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**The Relationship between Regional Amenities and
Well-Being before and during the COVID-19
Pandemic in Japan**

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Abstract: *Did subjective well-being change in Japan with the prolonged restriction of activities due to the COVID-19 pandemic? Data from a Cabinet Office survey of 50,000 people from pre-pandemic times to the present were used to observe how demographic variables, economic status, connections with others, and regional amenities affected their subjective well-being. Using the most recent survey results, it is observed that applying digital technology to work, communications, and consumer behaviours increased happiness.*

Keywords: Well-being, COVID-19, regional amenities, digitalisation

JEL classification: I31, R11, C23,

1. Introduction

The COVID-19 pandemic changed practically everyone's life. Outside of severe disease and mortality, new services and technology were created, new amenities were developed, and the roles of existing amenities changed. This study seeks to observe the relationship amongst happiness, the pandemic shock, and the role of amenities. Five types of satisfaction (i.e. happiness) are covered: overall satisfaction, satisfaction with health, satisfaction with work, satisfaction with child rearing, and satisfaction with social connections. Public statistics from Japan are used, and five rounds of a survey were conducted. In addition to subjective well-being, the survey collected data on sex, age, household and personal income, marital status, number of household members, final educational attainment, employment status, and social networking (SNS) usage. Regional amenity variables were also added, such as the number of infections per 100,000 population by prefecture. Also, diffusion indexes (DIs) of small and medium-sized enterprises (SMEs) were used for manufacturing, construction, retail, and service industries as proxy variables of regional business confidence. For these variables, a fixed effects model was applied to the unbalanced panel data.

In the fifth round of the survey conducted, additional questions were added about the progress of digitalisation, changes in consumer behaviours, and sources of information that respondents trust. The impact of these new variables on subjective well-being (SWB) was then explored.

Section 2 describes the literature behind and data obtained from the surveys. Section 3 deepens the understanding of the SWB data by creating descriptive statistics and prefecture-aggregated maps. Section 4 provides estimated results of SWB models using personal attributes and regional amenities. Section 5 details the estimation results of the effect of the government and digitalisation technology on SWB. Section 6 is a summary and outlines future work.

2. Literature and Data

Li, Sato, and Matsuda (2022) analysed changes in the well-being of Japan's population during the COVID-19 pandemic using data provided by a private firm. For China, Wang et al. (2022) used panel data to show that a feeling of well-being decreased anxiety during the pandemic. Regarding the relationship between digital technology and happiness, Canale et al. (2022) showed that the use of digital technology eased personal difficulties and improved happiness; Hall, Dominguez, and Milhailova (2023) found that online communication tools

reduced the feeling of loneliness for those living alone and improved their feeling of well-being.

For this study, ‘Changes in Attitudes and Behaviors in Daily Life under the Influence of Novel Coronavirus Infection’ data were used, which were gathered by the Cabinet Office, Government of Japan. Five rounds of a survey were conducted: May–June 2020, December 2020, April–May 2021, September–October 2021, and June 2022. Table 1 shows the timing of each survey, number of respondents, and continuing respondents.

Table 1: Overview of the Subjective Well-Being Surveys

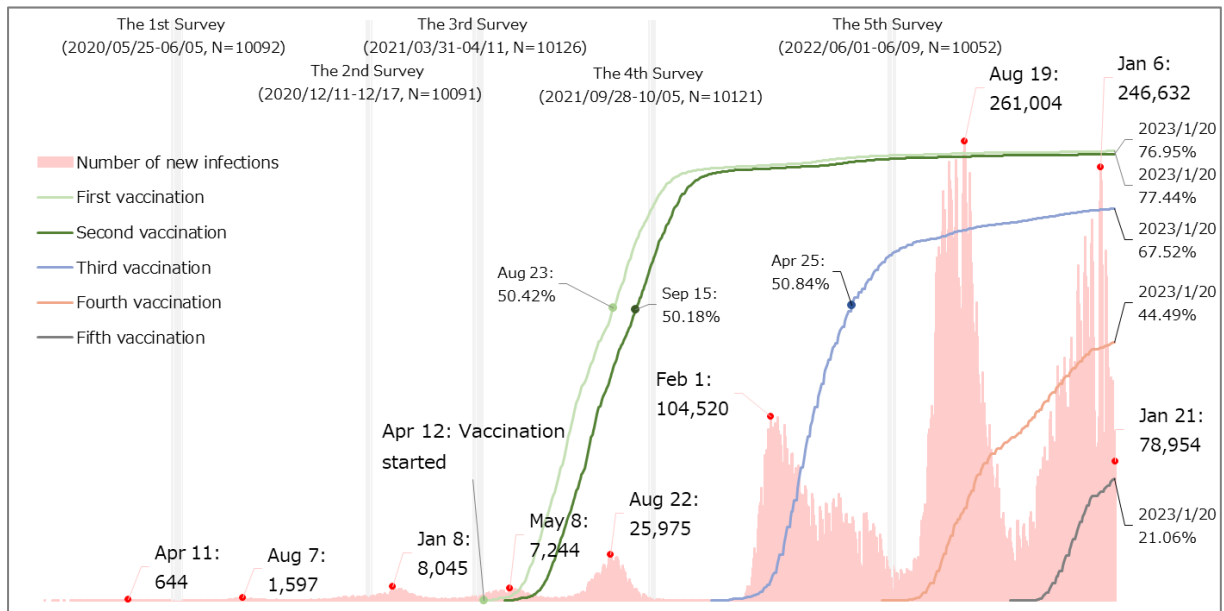
No.	Survey Period	Number of Respondents	Notes
1	25 May–5 June 2020	10,902	Included a questionnaire about SWB before the pandemic. First declaration of emergency: 7 April–25 May 2020
2	11–17 December 2020	10,091 (continued sample from Survey 1: 5,192)	Second declaration of emergency: 7 January–21 March 2021
3	30 April–11 May 2021	10,126 (continued sample from Survey 2: 7,371)	Total number of respondents to all three surveys: 4,164 Third declaration of emergency: 25 April–30 September 2021
4	28 September–5 October 2021	10,121 (continued sample from Survey 3: 5,907)	Total number of respondents to all four surveys: 2,779
5	1–9 June 2022	10,052 (continued sample from Survey 4: 6,480)	Total number of respondents to all five surveys: 2,177

SWB = subjective well-being.

Source: Authors.

There were around 50,000 respondents, and 2,177 respondents participated in all five rounds. Each was conducted during the COVID-19 pandemic, and only the first round asked about pre-COVID-19 SWB. Figure 1 plots the timing of each round, the number of new infections (pink bars), and vaccination rate (lines). Note that the first, second, and third rounds were conducted prior to the start of vaccination. Japan has had eight waves of expansion in the number of COVID-19 cases so far, but all rounds were conducted after the peak of each wave.

Figure 1: Timing of Each Survey, Number of New Infections, and Vaccination Rate



Source: Authors based on the data on the number of new infections from the Ministry of Health, Labour and Welfare and the data on vaccination information from the Prime Minister’s Office of Japan.

The objective variable was a question on SWB, ‘Currently, how happy do you feel?’ This is an 11-level index known as the Happiness Index or SWB Index, which scores the degree of one’s happiness between 1 (very unhappy) and 11 (very happy). The survey asked about six types of SWB: total, health, life, work, child-rearing, and social connectedness.

The survey also gathered demographic information on age, sex, family structure, marital status, household income, and individual income as well as on final educational attainment, job, industry, work conditions (i.e. from home or in-person and in a regular or non-regular position), and SNS usage. The respondent’s place of residence was identified at the prefectural level.

3. Descriptive Statistics and Map Drawing Analyses

Table 2 shows the examined correlation coefficients amongst the six SWB indicators; observations from all five survey rounds were used. The highest correlation to overall happiness (i.e. total) is satisfaction with daily life. The lowest coefficient is satisfaction with child rearing. In the following research, five kinds of satisfaction were analysed – excepting satisfaction with daily life, which is highly correlated with total SWB.

Table 2: Correlation Coefficients of Six Subjective Well-Being Variables

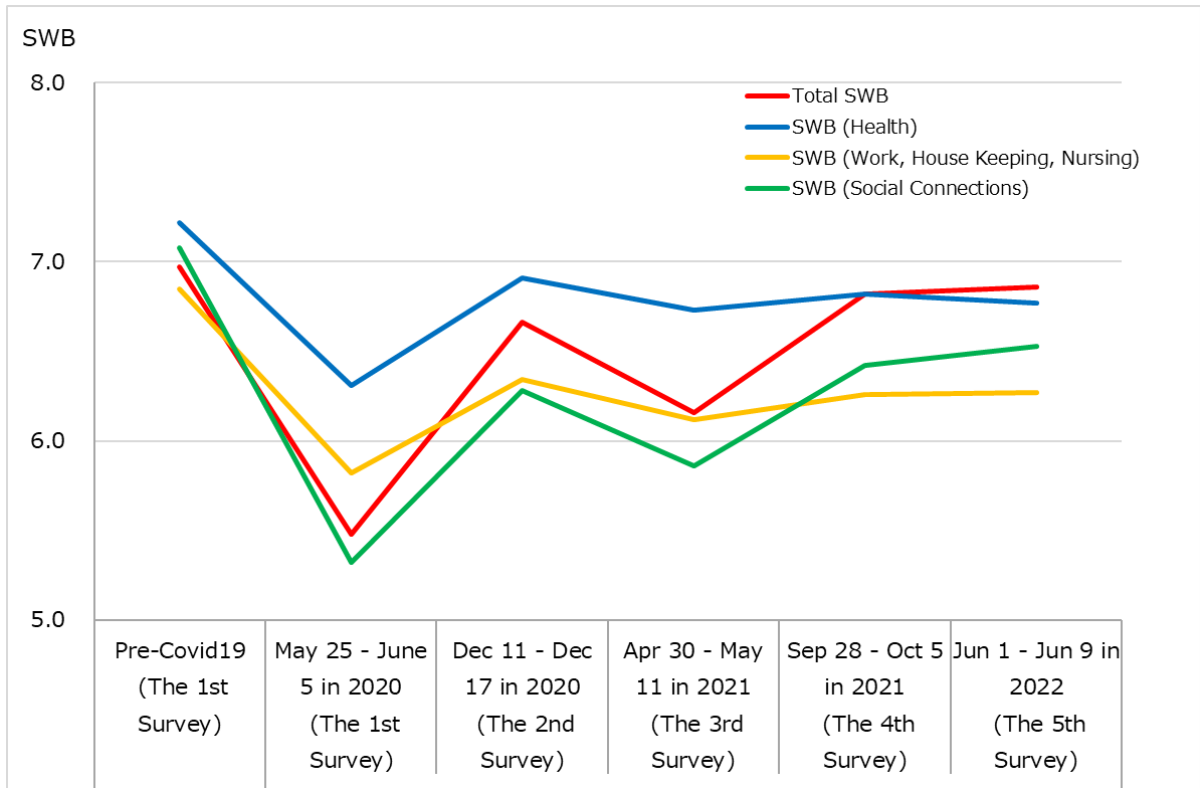
(Obs = 50,481)	Total	Health	Daily Life	Work	Childcare	Social Connections
Total	1.000					
Health	0.585	1.000				
Daily Life	0.726	0.562	1.000			
Work	0.611	0.531	0.568	1.000		
Childcare	0.445	0.391	0.467	0.455	1.000	
Social Connections	0.554	0.464	0.681	0.503	0.477	1.000

Note: Work includes company work, housekeeping, and other tasks.

Source: Authors.

The average of each of the six SWB indicators was then calculated. Figure 2 shows the changes in SWB from the pre-pandemic through Survey Round 5. As mentioned above, Survey Round 1 comprised details about SWB during pre-pandemic times. According to Figure 2, the impact on all SWB was the most severe when the state of emergency was first declared. Sekizawa and Konishi (2021), by analysing data from the *Consumer Confidence Survey* of Japan between 2004 and 2018, revealed a seasonal cycle to the Consumer Confidence Index (i.e. consumer sentiment). A trough occurs in December and a peak in early summer. However, Figure 2 shows a trough in Survey Rounds 1 and 3 in the early summer and improved results in Surveys 2 and 4 in the winter. Thus, the pandemic had an external influence on the seasonality of people's emotions. Total SWB and daily life SWB also co-moved, consistent with Table 2.

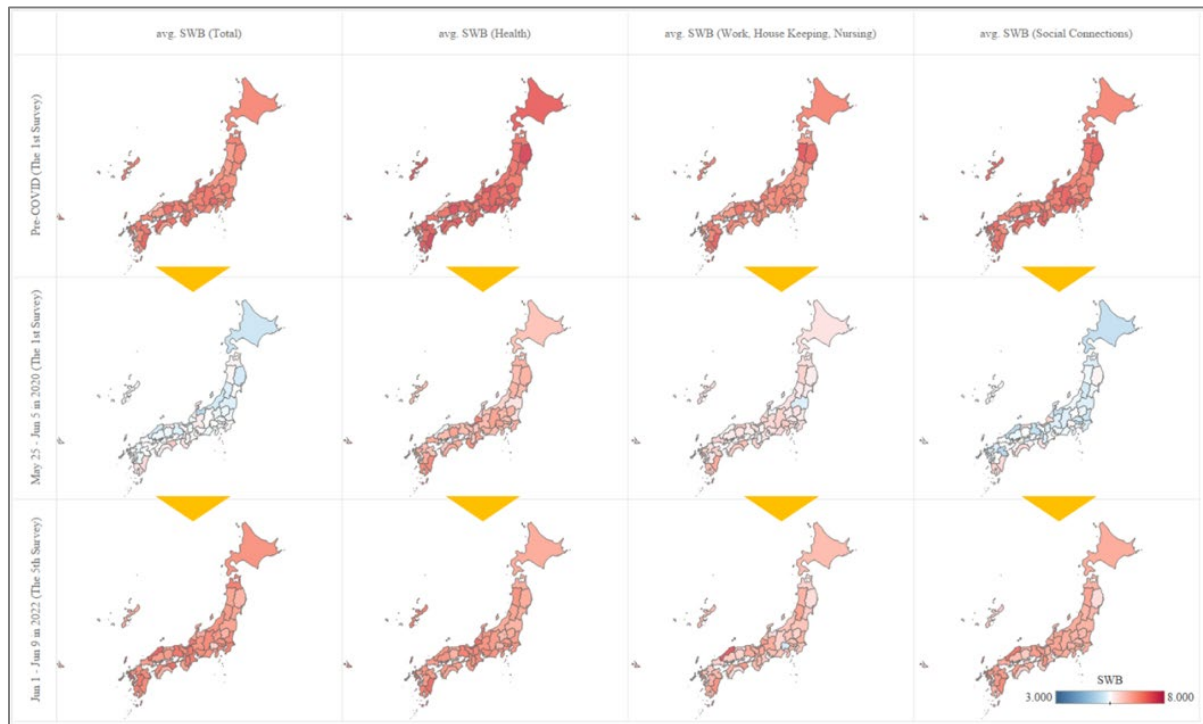
Figure 2: Changes in Six Subjective Well-Being Indicators



SWB = subjective well-being.
Source: Authors.

Next, regional differences in SWB were observed by calculating the average SWB by prefecture. Figure 3 shows the change in the levels of SWB before and during the pandemic by prefecture. Before the pandemic, happiness was high in all prefectures. The second-row panel shows the prefecture level of happiness for 25 May to 5 June 2020 – just after the first state of emergency was declared. It can be seen that overall happiness and social connection happiness decreased. The third row shows the results from Survey Round 5, showing an increased level of happiness.

Figure 3: Mapping Subjective Well-Being before and during the COVID-19 Pandemic – Prefecture Level

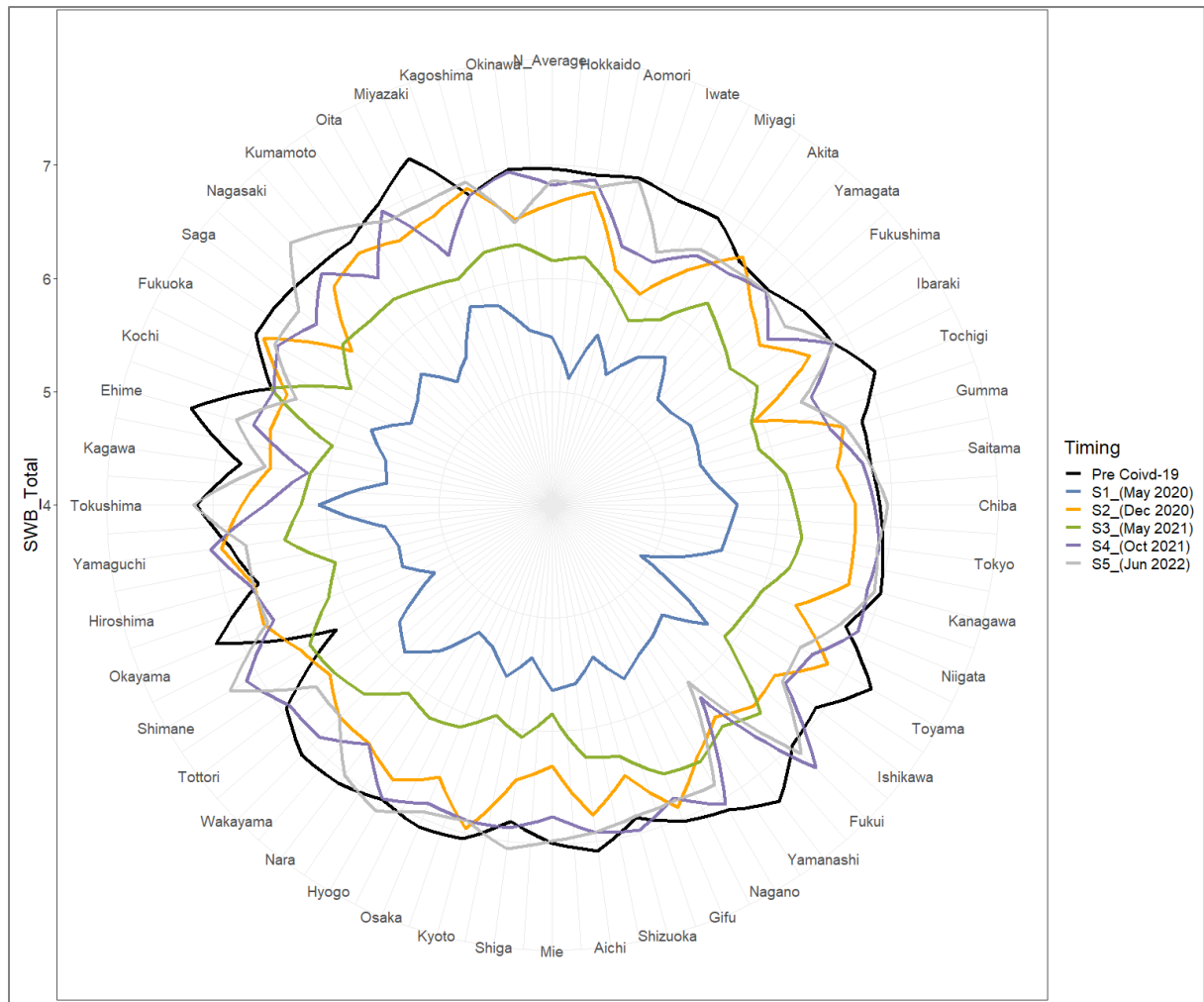


Note: The darker the red, the higher the level of happiness. White represents a mid-level at 5.5. The darker the blue, the lower the level of happiness.

Source: Authors.

To delineate prefectures that returned to the pre-pandemic levels of SWB, a radar chart was configured in Figure 4. The prefectures where the SWB is higher than before pandemic are Chiba, Fukui, Hyogo, Kagoshima, Nagasaki, Shiga, Shimane, and Tokushima. Focussing on Yamanashi, which showed a low level of SWB in Figure 3, its level of SWB dropped sharply in Survey Rounds 4 and 5. Other regions seem to be returning to pre-pandemic levels of SWB.

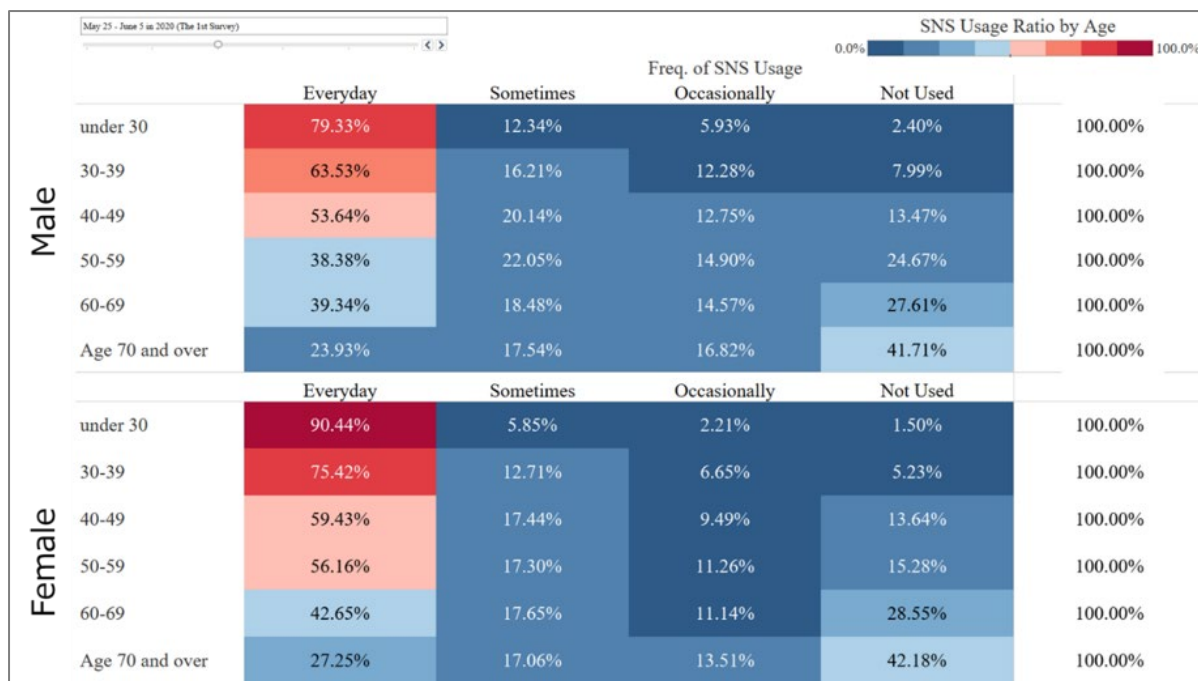
Figure 4: Changes in Subjective Well-Being before and during the COVID-19 Pandemic



Source: Authors.

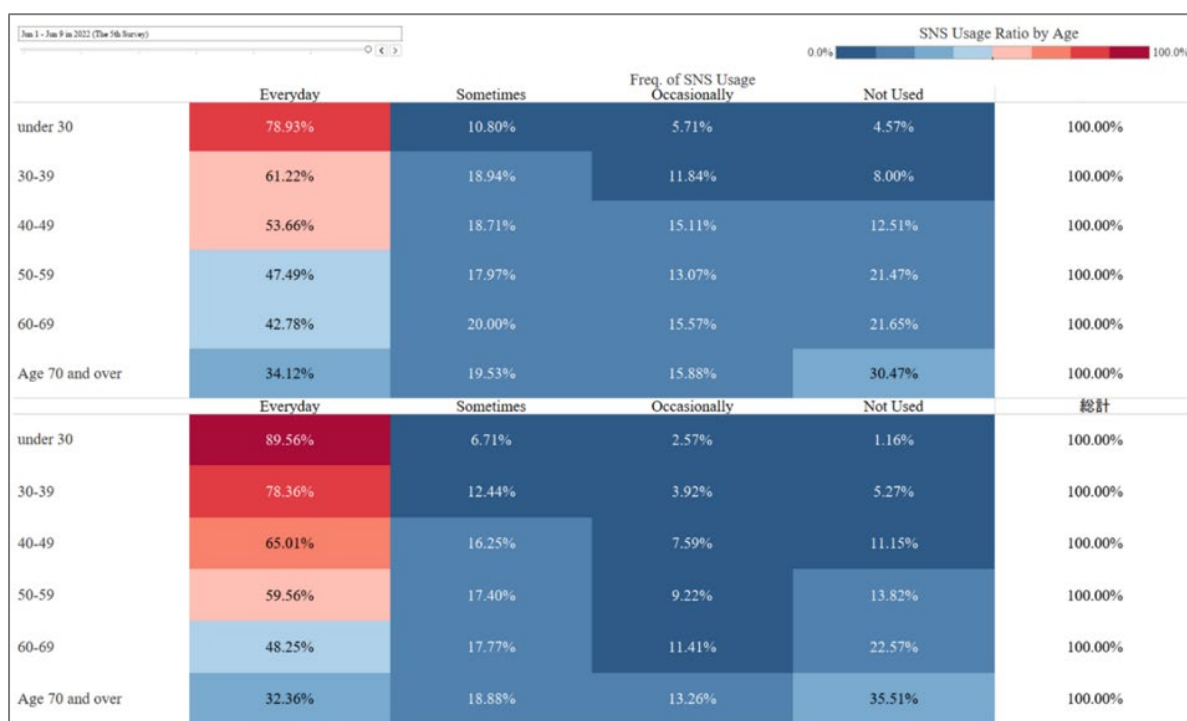
In Japan, no mandatory lockdown occurred, but people voluntarily refrained from going out for a long time. In the process, social connections withered, and SNS usage increased to supplement this trend. Thus, the survey asked about SNS usage frequency. In Table 3-1, the ratio of the frequency of SNS use by sex and age group for Survey Round 1 was examined. Table 3-2 shows the results for Survey Round 5.

Table 3.1: Frequency of Social Networking Site Use by Sex and Age in the First Survey, May–June 2020



Source: Authors.

Table 3.2: Frequency of Social Networking Site Use by Sex and Age in Survey 5, June 2022



Source: Authors.

Table 3.1 shows that the ratios of both men and women that used SNS daily were higher amongst younger age groups. While the proportion of men using SNS in their 50s and older was less than 40%, more than 40% of women in each age group under 69 years used SNS daily. As shown in Table 3.2, the ratio of people that used SNS everyday increased for all ages and both sexes.

4. Statistical Inferences: Estimation Results

4.1. Estimation Models and Variables

The SWB survey results from the first through the fifth rounds were then examined. Data with new respondents were added for the number of people that dropped out in each round. This is a type of data called unbalanced panel data. The number of people that answered all five rounds of the survey totalled 2,177.

Table 4 shows the dependent and explanatory variables adopted in the following empirical works. The dependent variables are SWB, and five different models are specified by each SWB variable (*SWB*): total, health, work, child-rearing, and social connections. There is a focus on a variable about the frequency of SNS use (SNS usage dummy variable). The fixed effects estimation for unbalanced panel data for the pooled five survey round observations is conducted in Equation (1):

$$SWB_{ijkt} = c_i + \beta X_{it} + \gamma Z_{jt} + \delta Z_j + \delta W_k + \rho T_t + \varepsilon_{ijkt},$$

$$i = 1, \dots, N, j = 1, \dots, 47, k = 1, \dots, 7, t = 1, 2, 3, 4 \dots \quad (1)$$

where:

i denotes individuals;

j denotes prefectures,

k denotes the seven regions,

t denotes each survey's timing,

X represents variables for individuals,

Z includes variables for prefectures,

W is a region dummy,

T denotes a time dummy variable for each survey's timing,

c_i represents time-invariant unobservable characteristics of individuals, and

ε is an error term.

Table 4: Descriptions of Dependent and Independent Variables

Variable	Description
Dependent variable	SWB_Total, SWB_Health condition, SWB_Work, SWB_Childcare, SWB_Social Connections
Gender dummy	Male = 1, Female = 0
Age dummy	Under 30 years old, 30s, 40s, 50s, 60s, 70 years old and over (baseline)
Living alone dummy	Living alone = 1, otherwise = 0
Marital status dummy	Married = 1, unmarried = 0
Non-regular employment dummy	Non-regular employment = 1, otherwise = 1 (baseline: regular employment)
Unemployed dummy	Unemployed = 1, otherwise = 0 (baseline: regular employment)
Household income dummy	¥2 million or less (baseline) , ¥2 million–¥6 million, ¥6 million and over
Final education dummy	High school, technical school, junior college and technical college, university, graduate school (baseline: junior high graduate)
SNS usage dummy	Use every day = 1, otherwise = 0, SNS: Facebook, Twitter, LINE, etc.
SNS usage time dummy	Interactive terms (baseline: the first survey and SNS usage dummy = 0)
Number of infections	New infections per 100,000 population in the last week by prefecture
SMEs DI	DIs for manufacturing, construction, wholesale, retail, and service industries by prefecture (regional amenity variable)
Regional dummy	7 regions dummy (baseline: Hokkaido and Tohoku)
Survey timing dummy	Baseline: the first survey

DI = diffusion index, SMEs = small and medium-sized enterprises, SNS = social networking, SWB = subjective well-being.

Source: Authors.

For regional amenity differences, DI indicators of SMEs were adopted as indicators of the economic situation in the region.¹ Also, the number of new COVID-19 infections per 100,000 population in the previous week by prefecture was introduced as an amenity variable. A more detailed regional amenity variable should be added to explain the differences in

¹ These data were obtained from the *Survey of SME Business Conditions Conducted* by the Organization for Small and Medium Enterprises and Regional Innovation.

people's well-being. However, since this is not possible, a model was created that considered seven regional dummies for the cross-section analysis and a prefecture dummy variable for the panel data analysis.

4.2. Estimation Results: Fixed Effects Model from Survey Rounds 1–5 Observations

Table 5 shows the results of the fixed effects model estimation. It includes the estimated results for the five kinds of SWB. The sign and significance of the coefficients for each variable are generally stable amongst the SWB.

Table 5: Estimation Results Using from the First to Fifth Survey Observations

Dependent Variable	SWB Total	SWB Health	SWB Work	SWB Childcare	SWB Social Connections
Gender dummy	–	–	–0.253***	–0.0292	–0.0314
	0.238***	0.189***			
Under age 30 years	–	–	–1.062***	–0.713***	–0.775***
	0.753***	0.414***			
30s	–	–	–1.252***	–0.839***	–1.055***
	0.958***	0.672***			
40s	–	–	–1.287***	–0.731***	–1.010***
	1.092***	0.820***			
50s	–	–	–1.196***	–0.583***	–0.871***
	1.003***	0.807***			
60s (baseline: age 70 years and older)	–	–	–0.462***	–0.260***	–0.435***
	0.413***	0.369***			
Living alone dummy	0.133***	–	0.238***	–0.135***	–0.00786
		0.000293			
Marital status dummy	0.551***	0.313***	0.514***	0.804***	0.211***
Non-regular employment dummy	–	–	0.0307	–0.0640*	–0.0369
Unemployed dummy	–0.0389	–	–0.611***	–0.162***	–0.158***
		0.218***			
Income: ¥2 million–6 million	0.547***	0.482***	0.589***	0.326	0.357***
Income: <¥6 million	0.993***	0.791***	0.981***	0.638***	0.594***
High school	0.255***	0.489**	0.280**	0.0617	0.199**
Technical school	0.313***	0.607***	0.330***	0.0716	0.270***
Junior and technical college	0.343***	0.616***	0.412***	0.191*	0.290***
University	0.530***	0.729***	0.470***	0.142	0.231**
Graduate school (baseline: junior high school)	0.838***	0.905***	0.699***	0.352***	0.432***
SNS usage dummy	0.140**	0.0936*	0.0792	0.0709	0.0356

Dependent Variable	SWB Total	SWB Health	SWB Work	SWB Childcare	SWB Social Connections
SNS usage * second survey round	-0.0159	0.184**	0.0330	0.0346	0.118
SNS usage * third survey round	-0.145*	0.0926	-0.0538	-0.0255	-0.0145
SNS usage * fourth survey round	0.0390	0.108	-0.0130	-0.0399	0.225***
SNS usage * fifth survey round	0.0608	0.0672	-0.0206	0.0438	0.300***
Number of COVID-19 infections by prefecture	-0.000592	0.000435	-0.000144	-0.000375	-0.00112**
Manufacturing DI by prefecture	0.00216	0.000760	0.0000852	-0.000264	0.000749
Construction DI by prefecture	0.00149	0.00228*	0.00286*	-0.000312	0.00135
Wholesale DI by prefecture	-0.00179*	-0.00141	-0.000422	-0.00101	-0.00163
Retail DI by prefecture	0.00315*	0.00308	0.00452**	0.00336*	0.00468**
Service DI by prefecture	-0.000184	0.00180	-0.000398	-0.000684	0.000899
7 regions dummy	^	^	^	^	^
Second survey round dummy	1.169***	0.367***	0.383***	0.616***	0.820***
Third survey round dummy	0.740***	0.254**	0.256**	0.565***	0.508***
Fourth survey round dummy	1.265***	0.331***	0.356***	0.749***	0.897***
Fifth survey round dummy	1.293***	0.181	0.307*	0.686***	0.971***
Constant	5.806***	6.495***	6.565***	6.565***	5.770***
N	46,212	46,212	46,212	46,212	46,211
Adjusted R-sq	0.110	0.048	0.065	0.076	0.067

DI = diffusion index, SNS = social networking, SWB = subjective well-being.

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: Authors.

4.2.1. Individual Variables

Gender dummy variable. Women are happier than men in SWB_total, SWB_health, and SWB_work. For SWB_childcare and SWB_social connections, the coefficients are statistically insignificant, and happiness differences are not seen between males and females.

Age dummy variables. Younger generations are less satisfied than those aged 70 years and older in the five types of SWB; the absolute value of the coefficient for those in their 60s

is smaller. Since this is the difference in satisfaction with those aged 70 years and older, the difference is smaller for those in their 60s compared to the other younger age groups.

Living alone dummy variable. The person living alone dummy variable is significant with positive SWB_total and SWB_work. In other words, people living alone are more satisfied with their lives; the coefficients for SWB_health and SWB_social connections are not significant, and the number of people in the household has no statistical relationship with satisfaction. For those raising children, living alone has a negative impact on well-being.

Marital status dummy variable. The coefficients of marriage are positive and significant for the five types of SWB. Married people are found to have higher satisfaction than those who were not married. The coefficient is the largest for those raising children.

Non-regular employment dummy variable. The coefficients of SWB_total, SWB_health, and SWB_childcare are lower for those in non-regular employment than those in regular employment. At the same time, results for SWB_work and SWB_social connections show no statistically significant differences between those in non-regular and regular employment.

Unemployment dummy variable. Unemployed persons in four SWB are less satisfied than those in full-time employment. The exception is SWB_total, where the coefficient is not significant. In SWB_work, the satisfaction of the unemployed is particularly low (i.e. the coefficient is -0.611).

Household income dummy variables The baseline was household incomes of less than ¥2 million, and household incomes ¥2 million–¥6 million took 1. The coefficients of five SWB are significantly positive. The dummy variable took 1 when the household income was more than ¥6 million. The coefficients of five SWB are significantly positive. The coefficients are always larger for those with incomes above ¥6 million than for those with household incomes ¥2 million–¥6 million. This means that higher household incomes are associated with higher levels of satisfaction.

Final education dummy variable. The baseline is junior high school graduation. Except for SWB_childcare, all coefficients are positive and significant. Also, the coefficients of graduate school graduation are the largest amongst the other final educational levels.

SNS usage dummy variable. The coefficients of the dummy variable for SNS use are significantly positive on SWB_total and SWB_work.

4.2.2. Regional Amenity Variables

Number of infections by prefecture. The higher the number of infected people in the prefecture, the lower the social connection happiness. Other coefficients are insignificant.

SME economic confidential DI. It was assumed that personal satisfaction is related to business confidence in local industries. In particular, DIs for manufacturing, construction, wholesale, retail, and service industries were adopted. DIs varied from prefecture to prefecture, based on the assumption that business confidence in SMEs is highly related to personal satisfaction, especially in the current stagnant economy due to the pandemic. However, there is a positive correlation between the DI and happiness in the retail sector. The coefficients of the construction DI are positive and significant for SWB_health and SWB_work. The other results have no statistical explanatory power. Moreover, the coefficient of wholesale is negative and significant for SWB_total.

Regional dummy variables. Happiness in Kyushu and Okinawa is higher than in other regions.

4.2.3. Other Variables

Time dummy variables at four survey rounds. Figure 2 shows the change in the time-series direction of the five types of SWB, dropping in Survey Rounds 1 and 3 and improving in Survey Rounds 2 and 4. Therefore, in Equation (1), dummy variables were considered at the time of the survey round. Survey Round 1, which has the lowest satisfaction for each SWB, was used as the baseline; almost all the coefficients are significantly positive. The exception is the coefficients of Survey Round 5 for SWB_health.

5. Role of Digitalisation, Consumption, and Local Government on Changing Well-Being

In Survey Round 5, questions were added about the progress of digitalisation, changes in consumer behaviours, and sources of information that respondents trust. The following items were thus added to Equation (1):

(i) **What information will you focus on when resuming your activities post-pandemic?**

Data on government measures, local government measures, number of COVID-19 infections, number of deaths, hospital bed shortages, vaccination status, enhancement of inspection systems, behaviours of family and friends, and public trends (i.e. on TV, newspaper) could be obtained. Government and local government measures were thus adopted in the estimation.

- (ii) **What consumption behaviours have you increased during the pandemic?** Data on online purchases, cashless payments, self-checkout use, bulk purchases, purchase of locally produced products, and possession of rolling stock by buying long-lasting foods, eating out alone, and going out alone could be obtained. These variables were adopted – except for eating out alone and going out alone.
- (iii) **What kind of digitalisation has progressed in your life?** Data on telework and paperless work, consumption, education, online medical treatment, communication (e.g. video calls), daily life (e.g. using internet-of-things home appliances and smart speakers), and administration (e.g. online applications) could be obtained. Variables on telework and paperless work, medical treatment, and communication were adopted.

Table 6 shows the estimation results using only Survey Round 5. Individual variable and regional variable results seem to be almost similar. People who value information from the central government are happier, but the exception is the SWB on child rearing. Progress in cashless payments is positively correlated with the SWB total. The consumption behaviours of local production for local consumption increase happiness for SWB total, work, and social connections. Self-checkout and bulk buying are negatively correlated with happiness for SWB total and work. Stocking up on long-lasting foods and processed foods lowers health-related well-being.

Digital advances to work increase all types of SWB. Digital advancements in health care, such as online medical care, increase SWB in child rearing and social connections. Digital advances in communications increase all types of SWB.

Table 6: Estimation Results of Survey Round 5

Dependent Variable	SWB Total	SWB Health	SWB Work	SWB Childcare	SWB Social Connections
Gender dummy	-0.371***	-0.206	-	-0.0535	-0.250***
			0.356***		
Under age 30 years	-0.600***	-0.132	-	-0.858***	-0.869***
			1.207***		
30s	-1.171***	-0.755***	-	-1.077***	-1.406***
			1.644***		
40s	-1.343***	-0.947***	-1.675	-0.954	-1.404***
50s	-1.236***	-0.904***	-	-0.767***	-1.224***
			1.527***		
60s (baseline: age 70 years and older)	-0.522***	-0.432***	-	-0.343***	-0.634***
			0.679***		
Living alone dummy	0.157*	0.0245	0.238	-0.0869	0.0153
Marital status dummy	0.701***	0.390***	0.504***	0.931***	0.321***
Non-regular employment dummy	-0.187**	-0.177**	-0.00536	-0.0814	-0.196**
Unemployed dummy	-0.127	-0.366***	-	-0.239***	-0.471***
			0.864***		
Income: ¥2 million–6 million	0.328***	0.281***	0.263***	0.107	0.209**
Income: <¥6 million	0.903***	0.648***	0.719***	0.473***	0.562***
Reliability of government information	0.174***	0.144**	0.153**	0.0785	0.136**
Reliability of local government information	0.0389	0.0548	-0.00334	0.0516	0.0207
Changes in consumption behaviour					
Cashless payment	0.198***	0.0816	0.0789	0.0136	0.0113
Self-checkout	-0.112*	-0.0852	-0.135*	-0.0218	-0.0938
Bulk buying	-0.137*	-0.0930	-0.136*	0.00304	-0.0920
Local production for local consumption	0.251**	0.110	0.323**	0.0992	0.213*

Dependent Variable	SWB Total	SWB Health	SWB Work	SWB Childcare	SWB Social Connections
Stock up on long-lasting items	-0.0544	-0.260***	-0.146	-0.0430	-0.00994
Process of digitalisation					
Telework and paperless	0.0899***	0.0841***	0.151***	0.0935***	0.0891***
Online medical treatment	-0.0161	0.0115	0.0344	0.0614*	0.0711**
Communication (e.g. video calls)	0.178***	0.112***	0.0744*	0.0627*	0.119***
Constant	7.644***	7.472***	7.851***	6.847***	8.079***
N	10,052	10,052	10,052	10,052	10,052
Adjusted R-sq	0.105	0.059	0.081	0.086	0.067

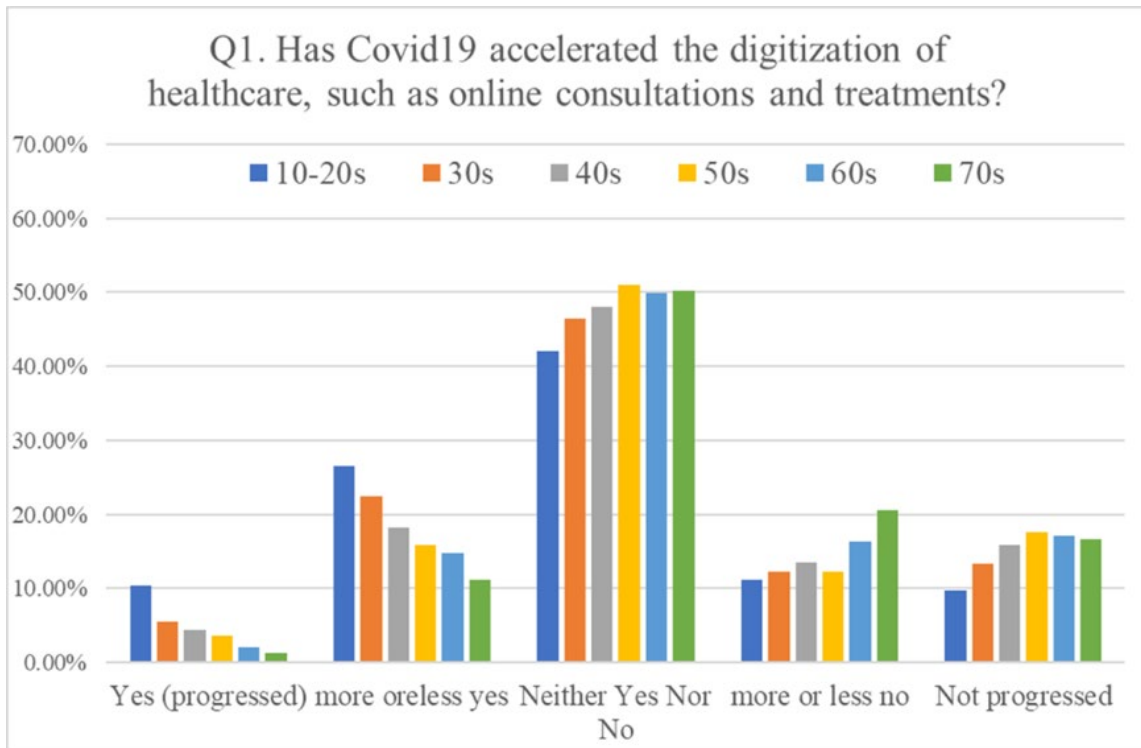
SWB = subjective well-being.

Note: * p < 0.05, ** p < 0.01, *** p < 0.001.

Source: Authors.

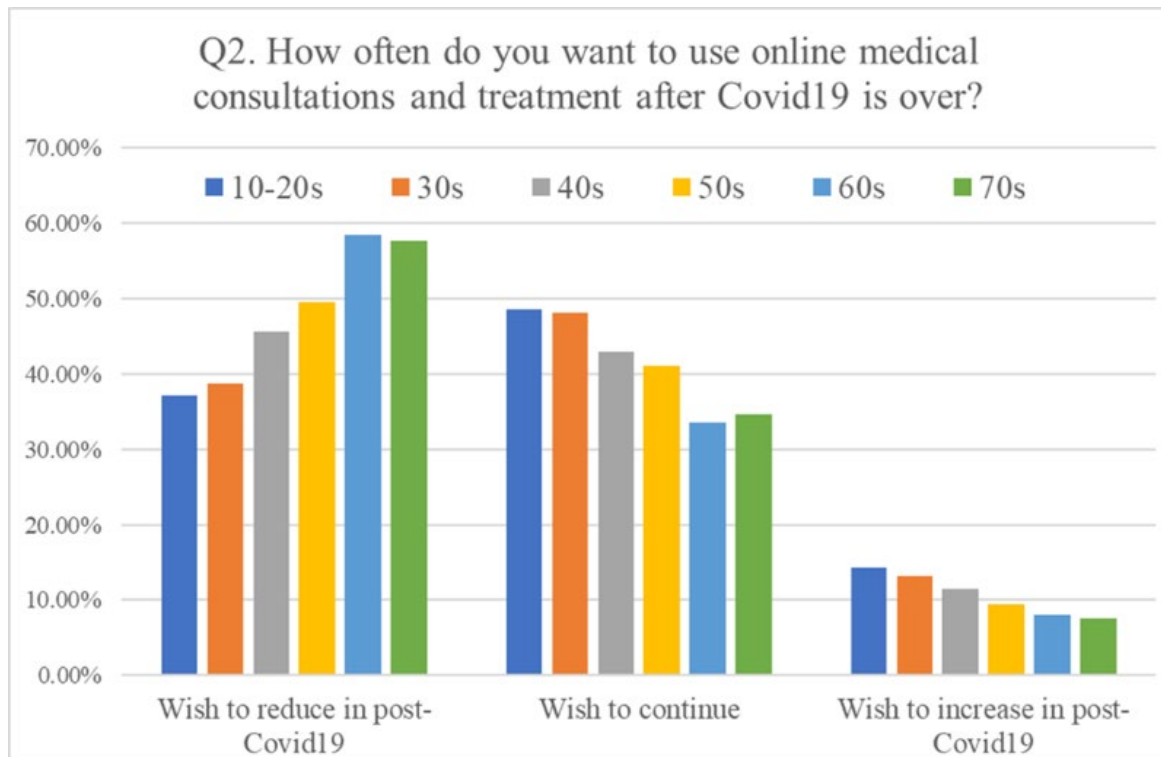
Two figures were created regarding the digitalisation of health care by age group using Survey Round 5 results. Figure 5 shows that Japan did not progress in digitalising medical care during the pandemic. Based on this fact, as shown in Figure 6, many people want to maintain or to reduce the status quo even after the end of the pandemic. It was found that especially older people do not want health care to digitalise.

Figure 5: Use of Online Medical Treatment during the COVID-19 Pandemic



Source: Authors.

Figure 6: Do You Want to Use Online Medical Treatment after the COVID-19 Pandemic?



Source: Authors.

6. Summary and Further Research

The study explored which factors contributed to changes in people's SWB during the COVID-19 pandemic in Japan. Five types of SWB were covered: overall satisfaction, satisfaction with health, satisfaction with work, satisfaction with child-rearing, and satisfaction with social connections.

It is found that those who value information from the central government are happier, but the exception is for SWB regarding child rearing. Progress in cashless payments is positively correlated with total SWB. Local food production for local consumption increases happiness for total, work, and social connection SWB. Self-checkout and bulk buying are negatively correlated with total and work SWB. Stocking up on long-lasting foods and processed foods also lowers health-related SWB.

Digital advances in work increase all types of SWB. Likewise, digital advances in communications, such as video calls, improve SWB. However, digital advancements in health care, such as online medical care, only improve SWB regarding child rearing and social connections.

In the future, the amenities that did not significantly reduce SWB during the pandemic should be detailed. Moreover, the digitalisation that contributed to SWB of those living with restrictions should be investigated. By enriching regional amenity variables and using more individual variables, the happiness function should be specified, and policy recommendations can be made based on the estimation results.

References

- Canale, N. et al. (2022), ‘How Communication Technology Fosters Individual and Social Wellbeing during the COVID-19 Pandemic: Preliminary Support for a Digital Interaction Model’, *Journal of Happiness Studies*, 23(2), pp.727–45.
- Hall, J.A., J. Dominguez, and T. Mihailova (2021), ‘Interpersonal Media and Face-to-Face Communication: Relationship with Life Satisfaction and Loneliness’, *Journal of Happiness Studies*, 24, pp.331–50.
- Li, A., T. Sato, and Y. Matsuda (2022), ‘Spatial Analysis of Subjective Well-Being in Japan,’ *Japanese Journal of Statistics and Data Science*, 5, pp.87–110.
- Sekizawa, Y. and Y. Konishi (2021), ‘Are Consumer Confidence and Asset Value Expectations Positively Associated with Length of Daylight?: An Exploration of Psychological Mediators between Length of Daylight and Seasonal Asset Price Transitions,’ *PLoS ONE*, 16(1), e0245520.
- Wang, Z. et al. (2022), ‘Correction to: “Well-Being Reduces COVID-19 Anxiety: A Three-Wave Longitudinal Study in China”’, *Journal of Happiness Studies*, 23, 1305.

Data References

- Government of Japan, Cabinet Office, ‘Changes in Attitudes and Behaviors in Daily Life under the Influence of Novel Coronavirus Infection’,
<https://www5.cao.go.jp/keizai2/wellbeing/covid/index.html> [in Japanese]
- Government of Japan, Ministry of Health, Labour and Welfare, Outbreaks in Japan,
<https://www.mhlw.go.jp/stf/covid-19/kokunainohasseijoukyou.html> [in Japanese]
- Organization for Small and Medium Enterprises and Regional Innovation, ‘Survey of SME Business Conditions’,
https://www.smrj.go.jp/research_case/research/survey/index.html [in Japanese]
- Prime Minister’s Office of Japan, Vaccination Data,
<https://japan.kantei.go.jp/ongoingtopics/vaccine.html>

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