

**Japan's Development: what economic growth, human development and subjective
well-being measures tell us about?**

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Abstract

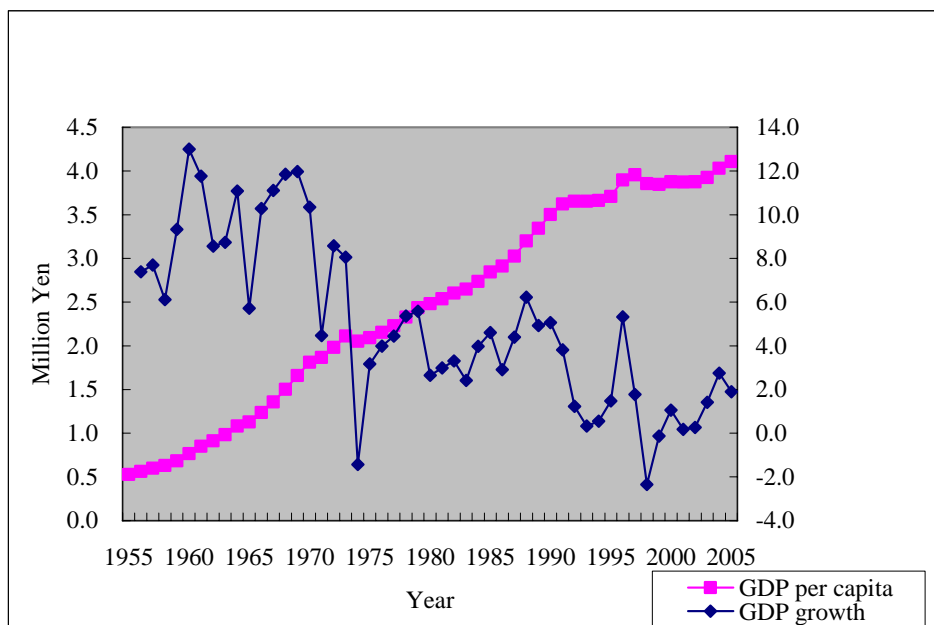
This paper has paid closer attention to industrialized economic growth strategy and people's life satisfaction in Japan after the World War II. For this analysis, it has applied conventional growth measurements against alternative one, and we have found some discrepancies between GDP and HDI. Also, we have examined if these measures could represent people's life satisfaction correctly. To explore this in greater detail, the paper has dealt with the secondary data on people's life satisfaction gathered by the government of Japan every three years from 1978 to 2002. Our analysis reveals that personal attributes and individual economic and social positions do differentiate people's life satisfaction levels. Individual factors like age, gender, marital status, house ownership, income level and educational attainment are influential over people's life satisfaction levels. Investigation of people's life satisfaction could lead us to reexamine quality of economic development and urge us to identify alternative measures capturing people's real well-being and we might be able to formulate/select public policies to enhance people's overall well-being in the future.

1. Japan's economic development strategy after 1945

After the Meiji restoration, Japan envisioned its national development to catch up the West under the emperor's regime which was highly centralized and controlled by elite bureaucrats and military forces. However, the World War II devastated the Japanese home land at the cost of many ordinary people's lives. In the post-WWII period, with Japan's extraordinary national economic growth since 1945, which was orchestrated by the Japanese government and achieved through the hard work of Japanese companies and their employees, the Japanese seem to enjoy one of the world's highest levels of economic attainment. In 1945, reconstruction of Japan started with the Allied Powers' economic policy, which included disbandment of financial cliques (*zaibatsu*) such as Mitsubishi and Mitsui, agricultural land reform and implementation of the Dodge line. After Japan regained its independence in 1952, the Japanese government struggled with its economic reconstruction. In the late 1950s, Japan finally experienced economic boom with higher industrial production and in 1956, the government declared that the post-war reconstruction period was almost over (Nakamura, 1985). To accelerate reconstruction of the economy, Japan became a member of the World Bank and the IMF in 1952 and subsequently received loans from the World Bank to finance infrastructure development such as dams, roads, and railways. In this manner, Japan got on track to grow its economy rapidly in the 1950s and 1960s. With this economic recovery and growth, Japanese people were viewed as improving its economic and social standard of living.

In the 1970s, Europeans described Japanese workers as "economic animals" in the context of warning the world about Japanese economic power. In fact, that description is not far from the mark. The majority of Japanese migrated from rural to urban areas to obtain a job in the high-growth manufacturing sector. They worked long hours, and perhaps, as a result of this hard work, their economic well-being improved with the sharp economic growth of the 1960s and 1970s. Wages tended to rise, and people were able to build homes and to

send their children to secondary school and even university, which were viewed in the pre-war period as educational institutions largely accessible only to the elite. The majority more or less benefited from this nationwide economic growth. In fact, during Japan's rapid economic growth from the 1960s to the early 1980s, the wage level of Japanese workers, on average, increased every year and they enjoyed growing purchasing power. One could claim that the Japanese came to perceive economic growth as a good measurement to indicate the level of economic security and prosperity for themselves.

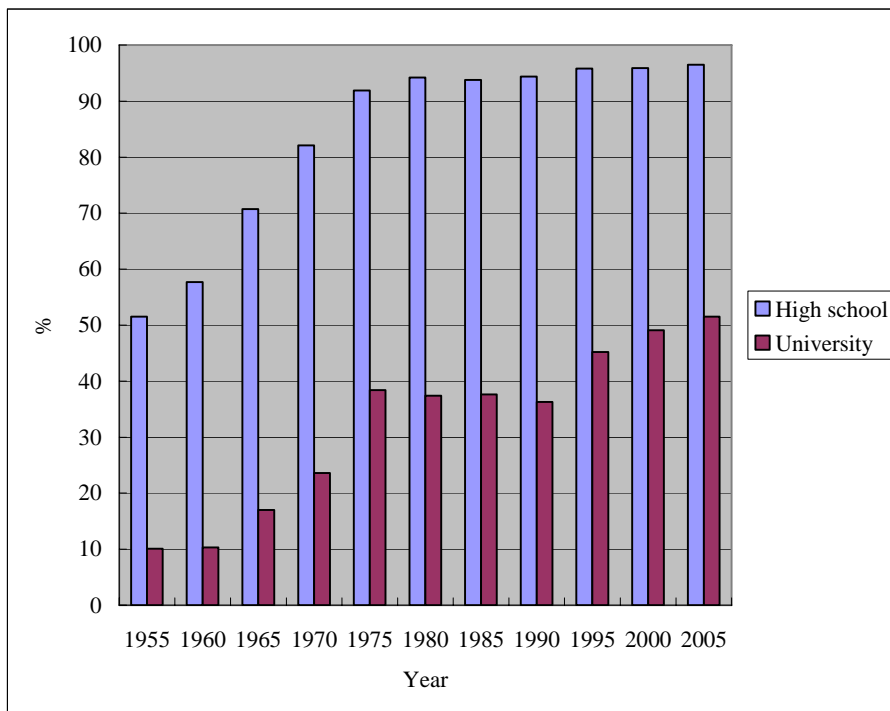


(Data Source: *National Accounts*, Economic and Social Research Institute, Cabinet Office)

Figure 1: Japan's economic growth: GDP per capita, and GDP growth rate

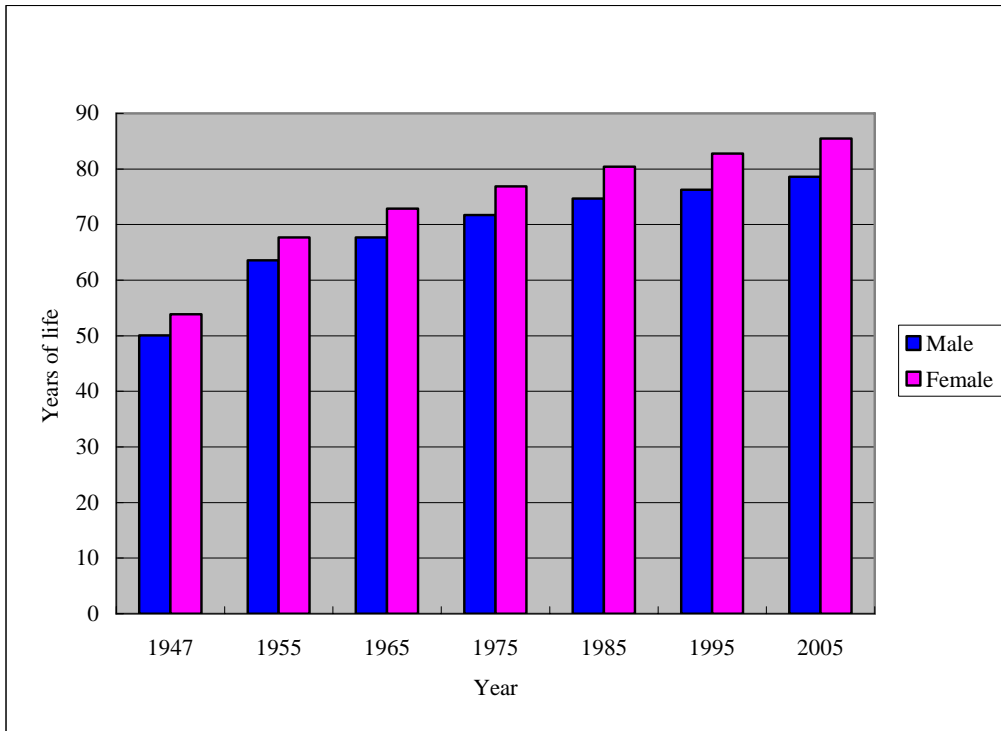
If we look at Japan based on its economic performance (GDP), as shown in Figure 1, we see that it achieved extraordinary high economic growth after World War II. Some academics and policymakers in the West described Japan's high economic growth in the 1960s and 70s as a "miracle". With this, many Japanese families were able to build their own houses, although their sizes were smaller than those mostly found in other developed

countries. They also sent their children to secondary schools, and enjoyed longer life partly because of the Japanese public universal health care system with the increase in government tax revenues. As Figure 2 shows, school enrollment rates in Japan improved dramatically in a short time, gaining more than 40% for high school enrollment rates from 1955 to 1975, and the rate reached closer to 100% in 2005. Similarly, the enrollment rate for university has also been upwards, and the rate, less than 10% in 1955, reached more than 50% in 2005. As shown in Figure 3, the health of the Japanese also improved. Soon after the war ended, life expectancy was merely fifty years old for men and women (50.1 years for men and 53.9 years for women in 1947), an age far exceeded and one of the longest in the world now (78.6 years for men and 85.5 years for women in 2005). With these descriptions, it can be seen that the Japanese have made great progress and gained both economic and social well-being during the post-World War II era.



(Data Source: *Basic Surveys on Schools*, Ministry of Education, Culture, Sports, Science and Technology)

Figure 2: School enrollment rates in Japan



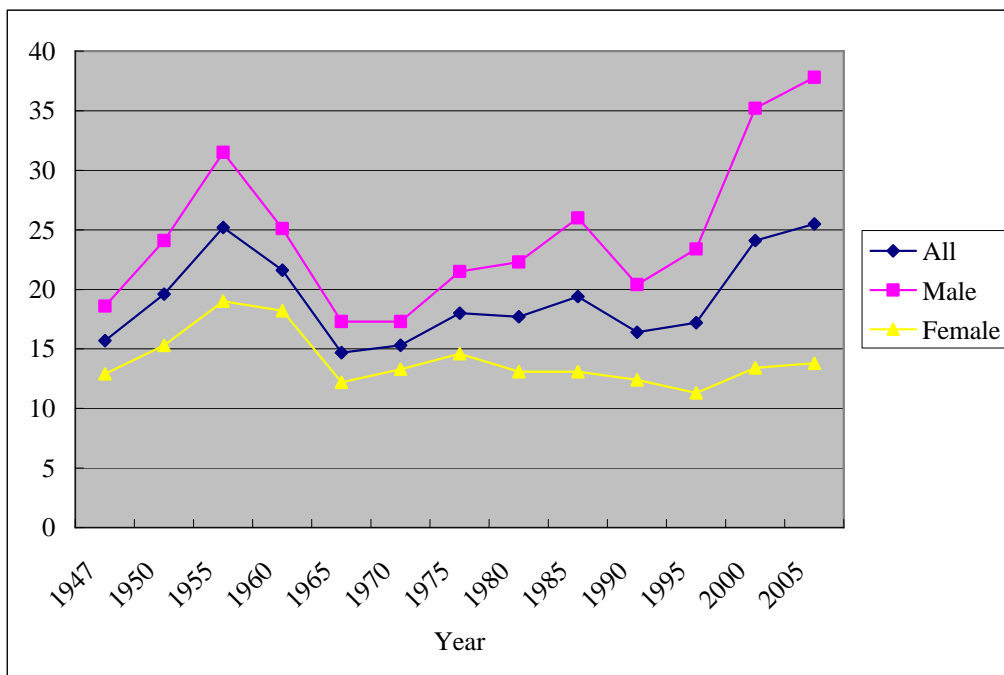
(Data Source: *Life Table*, Ministry of Health, Labour and Welfare)

Figure 3: Life expectancy at birth in Japan by gender

2. How happy are the Japanese with this high economic growth?

In the post-World War II period, the Japanese managed to gain economic well-being by higher economic growth performance. However, it is important to pose the question: *Do the Japanese feel happy as long as their economic growth continues?* If we look at some social statistics, things do not look particularly good for Japan and the Japanese people. When we read Japanese newspapers to check social issues, we see clear increases in the number of young people out of jobs, the number of part-time workers, the number of NEET (persons not in employment, education or training), suicide cases, fatal child abuse and domestic violence cases all over the country, and family breakups and crime rates. It is important to point out that some of these issues are not new at all and are somewhat related to the country's

economic situation. For example, as is shown in Figure 4, the number of suicide cases was very high in the mid-1950s when many Japanese men, who returned from the war front, struggled to find a job. However, the number of suicide cases was gradually increasing from the 1960s to the 1980s even though the Japanese economy experienced higher economic growth. In 2005, the number reached more than 32,000 and the reasons for committing suicide include economic difficulties, family issues, and school-bullies. As for security in Japan's daily life, the number of crimes can be a good proxy, and it has increased over time, particularly after the 1980s. These social statistics imply that economic prosperity is not the sole factor to ensure the Japanese have a higher social well-being. The Japanese has faced with different kinds of serious social problems. It is important to look into what people in concern have perceived over their well-being. Let us examine how the Japanese people's perceptions over their own life have changed in the post-World War II period.



(Source: *Vital Statistics of Population*, Ministry of Health, Labour and Welfare.)

Figure 4: Suicide Cases in Japan

3. Did economic growth support Japanese life satisfaction level high and stable?

3.1 Subjective measures are valuable tools for assessment of development situation

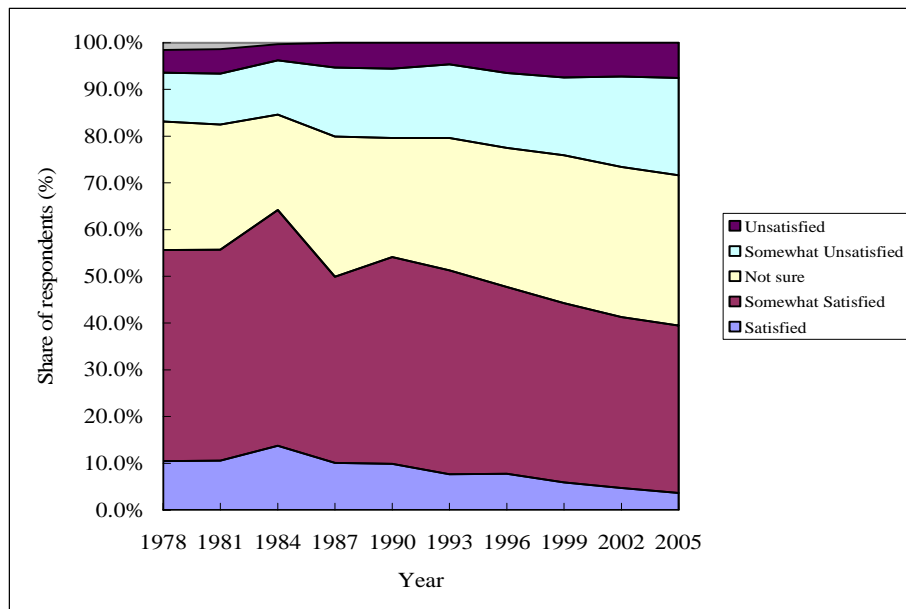
Another problem with conventional indicators is that they do not use qualitative information (people's subjective perceptions about their lives and their life choices) to evaluate economic and social advancement of their own life. A person's self-reported life satisfaction (subjective well-being) needs to be examined to see if their perceptions and objective well-being indicators are consistent with one another.

It is important to explain why conventional well-being measures are skewed toward quantitative rather than qualitative, especially economic measures. Economics avoids measuring directly people's life satisfaction by defining one's absolute utility level as a proxy for one's overall well-being, although Adam Smith, the founding father of classical economics, observed that high income eventually fails to increase people's life satisfaction. Rather, neo-classical economics treats utility as "decision utility" (Frey and Stutzer, 2002), which suggests one's satisfaction after one has made choices for certain combinations of goods and services, rather than satisfaction based on one's own unique choice combinations of goods and services that may not even be consumed by others. In other words, utility defined by neo-classical economics tells us little about individual satisfaction with the person's unique choice of goods or services. Such a decision utility cannot tell us whether a certain economic action (behavior) will bring satisfaction, without comparison to other economic actions. Unfortunately, in modern economics, this utility notion has been a fundamental assumption underlying many economic theories and models that influence policy design and performance assessment. However, because of growing "dissatisfaction" with the utility concept, new efforts are now emerging to capture better people's subjective life satisfaction. On this front, psychology has been particularly active (Diener, 1994, Diener and Suh, 2000, Veenhoven, 1996). Some economists, including Sen (Sen, 1999), have

advocated an alternative way of looking at the welfare of people by applying an interdisciplinary method that combines the knowledge of psychologists, sociologists, medical doctors and economists. One critical component in this endeavor is being able to fully utilize people’s qualitative information, or “voices,” toward evaluating the overall progress of a society and its economy from the viewpoint of an individual. In the next section, we will examine how different well-being measures are, if they are built based on objective economic measures or subjective information, and how people perceive their life, taking the case of Japan.

3.2 Subjective well-being measures: Japanese overall life satisfaction

We have presented the Japanese development through objective economic and social measures. However, the Japanese people’s life satisfaction needs to be cross-checked to verify if indeed such economic achievement and social progress have ensured the Japanese with more life satisfaction.



(Data Source: Survey of Lifestyles and Needs, Cabinet Office)

Figure 5: Overall Life Satisfaction in Japan

To what extent do Japanese subjectively feel satisfied with their lives? Figure 5 shows trends in subjective life satisfaction as surveyed by the Cabinet Office’s *Survey of Lifestyles and Needs*, which has been conducted every three years since 1978.

It clearly shows that the number of people who report feeling “somewhat satisfied with life” or “satisfied with life” has declined over time. The number of Japanese who report feeling “somewhat satisfied with life” or “satisfied with life” decreased from 64.2% in 1984 to 39.4% in 2005, while those who report feeling “somewhat unsatisfied with life” or “unsatisfied with life” increased from 37.9% in 1978 to 53% in 2005. It is important to note that fewer than one in twenty five (3.6%) Japanese reports feeling satisfied with life in 2005, which was once peaked in 1984 with the rate of 13.7%.

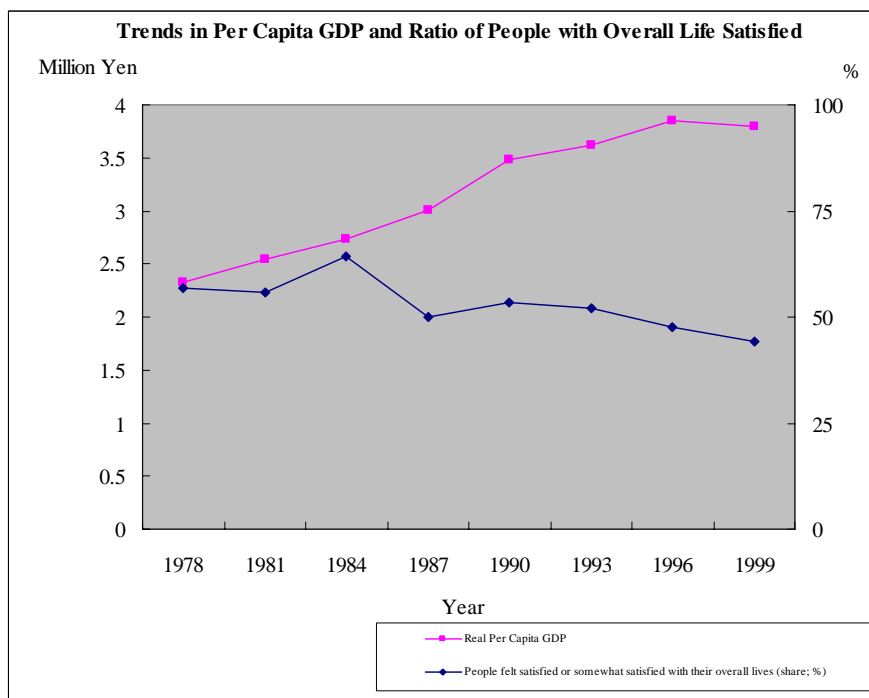


Figure 6: Trends on per capita GDP and overall life satisfaction in Japan

Figure 6 has shown us the two different assessments over the Japanese development by combining two trends – one is objective measure such as per capita GDP and the other is

subjective measure such as overall life satisfaction for the same period for Japan. This has clearly shown us the widening gap between the two lines, which means that the number of people who have less satisfied with their overall lives although the average of income level has been on the increase. This evidence can be understood as an evidence of so-called Easterlin paradox (Easterlin 1974) for the highly industrialized nations.

3.3 Determinants of the Japanese life satisfaction: who feel more satisfied with their life?

In this section, we will look at trends of Japanese development based on people's subjective assessment and examine which groups of people in Japan feel satisfied or are dissatisfied with their life. Also, we will look at which factors influence the level of subjective well-being by statistical tests.

The same trend data gathered by the Cabinet office from 1978 to 2002 was used to see which personal attribute(s), age, gender, job, marital status, and house ownership, might influence the level of life satisfaction among the Japanese.

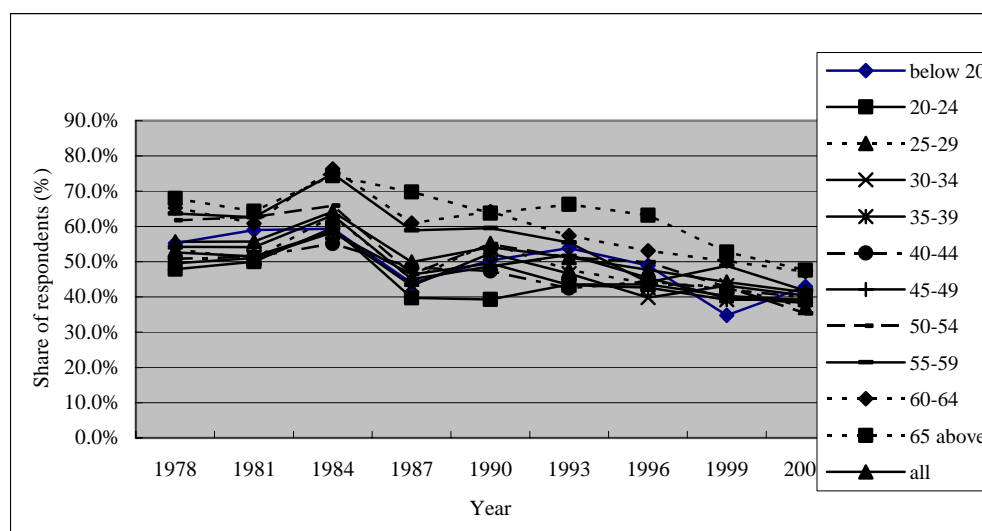
AGE

In Table 1, the score of the age group with the lowest one for each round of the survey is underlined, while the score of the age group with the highest one is in bold and italic. As shown in Table 1, the number of people in younger age groups, especially below 30 years old, who felt somewhat satisfied and satisfied are fewer than other age groups. On the other hand, people older than 60 years of age tend to feel somewhat satisfied and satisfied more than those in other age groups. Young cohorts might be anxious about their future – job prosperity, marriage, and such. However, the long-term trend, as shown in Figure 7, suggests that the highest score has gone down dramatically over the quarter century by more than 25 percentage points from 76.3% in 1984 to 47.6% in 2002.

Table 1: Trend on Life Satisfaction by Age groups

(Share (%); those who feel somewhat satisfied and satisfied with their life)

	1978	1981	1984	1987	1990	1993	1996	1999	2002
Age below 20	55.2%	59.0%	59.4%	43.9%	50.4%	53.9%	49.0%	<u>34.8%</u>	42.9%
20-24	<u>47.8%</u>	<u>50.0%</u>	59.6%	<u>39.8%</u>	<u>39.3%</u>	43.5%	43.5%	40.2%	39.1%
25-29	53.4%	50.9%	62.8%	45.0%	55.2%	47.6%	43.9%	42.9%	37.0%
30-34	52.6%	51.5%	58.7%	43.2%	52.4%	46.6%	<u>39.8%</u>	43.1%	40.4%
35-39	49.6%	51.0%	58.3%	46.4%	49.5%	43.4%	42.6%	39.2%	39.3%
40-44	50.9%	51.4%	<u>55.1%</u>	48.4%	47.4%	<u>42.5%</u>	44.4%	42.1%	39.8%
45-49	54.2%	54.1%	63.1%	45.0%	48.7%	52.0%	45.4%	39.7%	38.3%
50-54	61.7%	62.7%	65.9%	46.5%	54.9%	51.2%	49.8%	42.8%	<u>35.3%</u>
55-59	63.7%	62.6%	75.0%	58.9%	59.5%	55.5%	44.2%	48.8%	41.8%
60-64	65.3%	60.8%	76.3%	61.0%	64.2%	57.4%	53.1%	50.1%	47.2%
65 above	67.9%	64.3%	74.4%	69.7%	63.7%	66.2%	63.1%	52.7%	47.6%
All	55.7%	55.7%	64.2%	49.9%	54.1%	51.2%	47.7%	44.3%	41.3%

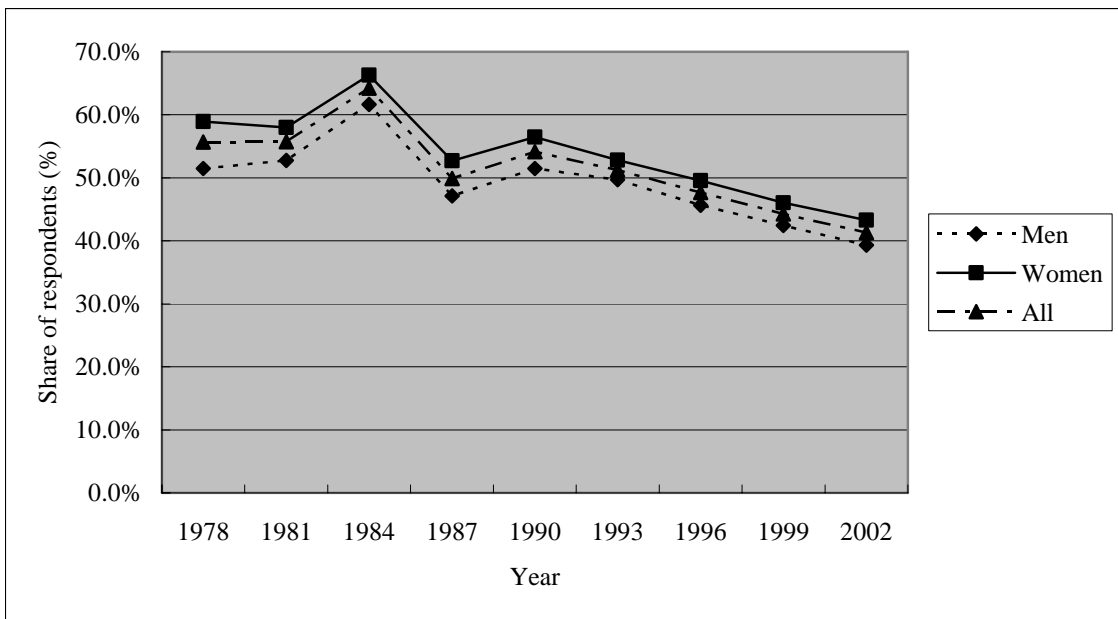


(Share (%); those who feel somewhat satisfied and satisfied with their life)

Figure 7: Trend on Life Satisfaction by Age groups

GENDER

We have examined the same data from the gender perspective and have found that more women have felt very satisfied and satisfied with their life than men over the years, as shown in Figure 8. Interestingly, although Japan is known as a strong patriarchal male-biased society, men tend to feel less satisfied with their life. This might reflect some social pressure on the shoulders of men, as being a successful breadwinner for his family, while women are more concerned with finding a successful man to get married. Also, it might imply that women and men have different points of views over their life satisfaction.



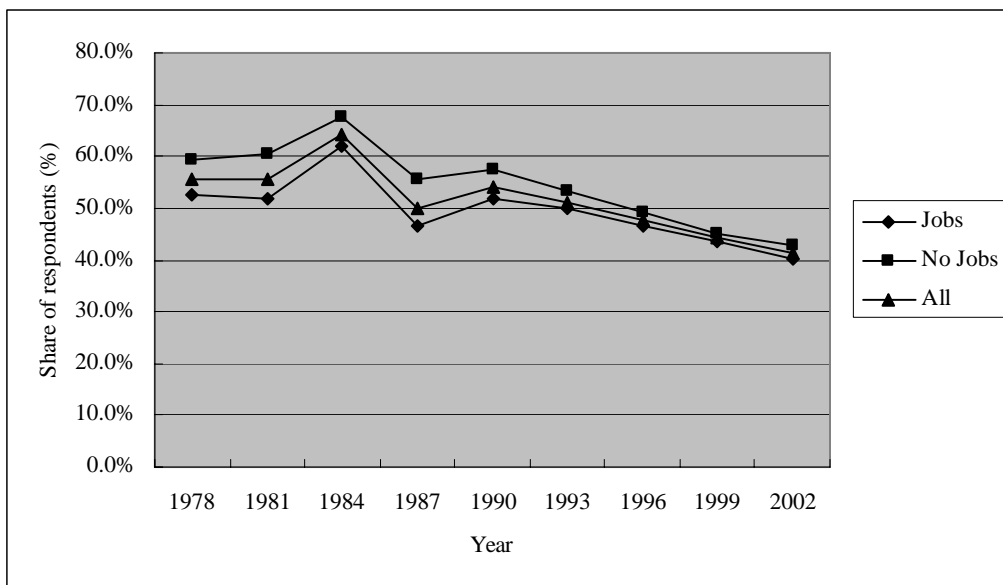
(Share (%); those who feel somewhat satisfied and satisfied with their life)

Figure 8: Trend on Life Satisfaction by Gender

JOB

I have looked at the trend data on life satisfaction by job status. As is shown in Figure

9, more people without jobs feel satisfied with their life than those with jobs. Both housewives and retirees are the majority of those who felt satisfied with their life. Thus, in Japan, non-employed people felt satisfied; but, this does not tell us much about if, and to what extent, those who are unemployed, recently increasing in Japan, have influenced that statistic one way or another¹.



(Share (%); those who feel somewhat satisfied and satisfied with their life)

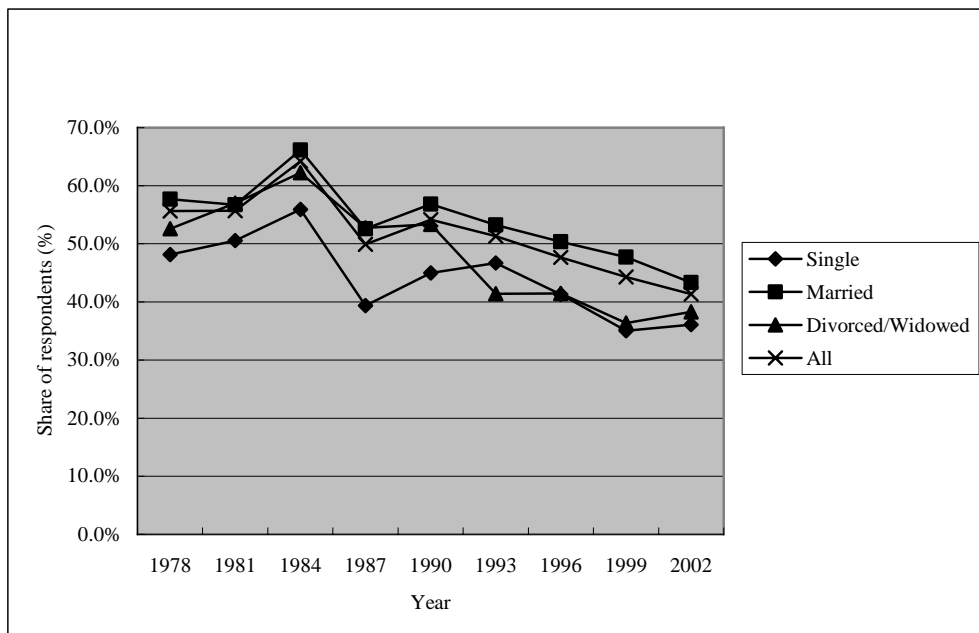
Figure 9: Trend on Life Satisfaction by Job

MARITAL STATUS

The data broken down by marital status (single, married, and divorced/widowed), is shown in Figure 10. Over time, the gaps do not remain stable; rather, the levels of life satisfaction have changed from time to time except for married couples who have slightly more people satisfied with their life. On the other hand, single people tend to feel less satisfied with their life. We need to note that divorced and widowed people feel less

¹ This is very important and should be explored further; however, the Cabinet data does not have detailed information over job status by unemployment.

satisfied with their life after the mid-1990s, which coincides with the increase in the number of divorce cases in Japan. It has been pointed out in that female-headed families suffer financially with the poor development of the labor market for women and the social stigma toward female-headed families in Japan. However, the increase in the number of divorce cases certainly indicates that there might be some social structural change in family formation occurring in Japan.



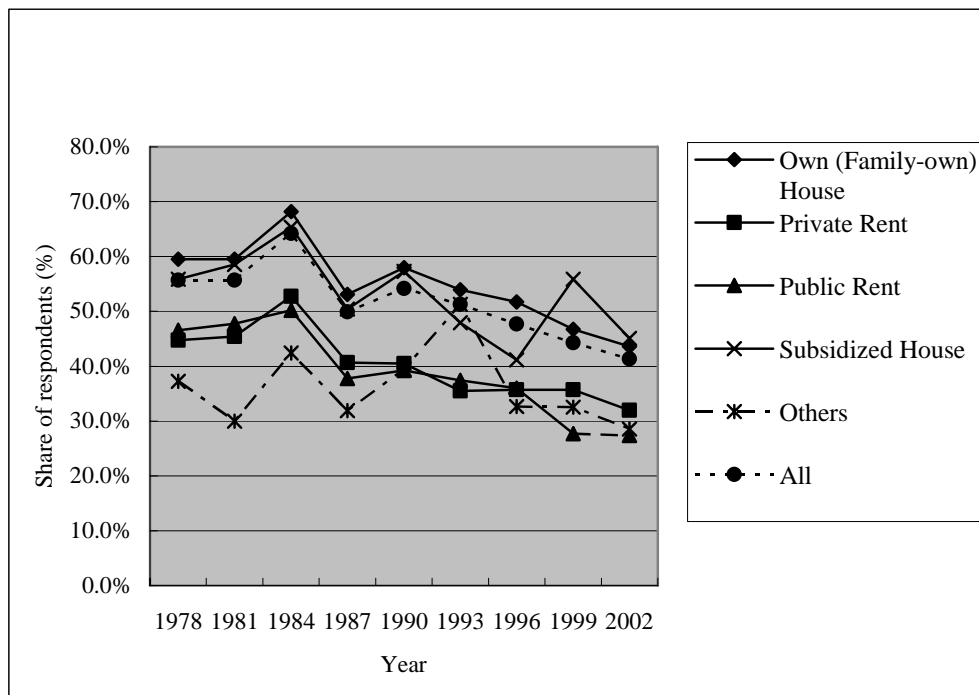
(Share (%); those who feel somewhat satisfied and satisfied with their life)

Figure 10: Trend on Life Satisfaction by Marital Status

HOUSE OWNERSHIP

In Japan, the type of house ownership might be a good proxy indicator for showing one's economic and social status and well-being situation. We use five categories for house ownership: (1) those who own houses, (2) those who rent houses from private companies, (3) those who rent houses from the public housing services, (4) those who live in houses

subsidized either by the government or companies, and (5) those who live in other forms of housing arrangements. The result shows that (Figure 11) the number of people who feel satisfied with their life has declined over time regardless of their house ownership. However, those who live in subsidized housing feel less unsatisfied compared to people in other categorical groups. It is important to look at those who have access to subsidized housing in Japan: many of those are government officials or employees of big companies. This might suggest indirectly that economic burden might be less for people living in subsidized housing than those who rent houses or own houses, who in fact experienced heavy debt due to the burst of the bubble economy in the 1990s.



(Share (%); those who feel somewhat satisfied and satisfied with their life)

Figure 11: Trend on Life Satisfaction by House Ownership

3.4 Which factors explain most the level of one's life satisfaction in Japan?

To investigate the major determinants of one's life satisfaction based on the national

survey data, a simple regression analysis was applied for the analysis of the dataset for the three years, 1978, 1990 and 2002 to see if there were any clear changes in the determinants of subjective well-being over time. Table 2 shows the Logistic regression result. Dependent variable is one's life satisfaction: we put 1 if one feels satisfied or somewhat satisfied with one's life and 0 for the rest. The independent variables are age, gender, marital status, house ownership, family income and educational attainment.

As shown in Table 2, older people, age above 65 and more, feel satisfied with their life in comparison with other age cohorts for 1978 and 1990. However, in 2002, age cohorts of the fifty's fell into significantly negative to less life satisfaction, and most of the age cohorts feel less satisfied with their lives, which may imply some social changes had occurred for the last decade or so.

Interestingly, as for gender, women feel satisfied with their life, while men feel unsatisfied from 1978 to 2002. Married people feel satisfied with their life while both single feel unsatisfied with their life.

Concerning house ownership, those who rent a house feel less satisfied with their life than those who own houses. Those who live in a unit subsidized either by the public sector or private companies are not different from those who own their own houses over their life satisfaction level.

With regard to linkage between one's income level² and life satisfaction, the same regression results show that people with higher income levels feel much more satisfied than those with lower income levels. However, the trend analysis suggests that the dividing income line determining the level of life satisfaction has been shifted upward from ln350-450 in 1978 to ln600-800 in 2002, which implies that more income are needed to secure one's life satisfaction.

² The level of income is dummied. For the data in 1978 and 1990, the income data use the same categories (the first categorization), while the data in 2002 uses the different ones (the second categorization). Thus, we show the two different types of income level variables in Table 2.

Lastly, regarding educational attainment, higher academic achievement has increased people's life satisfaction through the three time settings, and in 2002, this became stronger than before.

Table 2: Regression results for factors of life satisfaction in Japan for 1978, 1990 and 2002

Logistic Regression on Life Satisfaction (1978, 1990, 2002) in Japan						
Independent Variables	1978		1990		2002	
AGE (Base: age 15_19)						
age20_24	-.392	**	-.557	**	-.457	
age25_29	-.370	**	-.019		-.583	**
age30_34	-.539	**	-.345		-.644	**
age35_39	-.674	**	-.568	*	-.773	**
age40_44	-.673	**	-.712	**	-.879	**
age45_49	-.525	**	-.703	**	-.982	**
age50_54	-.215		-.388		-1.035	**
age55_59	-.054		-.095		-.626	**
age60_64	.099		.297		-.215	
age65_over	.340	**	.596	*	-.055	
SEX (Base: Female)						
Male	-.377	**	-.283	**	-.284	**
MARITAL STATUS (Base: Single)						
Married	.487	**	.611	**	.580	**
Divorced/Widowed	.038		.199		.496	**
JOB STATUS (Base: Unemployed)						
Employed	-.081		-.062		.007	
HOUSE OWNERSHIP (Base: house_own)						
house_pr_rent	-.454	**	-.644	**	-.334	**
house_pb_rent	-.408	**	-.645	**	-.488	**
house_subsidized	-.072		.032		-.081	
house_others	-.570	**	-.402		-.588	
INCOME 1978, 1990 (Base: Inc0_150)						
Inc150_250	.064		-.152			
Inc250_350	.097		-.059			
Inc350_450	.309	**	-.012			
Inc450_550	.350	**	.110			
Inc550_650	.595	**	.100			
Inc650_750	.924	**	.457	**		
Inc750_850	.693	**	.748	**		
Inc850_950	.680	**	.754	**		
Inc950_Over	.830	**	.787	**		
INCOME 2002 (Base: Inc0_200)						
Inc200_400					-.160	

Inc400_600					.123	
Inc600_800					.305	**
Inc800_1000					.599	**
Inc1000_1200					.614	**
Inc1200_1400					.931	**
Inc1400_over					.963	**
EDUCATION (Base: Grade 0_9)						
Grade10_12	.193	**	.295		.608	**
Junior_College	.382	**	.476	**	.693	**
University	.375	**	.458	**	1.124	**
Graduate School	.431		.355		1.774	**
Vocational School (2002 only)					.471	**
INTERCEPT	.220	**	-.281		-.853	**
-2 Log Likelihood	9892.726		4484.368		5318.581	
Sample Size	7519		3437		4159	
Notes: ** p<.01, * p<.05 The category in parentheses for the class variable is the base reference.						

4. What can we learn by applying different measures of development at the local level? :

4.1 Regional variations and discrepancies between GDP, HDI³ and Life Satisfaction rankings

People's livelihood can be influenced not only by economic well-being and security but also of non-economic aspects of well-being. We have looked at somewhat contradictory performance of the recent Japanese economic development by contrasting GDP and SWB (subjective-well-being measures: life satisfaction measures) trends data for Japan. These are evidenced by the national average, which might not be consistent through the country. In addition, importance might be given to policy to minimize gaps between objective and subjective assessment for one's well-being. In this section, we will look at Japanese

³ Well-being has been conceptualized differently by economists. Among others, HDI was developed by UNDP in 1990 (UNDP, 1990), based on Amartya Sen's capability concept and approach (Sen, 1985). Since then it has become popular among development practitioners and researchers. HDI has three major components of development indicators: income, education, and health. Using the composite index of human development, HDI revealed that the Japanese, on average, have access to good public services and a high income base. The latest HDI ranking put Japan at 8th in the world (UNDP 2007), which is consistent with our general views about Japan's development: it has a solid economic base, high educational attainment, and strong health services.

development by examining the possibility of regional variations in economic growth and people's satisfaction. If we assume that people assess fairly well over their own subjective life satisfaction, the degree of happiness can be explained by the number of people who felt satisfied or unsatisfied. The author checked the level of life satisfaction by the number of people who have felt somewhat satisfied or satisfied with their life by prefecture. Table 3 shows Japanese prefectures ranked at the top five or at the bottom five by HDI⁴, GDP and Life Satisfaction in Japan⁵. The top five by HDI are Tokyo, Aichi, Shiga, Shizuoka, and Fukui. On the other hand, the top five by GDP are Tokyo, Aichi, Osaka, Shiga, and Shizuoka. The top five by HDI and the top five by GDP show significant overlap, mainly because GDP is the most influential component in HDI, due partly to the fact that educational data and health data do not differ so much across the nation. A similar tendency is also found among the bottom five by GDP and HDI. However, if we look at the figures from sub-regional groupings we find some differences between prefecture ranking by GDP and one by HDI. For prefectures in the Hokkaido, Tohoku and Kyushu regions, their rankings by GDP are higher than those by HDI. In contrast, for prefectures in the Kansai and Kanto regions, their rankings by HDI are higher than those by GDP. This suggests that educational development and public health development differ from economic growth in the Hokkaido, Tohoku and Kyushu regions. Interestingly, these regions have been the origins of rural-urban migration in Japan in its industrial development and also have been the beneficiaries of public works programs from central government to support local construction sector for decades, while the Kansai and Kanto where major cities like Tokyo, Yokohama, Osaka, Kyoto, and Kobe are all located, do far better in education and health services than

⁴ Calculated by the author from (1) school enrollment rate from Basic Surveys on Schools, Ministry of Education, Culture, Sports, Science and Technology, (2) life expectancy rate from *Life Table*, Ministry of Health, Labour and Welfare, (3) per capita GDP from *Annual Report on National Economy*, Cabinet Office using the UNDP's HDI method (see UNDP, 1990)

⁵ Sample survey was conducted by the Cabinet Office and here the 'Happiness indicator' is created based on the following question (Q) and answers (A): Q. Are you happy with your life overall? A. 1. Satisfied, 2. Somewhat Satisfied, 3. Not satisfied or unsatisfied, 4. Somewhat Unsatisfied, 5. Unsatisfied.

income component. This might imply that more non-economic progress has been made in major cities and urban areas than rural regions, implying that public policy might have influenced this regional variation in HDI and GDP for Japan.

Table 3 shows there is very little connection between prefecture-based GDP and Life Satisfaction rankings. More surprisingly, there is far less connection between HDI and Life Satisfaction in the prefecture-rankings. For instance, Tottori ranks 1st on the Satisfaction ranking, but 26th in GDP. Tokyo ranks as 1st by both GDP and HDI, but 16th by the Satisfaction. This implies that there are some gaps between objective measures and subjective measures regarding well-being.

Table 3: Top 5 and Bottom 5 prefectures by GDP, HDI and Life Satisfaction

Ranking	GDP (2000)	HDI (2000)	Life Satisfaction (2002)
Top 1	<u>Tokyo</u>	<u>Tokyo</u>	Tottori
Top 2	<u>Aichi</u>	<u>Aichi</u>	Tokushima
Top 3	Osaka	<u>Shiga</u>	Nagano
Top 4	<u>Shiga</u>	<u>Shizuoka</u>	Ishikawa
Top 5	<u>Shizuoka</u>	Fukui	Nagasaki
Bottom 5	<u>Kagoshima</u>	Akita	Hiroshima
Bottom 4	Saitama	<u>Kagoshima</u>	Iwate
Bottom 3	<u>Nagasaki</u>	<u>Nagasaki</u>	<u>Akita</u>
Bottom 2	Nara	<u>Okinawa</u>	Shiga
Bottom 1	<u>Okinawa</u>	Aomori	Kochi

4.2 Exploration of regional development features in Japan by GDP, HDI and Life Satisfaction

There are differences in characteristics of local development which could be identified by the mixed usage of the three measures. Table 4 categorizes all of the forty seven Japanese prefectures by the ranks by GDP, HDI and Life Satisfaction. The table can be read as follows:

In its first row, there are five groups, Group 1 to Group 5. These groups are set by the ranks of each prefecture by GDP and HDI. The Group 1 is the set of prefectures with its ranks by HDI are higher than those by GDP by more than five. The Group 3 is the set of prefectures with its ranks by HDI and GDP are the same.

The last two rows shows the number of prefectures with more local people in the prefecture who have satisfied with their overall life satisfaction and with less people in the prefecture who have satisfied with their overall life satisfaction.

With the three ranks information, we now can see some interesting characteristics as follows:

- (1) The Group 1 can be interpreted as local areas where human development has been given priority than economic growth.
- (2) The Group 5 can be interpreted as local areas where economic growth has been given priority than education and health development.
- (3) Prefectures of the Group 1 has higher share of local people who feels satisfied with their overall lives, while the Group 5 has lower share of local people who feels satisfied with their overall lives. In another words, people living in the place where multi-dimensional or balanced development has been practiced tend to feel satisfied with their lives, while those living in the place where mono-dimensional or less balanced development (economics-centered) has been practiced tend not to feel satisfied with their lives.
- (4) This cross analysis of people's well-being with the usage of objective and subjective assessment could help us to understand what kind of policy interventions needed to increase the level of people's life satisfaction.

Table 4: Categorization of prefectures by GDP, HDI and Life Satisfaction

	<i>Group 1</i> HDI>GDP by more than 5 ranks	<i>Group 2</i> HDI>GDP by 0 to 5 ranks	<i>Group 3</i> HDI=GDP	<i>Group 4</i> HDI<GDP by 0 to 5 ranks	<i>Group 5</i> HDI<GDP by more than 5 ranks
Prefectures	Kanagawa, Yamanashi, Gifu, Kyoto, Hyogo, Nara, Kagawa	Saitama, Chiba, Fukui, Nagano, Shizuoka, Shiga, Wakayama, Shimane, Okayama, Tokushima, Ehime, Fukuoka, Kumamoto, Okinawa	Tokyo, Toyama, Ishikawa, Aichi, Mie, Hiroshima, Kochi, Nagasaki	Hokkaido, Miyagi, Yamagata, Gunma, Niigata, Osaka, Tottori, Saga, Oita, Miyazaki, Kagoshima	Aomori, Iwate, Akita, Fukushima, Ibaraki, Tochigi, Yamaguchi
The number of prefectures with 45% and more of people in the prefecture assessed their overall life satisfaction as Satisfied.	4 prefectures (57%)	3 prefectures (21%)	2 prefectures (25%)	3 prefectures (27%)	1 prefectures (14%)
The number of prefectures with 35% or less of people in a prefecture assessed their overall life satisfaction as Satisfied.	0 prefectures (0%)	3 prefectures (21%)	2 prefectures (25%)	1 prefectures (9%)	3 prefectures (42%)

5. Conclusion: policy direction for more balanced well-being enhancement in need

We have looked at the Japanese economic development by using different types of numerical data and different economic and social indexes to see if, and to what extent, Japanese economic growth and development have made Japanese people satisfied with their life after World War II.

The Japanese are better off economically and have secured basic human necessities, as the national and prefecture-based GDP and HDI have clearly shown. However, at present, social problems are accumulating in Japan and people's views and perceptions on their overall well-being are not so positive. Rather, the number of people with dissatisfaction went up over time for the last two decades (peaked in 1984 before so-called the Japanese bubble economy started).

This paper has analyzed gaps found between GDP rankings, HDI rankings and Life satisfaction rankings at the prefecture level. Interestingly, prefectures with a large number of people satisfied with their life tend to be placed higher in the HDI ranking than that in the GDP ranking. GDP should not be viewed as the best measurement to indicate people's overall well-being. Rather, it sometime misleads the people's well-being in its shape and direction, as we have seen that there are some gaps between the rankings by HDI and GDP, and those between life satisfaction and GDP. Subjective measures such as life satisfaction could be an important tool to evaluate the current policy direction to enhance people's well-being if we could utilize those subjective data to examine which factors are influential over people's well-being levels.

Our analysis over determinants for people's life satisfaction reveals that personal attributes and economic/social status (age, marital status, gender, income level, house ownership and educational attainment) influence the level of life satisfaction. In particular, the economic situation becomes more critical to people's life satisfaction over the last decade or so. This implies that macro-economic conditions and economic growth needs to be

closely re examined as to how and to what extent they influence people's perceptions of their life satisfaction. Also, it is important to take a closer look at the regional gaps among prefectures.

Our experience with a categorization method combined objective and subjective measurement rankings suggest a possibility of mixed usage of quantitative and qualitative data to assess policy impacts on people's well-being, which might be valuable for the government to design economic and social policies in the future.

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