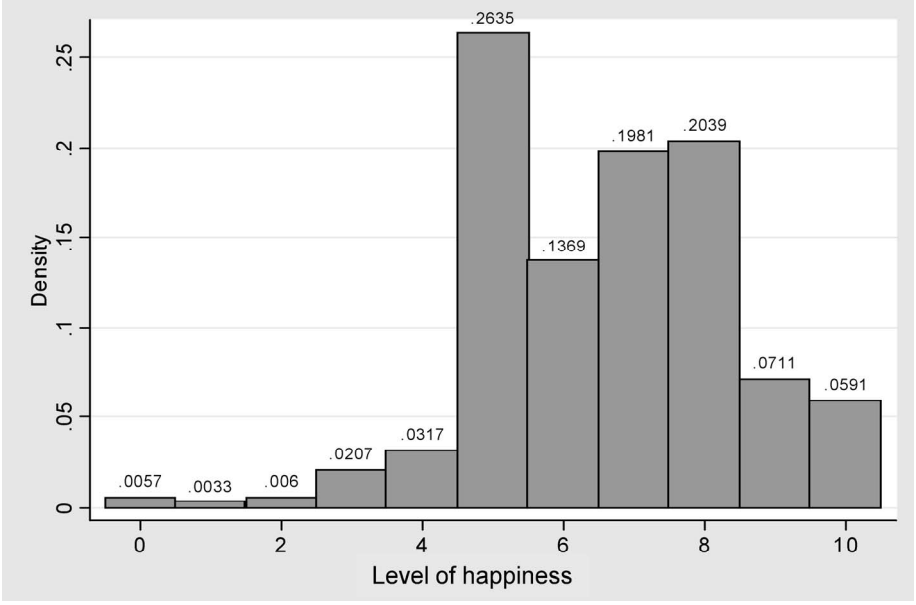


Figure 3. Distribution of the Level of Happiness (NSLP; 1978-1999)

Figure 4. Distribution of the Level of Happiness by the Successive Survey Year between 1978 and 1999 (NSLP)

lower; and "neither happy nor unhappy" for level 5. The unemployed are defined as those who have no job and carry out job search activities. 43% of the unemployed answered that they were unhappy, which is in strong contrast to their counterparts; only 8% of the others answered that they were unhappy. The difference between these two groups is more evident under the "happy" category. While only 27% of the unemployed answered they were happy, but more than half of the others answered that they were happy.

Table 2 compares the level of happiness between people who have ever been unemployed for the past five years and the others. Those with the past experience of unemployment account for 20% of all respondents. Their average "unhappy" (23%) is higher than those without the unemployment experience (6%), although it is not as high as those who are currently unemployed (43%). It means people who have ever been unemployed feel unhappier than those without unemployment experience, but those who feel much unhappier is people who do not have a job now.

The fear of unemployment has a negative effect on the level of happiness (Table 3). The fear of unemployment is measured from the following question: "There is a possibility that someone in your family become unemployed in the next two years." Among those who responded "yes," about 16% answered that they were unhappy, while only 5% of people who responded "no" answered that they were unhappy.

Table 1. Unemployed People and Their Level of Happiness

	Level of happiness			Total
	Unhappy	Neither happy nor unhappy	Happy	
Other than the unemployed	8.43	37.45	54.13	100
The unemployed	43.33	30	26.67	100
Total	9.31	37.26	53.43	100

Source: QSLS (2002).

Table 2. Experience of Unemployment and Level of Happiness

Experience of unemployment over the past five years	Level of Happiness			Total
	Unhappy	Neither happy nor unhappy	Happy	
No unemployment experience	6.18	36.54	57.28	100
Have unemployment experience	22.57	40.27	37.17	100
Total	9.31	37.26	53.43	100

Source: QSLS (2002).

Table 3. Fear of Unemployment and Level of Happiness

Possibility that someone in your family become unemployed in the next two years	Level of Happiness			Total
	Unhappy	Neither happy nor unhappy	Happy	
No	4.93	34.23	60.85	100
Yes	15.92	41.83	42.25	100
Total	9.31	37.26	53.43	100

Source: QSLS (2002).

III. Estimation Models and Estimation Results

Unemployment is not the only factor that affects people's happiness. To see the net effect of unemployment on happiness, other determinants of happiness are being controlled for. In this section reports the empirical results of estimating ordered probit equations in which individual happiness levels are regressed on unemployment and other individual characteristics.

Table 4. Descriptive Statistics from the QSLS

Variables	Mean value	Standard deviation
Level of happiness	6.312	2.009
Gender (male=1, female=2)	1.453	0.498
Age	44.937	12.267
Age squared	2169.646	1074.348
Marriage (unmarried=1, married and have a spouse=2, married but no spouse due to divorce, separation or death=3)	1.884	0.468
Have an undergraduate or postgraduate degree	0.301	0.459
Currently unemployed	0.067	0.250
Have experienced unemployment over the past five years	0.201	0.401
Currently unemployed or have experienced unemployment over the past five years	0.231	0.422
Have a fear that someone in the family become unemployed in the next two years	0.400	0.490
Unemployment rate by prefecture	5.051	1.009
Value of real estate	2188.303	2781.213
Last year's income growth rate	-0.958	3.827
Last year's consumption growth rate	0.469	4.003
Expected income growth in the next five years	-2.021	4.148
Household income	746.144	398.279
Financial assets	1054.627	1343.617
Home ownership	0.728	0.445
Single-person household	0.096	0.295
Head of household	0.427	0.495
Inflation expectation	-0.11	4.748
Self-employed	0.065	0.247
Degree of risk aversion	0.496	0.196
Number of observations: 1167		

1. Estimation Results Based on the Questionnaire Survey on Lifestyle and Society

Table 4 presents descriptive statistics obtained from the QSLS and Table 5 reports the estimation results for the determinants of happiness. First of all, the effects of individual characteristics on happiness correspond to those found in the previous overseas studies: (i) those with higher household income and assets are happier; (ii) the level of happiness is higher among women than men; (iii) the lowest level of happiness is observed among people aged around 40. In addition, the coefficient sizes of woman (=1) and female-headed household (=1) are nearly equal but opposite in sign. This suggests that the happiness level of women become similar to that of men if the women are the head of household. Secondly, being unemployed, unemployment experience, and fear of unemployment have substantial

Table 5. Estimation Results Based on the QSLS

	Model 1	Model 2	Model 3
Woman	0.384 ***	0.405 ***	0.408 ***
Age	-0.078 ***	-0.08 ***	-0.096 ***
Age squared	0.001 ***	0.001 ***	0.001 ***
Have spouse	0.687 ***	0.704 ***	0.762 ***
No spouse	0.369 **	0.413 **	0.436 **
Undergraduate/postgraduate	0.149 **	0.160 **	0.119 *
Currently unemployed	-0.522 ***	-0.521 ***	-0.580 ***
Experienced unemployment	-0.256 ***	-0.261 ***	-0.309 ***
Fear of unemployment	-0.300 ***	-0.310 ***	-0.243 ***
Real assets (10 million yen)	0.013	0.012	0.013
Household income (1 million yen)	0.052 ***	0.051 ***	0.049 ***
Financial assets (10 million yen)	0.092 ***	0.098 ***	0.093 ***
Home ownership	0.208 ***	0.222 ***	0.235 ***
Head of household	0.137	0.139	0.165
Woman who is the head of household	-0.409 **	-0.432 **	-0.455 **
Self-employed	0.003	-0.075	-0.080
Degree of risk aversion		-0.39 ***	-0.377 **
Last year's income growth rate			0.010
Last year's consumption growth rate			0.009
Expected income growth rate			0.021 ***
Expected inflation rate			-0.003
Number of obs	1419	1381	1262
Pseudo R2	0.0599	0.0619	0.0677

Notes: Other explanatory variables include the dummy for the structure of family who live together.

***: 1%-level of significance.

**: 5%-level of significance.

*: 10%-level of significance.

negative effects on happiness, even when individual characteristics such as household income, gender, and age are being controlled for. These results do not change when expectations about future income growth and the degree of risk aversion are additionally included in the model. This suggests that even when keeping all economic variables of the income change rate, household income and assets held constant, the unemployment, experiences of unemployment, and fear of unemployment significantly reduce people's happiness. Thirdly, those with the high degree of risk aversion feel less happy. This result can be interpreted in a way that under the same uncertainty, risk-averse people may feel unhappy.

2. Estimated Results Based on the National Survey on Lifestyle Preference

Table 6 and Table 7 report descriptive statistics of the NSLP data and estimation results, respectively. As explained in the section 2-2, the NSLP data do not include a question as to whether the subjects are currently unemployed or not. Thus, with the NSLP data, this study analyzes the effect of the "fear" of unemployment, instead of "being" currently employed, on happiness.

Main estimation results are as follows (Table 7). First, in Model 1, the effects of income, age, and gender on happiness are qualitatively the same as those found with the QSLS data. High-income earners, women, the highly-educated report higher level of happiness, while those aged around 40 report the lowest level of happiness. In addition, the recent decline in the level of happiness, with income and age held constant, is observed from the movements of year dummy variables in Model 1.

Model 2 indicates that people's levels of happiness significantly declines if they have fear of unemployment or they think that equality of income and property has not been achieved. In particular, the negative effect of the fear of unemployment on happiness remains significant even when household income level or the expectation for income growth is being controlled for. In other words, even when people have high income or expect the continuous income growth, their happiness declines if they are aware that there is fear of unemployment in society. If people think that inflation will rise, it also has a negative effect on happiness. In contrast, those who are healthy and have less stress in life feel happier. When these self-consciousness variables included into the model, the decline in the coefficient sizes for year dummies are reduced by about 0.1 point. This suggests that the cause of the recent decline in the level of happiness can be partly accounted for by the increase in the fear of unemployment or sense of inequality.[5] After self-consciousness variables are being controlled for, however, the declines in coefficient sizes of the recent year dummies are still observed. This might indicate that other important variables are also important in explaining declines in happiness of the Japanese.

In Model 3, the unemployment rate replaces year dummies as an additional explanatory variable. Even though the results should be interpreted with caution because the data were collected only at eight points in time, it is found that the rise in the unemployment rate has a negative effect on the level of happiness. Model 4 includes quadratic time trends in the inflation rate and unemployment rate. The quadratic terms of unemployment rate and inflation rate are both negative. The peak of happiness occurs at 4.5% of the unemployment rate and 3.3% of the inflation rate. This suggests that the level of happiness will decline if the unemployment rate rises from the 2003 level, whereas the rise in the inflation rate up to 3.3% will raise the level of happiness. This interpretation still requires caution because the empirical results are based on limited time-series data.

[5] When both independent (happiness level) and dependent variables (the sense of inequality or fear of unemployment) are self-consciousness variables, there may be a potential cause-effect specification problem .

Table 6. Descriptive Statistics Based on the NSLP

	Mean	S.E.
Level of happiness	6.593	1.782
Sex (Male＝1, Female＝2)	1.511	0.499
Age group (five dummies)	6.309	2.955
Have a spouse	0.764	0.424
No spouse	0.066	0.248
High school graduate	0.576	0.494
Undergraduate/postgraduate	0.135	0.342
Logarithmic household income	6.222	0.623
Home ownership	0.684	0.464
Fear of unemployment	0.336	0.472
Sense of inequality	0.483	0.499
Inflation	0.570	0.495
Health	0.390	0.487
Stress	0.308	0.461
Unemployment rate	2.862	0.866
Square value of unemployment rate	8.944	5.940
Rate of increase in consumer price index	1.824	1.630
Square value of rate of increase in consumer price index	5.986	6.321
Income growth	0.167	0.373
Number of observations 24354		

Fear of unemployment: in response to the question "To what extent are you currently satisfied with the following aspect of your job: *work without fear of unemployment*?," those who answered either "hardly satisfied" or "not very satisfied."

Sense of inequality: in response to the question "To what extent are you currently satisfied with the following statement: *there is not much inequality in terms of income or property*?," those who answered either "hardly satisfied" or "not very satisfied."

Income growth: In response to the question "To what extent are you currently satisfied with the following statement: *your income "certainly" increases every year*?," those who answered either "nearly satisfied" or "somewhat satisfied."

Inflation: In response to the question of "To what extent are you currently satisfied with the following statement: *your income or property does not decrease in value due to an inflation*?," those who answered either "hardly satisfied" or "somewhat unsatisfied."

Health: In response to the question of "To what extent are you currently satisfied with the following statement: *you attempt to maintain or improve your health*?," those who answered either "nearly satisfied" or "somewhat satisfied."

Stress: In response to the question of "To what extent are you currently satisfied with the following statement: *you do not suffer much mental strain, e.g., irritation, stress*?," those who answered either "hardly satisfied" or "somewhat unsatisfied."

Table 7. Determining Factors of Happiness, Based on the NSLP

	Model 1	Model 2	Model 3	Model 4
Have a spouse	0.453 ***	0.472 ***	0.483 ***	0.476 ***
No spouse	0.152 ***	0.162 ***	0.172 ***	0.163 ***
High school	0.055 ***	0.053 ***	0.048 ***	0.051 ***
Undergraduate	0.222 ***	0.223 ***	0.218 ***	0.220 ***
Female	0.234 ***	0.244 ***	0.244 ***	0.243 ***
Logarithmic real household income	0.391 ***	0.350 ***	0.342 ***	0.347 ***
Home ownership	0.106 ***	0.086 ***	0.095 ***	0.088 ***
Aged 20-24	-0.090 **	-0.045	-0.039	-0.044
Aged 25-29	-0.109 ***	-0.065	-0.058	-0.063
Aged 30-34	-0.282 ***	-0.243 ***	-0.240 ***	-0.243 ***
Aged 35-39	-0.350 ***	-0.309 ***	-0.311 ***	-0.310 ***
Aged 40-44	-0.415 ***	-0.387 ***	-0.394 ***	-0.390 ***
Aged 45-49	-0.476 ***	-0.457 ***	-0.463 ***	-0.461 ***
Aged 50-54	-0.427 ***	-0.431 ***	-0.440 ***	-0.434 ***
Aged 55-59	-0.369 ***	-0.394 ***	-0.407 ***	-0.399 ***
Aged 60-64	-0.198 ***	-0.247 ***	-0.268 ***	-0.248 ***
Aged 65-69	-0.160 ***	-0.250 ***	-0.276 ***	-0.255 ***
Aged 70 and higher	-0.030	-0.146 ***	-0.175 ***	-0.152 ***
Fear of unemployment		-0.135 ***	-0.139 ***	-0.136 ***
Sense of inequality		-0.104 ***	-0.107 ***	-0.105 ***
Increase in income		0.258 ***	0.266 ***	0.261 ***
Expected inflation		-0.047 ***	-0.040 ***	-0.044 ***
Health		0.232 ***	0.244 ***	0.236 ***
Stress		-0.281 ***	-0.287 ***	-0.284 ***
Unemployment rate			-0.049 ***	0.556 ***
Unemployment rate squared				-0.062 ***
Inflation rate				0.210 ***
Inflation rate squared				-0.030 ***
Year 1981	-0.035	-0.036		
Year 1984	0.055 **	0.078 ***		
Year 1987	-0.216 ***	-0.119 ***		
Year 1990	-0.204 ***	-0.086 ***		
Year 1993	-0.228 ***	-0.103 ***		
Year 1996	-0.272 ***	-0.096 ***		
Year 1999	-0.356 ***	-0.174 ***		
Log likelihood	-44832	-44019	-44053	-44024
Number of obs	24354	24354	24354	24354
Pseudo R2	0.0282	0.0458	0.0451	0.0457

Note: ***: 1%-level of significance.

**: 5%-level of significance.

IV. Conclusion

This paper empirically analyzes what determines the level of happiness with particular focus on the effect of unemployment, using the individual data obtained from the QSLS and the NSLP. The main finding from the empirical analysis is that being unemployed, experiences of unemployment and fear of unemployment reduce people's happiness. This might appear to be common knowledge, but it should be noted that the same results are obtained when the income level is being controlled for in the analysis. In other words, even with the same income, those who are currently looking for jobs are less happy than those who are engaged in their jobs. The analysis also reveals that people who have a high degree of risk aversion and who recognize income inequality feel less happy. The level of happiness of the Japanese substantially declined in late 1980s, which can be partly accounted for by the growing fear of unemployment and increasing degree of inequality.

Based on the results of the empirical analysis, this study concludes that in order to raise people's level of subjective well-being (happiness), it is more effective to spend budget in creating jobs than to redistribute the budget to the unemployed.

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