Original Article

Calculating a Prefecture-Level Well-Being Index in Japan: Applying the framework of the OECD's Better Life Index

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Objectives Well-being serves as a crucial indicator of national governance and societal advancement. Consequently, the Better Life Index (BLI) developed by the Organisation for Economic Co-operation and Development (OECD) has emerged as a pivotal multidimensional measure of well-being, surpassing traditional indicators such as Gross Domestic Product (GDP). However, current well-being indicators predominantly focus on national measurements and do not effectively evaluate well-being in smaller regions such as states or prefectures. This study aimed to calculate a Regional Well-Being Index (RWI) tailored to localized areas in Japan.

Methods Japanese official statistics, publicly available as open data, were analyzed, focusing on 11 domains similar to those in the BLI: "Income," "Jobs," "Housing," "Health," "Work-Life Balance," "Education," "Community," "Civic Engagement," "Environment," "Safety," and "Life Satisfaction." The RWI scores were calculated for each prefecture in 2010, 2013, 2016, and 2019 using standard normalization techniques. To represent the overall well-being of each prefecture in each year, scores were aggregated across all domains; this aggregate is referred to as the Integrated RWI. The reliability and validity of RWI were assessed by examining time-series changes and Pearson's correlation coefficients.

Results Median Integrated RWI scores for Japanese prefectures remained relatively stable across the study period, with slight variations observed: median = 0.67 (Interquartile range [IQR]: −2.48–2.71) in 2010, median = 0.00 (IQR: −2.85–2.76) in 2013, median = 0.13 (IQR: −3.05–2.49) in 2016, and median = 0.19 (IQR: −2.75–3.06) in 2019. Geographical analysis showed lower scores in regions such as Western Kyushu and Shikoku, and higher scores in Chubu and Eastern Kinki. The RWI and the BLI demonstrated construct validity, with Pearson's correlation coefficients ranging from 0.58 to 0.99 across various domains.

Conclusion The RWI, based on the OECD's BLI, proved to be a reliable and valid tool for assessing comprehensive well-being at the regional level in Japan. It offers foundational data for identifying challenges to regional well-being and shaping targeted policies, thereby contributing to evidence-based policymaking. Moreover, this methodology has potential applicability in evaluating comprehensive well-being beyond GDP at the regional level in other countries using official statistics.

Key words：well-being, public policy, policy making, Japan, ecological study

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I. INTRODUCTION

1. Well-being as a policy indicator and existing scales

In recent years, national governments and international organizations have adopted comprehensive well-being as a policy indicator of national governance and social development. Since 2021, the Japanese government also declared well-being indicators as a policy goal in "Basic Policies for Economic and Fiscal Management and Reform 2021"[1]. Historically, the well-being of countries or societies has been assessed mostly using economic indicators, such as Gross Domestic Product (GDP). However, GDP can only assess one aspect—"material wealth"—and

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does not sufficiently capture aspects such as socio-economic disparities and health. Therefore, GDP is inadequate as a measure of comprehensive well-being[2]. The development of comprehensive indicators of well-being is thus desirable.

Existing indicators of well-being can be broadly divided into subjective and objective categories. Subjective indicators included psychological scales such as the Satisfaction with Life[3], Subjective Happiness[4], and Interdependent Happiness[5] Scales. The scales were administered through questionnaires and web surveys to measure personal perceptions of well-being. Meanwhile, objective indicators are incorporated into the comprehensive well-being indices as assessments of resources essential to life, such as income and housing, and factors essential to well-being, such as life expectancy, air quality, and crime rates[6~10]. To better capture comprehensive well-being, subjective and objective indicators have been combined[6~10].

Several nations, such as New Zealand and the United Kingdom, as well as international organizations, such as the United Nations and the United Nations Development Programme, have adopted similar approaches[6,7,9,10]. However, these national indicators often mirror specific cultural contexts and lack a standardized global framework. Indices created by international organizations enable international comparisons. For instance, the United Nations World Happiness Report assessed well-being across seven domains[9]: "GDP per capita," "social support," "healthy life expectancy," "freedom to make life choices," "generosity," "perception of corruption," and "dystopia." Meanwhile, the Human Development Index by the United Nations Development Programme measures three domains[10]: "long and healthy life," "knowledge," and "a decent standard of living."

2. Better Life Index

The Organisation for Economic Co-operation and Development (OECD) developed an alternative well-being indicator that evaluates beyond GDP to measure comprehensive well-being, named the Better Life Index (BLI)[8]. While other comprehensive well-being indicators offer valuable insight, the OECD's BLI encompasses a broader range of 11 domains, providing a more comprehensive evaluation of well-being. The BLI includes 11 domains: "Income," "Jobs," "Housing," "Health," "Work-Life Balance," "Education," "Community," "Civic Engagement," "Environment," "Safety," and "Life Satisfaction." It focuses on the well-being of individuals or households using both subjective and objective measures to comprehensively assess well-being[8]. Since 2011, the OECD has measured the BLI across OECD member countries, promoting well-being as a key social development indicator. The BLI was constructed using common and reproducible statistics among OECD countries based on criteria such as a detailed definition, validity, and high sensitivity to changes and political interventions[8].

3. Measuring well-being by the sub-regional level

Most existing comprehensive well-being indicators focus only on a national scale and not on a regional scale. However, well-being may be influenced by regional characteristics and cultural factors[5,11,12]. For example, one study showed that self-interpretation and emotional levels related to well-being differed across cultural areas (Western, East Asian, African), particularly those influenced by cultural differences, such as emphasis on individual independence or group harmony[12]. Additionally, within one country, interpretations of well-being can vary between rural and urban areas[5]. This highlights the importance of measuring well-being at local and regional levels than at the national level. The OECD has started measuring the BLI regionally[13], but this approach is still limited to certain areas. Methodologies for assessing comprehensive well-being at a more detailed subregional level remain underdeveloped.

4. Objective of this study

This study aims to calculate a Regional Well-Being Index (RWI) for each prefecture in Japan based on the OECD's BLI framework. This study proposes a method to assess comprehensive well-being at the subregional level.

II. METHODS

1. Statistics constructing the RWI

Following the OECD method for calculating the BLI, a method for calculating the RWI was established for each prefecture in Japan (Figure 1). Similar to BLI, RWI encompasses statistics across 11 domains. These statistics, mirroring those utilized in the BLI, were carefully selected from official data gathered within each prefecture[14~49] (Table 1). These selections were established through a process of consensual validation to ensure they fit the concepts of BLI, involving both authors, YM and TK, and an independent expert in public health nursing, SM. Selected official statistics were collected for 2010, 2013, 2016, and 2019 when data for most of the 11 domains were available.

In the "Housing" domain, data was unavailable for the respective years; estimates were generated using temporal fluctuations and data from 2008, 2013, and 2018, supplemented with a moving average. The 2010 data were estimated as the average of the 2008 and 2013 values. The 2013 data used the original values. The 2016 data were calculated as the average of the 2013 and 2018 values. The 2019 data were supplemented with 2018 values. In 2016, the data on "Community" and "Life Satisfaction" were missing for Kumamoto Prefecture because the National Livelihood Survey was not conducted there following an earthquake. Missing values were supplemented with the national average.

The data collected for the 11 RWI domains were standardized annually, and these scores were used as the RWI for each domain. This involved two steps. First, the devi-

Figure 1 Development of the Regional Well-being Index
Abbreviations: OECD, Organisation for Economic Co-operation and Development. BLI, Better Life Index. RWI, Regional Well-Being.

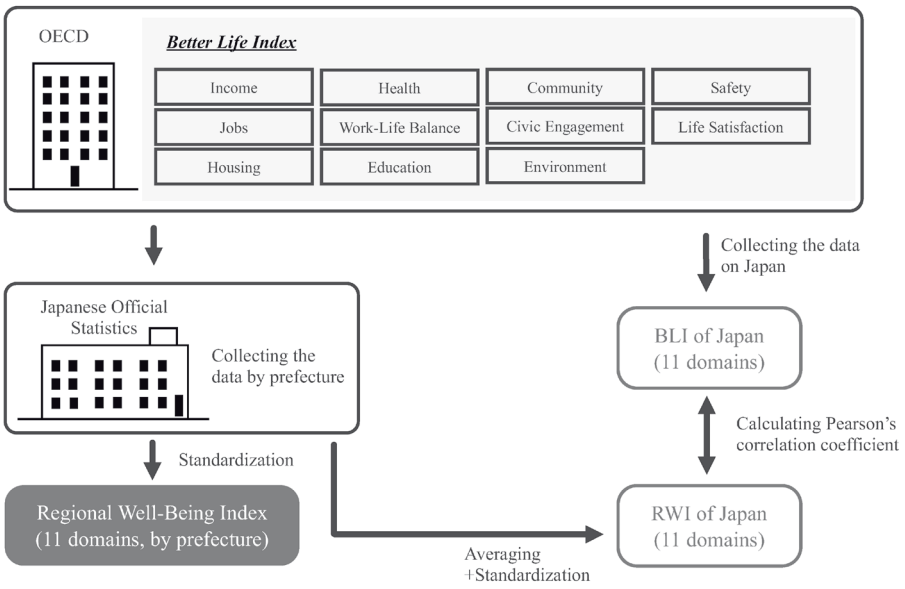


Table 1 Official statistics for 11 domains of the Regional Well-Being Index

Domains	Indicator	Data source
Income	Per Capita Income	SNA (National Accounts of Japan)[14,15]
Jobs	Unemployment Rate*	Labor Force Survey[16]
Housing	Number of Rooms per Dwelling	Housing and Land Survey[17~19]
Health	Healthy Life Expectancy	Health Life Expectancy Calculation Program[20]
Work-Life Balance	Total Monthly Working Hours per Person*	Monthly Labor Survey[21~24]
Education	Percentage of Correct Answers of 3rd Year Junior High School Students	National Assessment of Academic Ability[25~28]
Community	Percentage of People with Worries or Stress but No One to Consult*	Comprehensive Survey of Living Conditions[29~32]
Civic Engagement	Voter Turnout in the House of Councilors Election	Election-related documents[33~36]
Environment	Percentage of Achievement Below PM2.5 Standards	Air Pollution Status[37~40]
Safety	Number of Recognized Murder Cases*	Crime Statistics[40~44] Population Census[45]
Life Satisfaction	Subjective Health	Comprehensive Survey of Living Conditions[46~49]

*Indicates reverse domains, where a lower score corresponds to higher well-being.

ation of each domain's score was calculated from the yearly average score of all 47 prefectures. Second, deviations were normalized by dividing them by the standard deviation. This standardization was applied to each domain across all years. To represent the overall well-being of each prefecture each year, the scores were summated across all domains and aggregately referred to as the Integrated RWI. The calculation method for RWI for each domain and Integrated RWI for each prefecture is shown in the formula below. The subscript $domain_i$ refers to the 11 regions that construct the RWI, $prefecture_j$ refers to all 47 prefectures in Japan, and *data_year* refers to 2010, 2013, 2016, and 2019.

$$Z\text{-}score_{domain_i\ prefecture_j\ data\_year} = \frac{Value\ of\ domain_{i_{prefecture_j\ data\_year}} - Average\ of\ value\ of\ domain_{i_{data\_year}}}{Standard\ deviation\ of\ value\ of\ domain_{i_{data\_year}}}$$

$$Integrated\ RWI_{prefecture_j\ data\_year} = \sum_{domain_i=1}^{11} Z\text{-}score_{domain_i\ prefecture_j\ data\_year}$$

For all domains except "Community" and "Life Satisfaction," selected official statistics provided a single score for each prefecture. The "Community" domain involved responses to the question "How do you consult about your worries and stress?" The options for the question included "I want to consult, but have no one to talk to." "I consult with family." "I consult with friends or acquaintances," and "I consult with my boss at work or teacher at school." The score was calculated by dividing the number of people who answered, "I want to consult but have no one to talk to," by the total number of respondents.

The "Life Satisfaction" domain used responses to the question, "How would you rate your current health status?" The possible responses were "Good," "Fairly good," "Average," "Not so good," and "Poor" and were quantified as 5, 4, 3, 2, and 1, respectively. The average score was calculated. For reverse-scored domains ("Jobs," "Work-Life Balance," "Community," and "Safety"), the signs were reversed, and the scores of each area were added to compute the Integrated RWI.

2. Analysis of factors affecting regional well-being variations

The maximum and minimum differences (range) in each domain were assessed and tracked over time and across domains. The extent of these ranges reflects the disparity among prefectures within each domain. This suggests that such disparities may influence differences in well-being at the prefectural level. The current study sought to identify potential factors that may influence disparities in regional well-being by focusing on variations and trends across different domains.

3. Reliability and validity of RWI

To ascertain the reliability of the RWI, Integrated RWI scores from 2010, 2013, 2016, and 2019 were plotted on a Japanese map. This approach facilitated the examination of whether consistent chronologic trends existed. Additionally, Spearman's rank correlation coefficients were used to analyze the relationship between the Integrated RWI scores from 2010 to 2019.

To assess the validity of the RWI, Pearson's correlation coefficients between the RWI and BLI were obtained for each domain (Figure 1). The Japanese BLI score was collected from the OECD database "How's Life?" website[50]. The BLI is a national indicator, and only one score exists for each indicator in Japan. As such, the average of all prefectures was used as the RWI score for Japan as a whole. The Japanese RWI was calculated by gathering data from official Japanese statistics, accumulating the actual values from all prefectures. This total was then divided by the number of prefectures to derive Japan's overall RWI. It's important to note that the method we used to calculate this nationwide RWI is different from the methods we used for calculating the RWI for individual prefectures and for the Integrated RWI. For the RWI for each domain and Integrated RWI at the level of individual prefectures, standardized values were employed. The calculation method for Japanese RWI is shown in the formula below. The subscript $domain_i$ refers to the 11 regions that construct the RWI, $prefecture_j$ refers to all 47 prefectures in Japan, and *data_year* refers to 2010, 2013, 2016, and 2019.

$$Japanese\ value_{domain_i\ data\_year} = \frac{\sum_{prefecture_{j=1}}^{47} Value\ of\ domain_{i\ prefecture_j\ data\_year}}{47}$$

$$Japanese\ RWI_{domain_i} = \frac{Japanese\ value\ of\ domain_{i_{data\_year}} - Average\ of\ Japanese\ value\ of\ domain_i}{Standard\ deviation\ of\ Japanese\ value\ of\ domain_i}$$

In the current analysis, both the Japanese RWI and OECD BLI were assessed using standardized scores for each domain. Given the different indicators between RWI and BLI within the same domain, standard normalization was applied to each indicator to ensure comparability. In the BLI domains with multiple indicators, the average of the indicators in the domains was used as the score for that domain.

To assess content validity, we compared Integrated RWI with the prefecture happiness rankings from Terashima (2016)[51]. The rankings were sequentially arranged, we also ranked Integrated RWI in descending order of value. Spearman's rank correlation coefficient was calculated using data from 2016, when the measurement years of RWI and the rankings matched. All statistical analyses were performed using R version 4.1.3.

4. Ethical considerations

The data used in this study were sourced from publicly available open datasets consisting of public statistics that did not contain any personal information.

III. RESULTS

1. Integrated score of the RWI

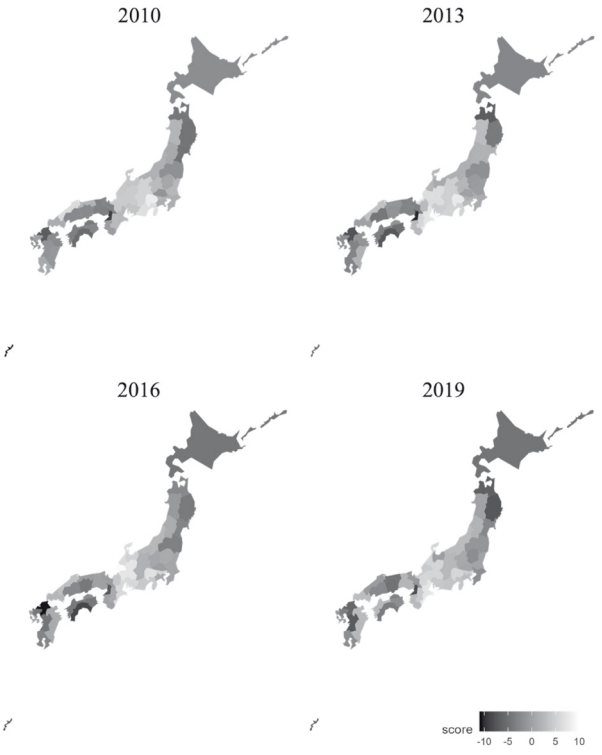
The median RWIs by prefecture in Japan were 0.67 (Interquartile Range [IQR]: −2.48–2.71), 0.00 (IQR: −2.85–2.76), 0.13 (IQR: −3.05–2.49), and 0.19 (IQR: −2.75–3.06) for 2010, 2013, 2016, and 2019, respectively (Table 2). Spearman's rank correlation coefficients for the

Table 2 Integrated scores of the Regional Well-Being Index

Prefecture	Year			
	2010	2013	2016	2019
Hokkaido	−2.02	−2.66	−4.28	−4.46
Aomori	−4.13	−6.69	−2.48	−6.45
Iwate	−4.46	−3.82	−3.86	−7.35
Miyagi	−4.55	1.85	−2.77	−2.49
Akita	2.21	3.08	−0.74	0.19
Yamagata	0.91	1.90	1.22	2.04
Fukushima	−1.62	−1.68	−3.27	−1.14
Ibaraki	2.51	−0.43	0.55	0.27
Tochigi	0.67	−0.66	1.05	−1.91
Gunma	2.93	2.32	0.58	0.79
Saitama	−1.26	0.00	−0.22	0.53
Chiba	1.54	1.31	0.42	−1.80
Tokyo	2.30	1.74	5.82	4.80
Kanagawa	1.30	2.79	0.82	3.14
Niigata	1.76	1.62	2.54	2.98
Toyama	3.95	0.95	5.20	−0.20
Ishikawa	4.04	2.42	6.30	5.50
Fukui	4.22	6.52	9.67	4.31
Yamanashi	8.14	7.83	6.91	5.77
Nagano	5.36	4.92	1.85	2.60
Gifu	4.52	6.45	7.45	5.52
Shizuoka	6.62	5.34	4.24	3.81
Aichi	3.80	4.74	5.99	4.12
Mie	2.61	7.41	5.95	7.30
Shiga	4.31	2.93	4.13	5.81
Kyoto	−2.88	−3.08	−0.36	−0.73
Osaka	−8.97	−10.18	−7.35	−7.97
Hyogo	−3.27	−2.95	−0.03	2.30
Nara	2.81	5.67	1.04	4.57
Wakayama	−0.30	2.72	0.13	2.76
Tottori	2.00	−1.25	−0.43	−4.44
Shimane	6.28	3.56	3.35	−0.54
Okayama	−2.38	−1.39	−4.01	−4.63
Hiroshima	−2.32	−4.22	−2.48	−2.36
Yamaguchi	1.33	0.12	2.43	3.14
Tokushima	−2.58	−4.79	−4.00	−1.76
Kagawa	−3.98	−1.38	−2.01	−3.01
Ehime	−3.30	−3.19	−4.06	2.69
Kochi	−5.27	−7.26	−8.56	−3.58
Fukuoka	−6.88	−7.70	−10.52	−5.74
Saga	0.03	−1.85	−4.11	−3.36
Nagasaki	−1.66	−2.12	−0.10	−0.83
Kumamoto	−1.34	−2.84	−4.43	−7.07
Oita	−2.17	−1.23	1.21	2.92
Miyazaki	−0.97	1.85	1.07	2.52
Kagoshima	1.06	−2.86	−2.82	−1.82
Okinawa	−10.91	−5.81	−7.05	−6.77
Median (IQR)	0.67 (−2.48–2.71)	0.00 (−2.85–2.76)	0.13 (−3.05–2.49)	0.19 (−2.75–3.06)

Note: All scores were standardized and unitless.
Abbreviations: IQR, Interquartile Range.

Figure 2 GIS plot of the integrated scores of the Regional Well-Being Index
Each prefecture was color-coded based on an Integrated Regional Well-Being Index. High-scoring prefectures are depicted in grey and low-scoring prefectures are depicted in black. The table below shows Spearman's correlation coefficients for each year.



Year	2010	2013	2016	2019
2010	-			
2013	0.86*	-		
2016	0.83*	0.84*	-	
2019	0.72*	0.79*	0.85*	-

*p<.001

respective years were as follows: 2010–2013 = 0.86, 2010–2016 = 0.83, 2010–2019 = 0.72, 2013–2016 = 0.84, 2013–2019 = 0.79, and 2016-2019 = 0.85 (Figure 2).

2. Variability in the RWI scores across domains

From 2010 to 2019, the scores for each domain ranged from 6.27–6.84 ("Income"), 3.99–5.09 ("Jobs"), 4.69–4.73 ("Housing"), 3.88–4.55 ("Health"), 4.09–4.76 ("Work-Life Balance"), 5.35–6.68 ("Education"), 4.04–4.74 ("Community"), 4.46–5.17 ("Civic Engagement"), 2.25–5.11 ("Environment"), 4.58–5.88 ("Safety"), and 4.40–4.61 ("Life Satisfaction") (Table 3).

3. Evaluation of the validity of the RWI

Pearson's correlation coefficients were a minimum of 0.58 in the "Life satisfaction" domain and a maximum of 0.99 in the "Jobs" domain. The variation in the data years for the OECD BLI in each domain is due to data unavailability for certain years in the OECD database[50]. For the "Work-Life Balance," "Education," and "Civic Engagement" domains, the data collection years did not match the years of RWI. Pearson's correlation coefficients could not be calculated; thus these scores were indicated as "NA" (Figure 3). The Spearman's rank correlation coefficient, calculated to assess the content validity by comparing the Integrated RWI scores with the 2016 prefecture happiness rankings, resulted in 0.72.

IV. DISCUSSION

1. Key findings

This study aimed to calculate the Regional Well-Being Index, which evaluates well-being in small regions based on the OECD's BLI. Present findings suggest that the RWI is an effective indicator of comprehensive well-being at the regional level. The plot of the RWI on the map and high Spearman's rank correlation coefficients highlight that the trends of prefectures with high or low RWI scores remained relatively constant from 2010 to 2019, and this temporal consistency demonstrates the test-retest reliability of the RWI. Additionally, the high Pearson's correlation coefficient for each domain between the BLI and the RWI indicate the construct validity of the RWI as an indicator of well-being. Although Pearson's correlation coefficients could not be calculated for the "Work-Life Balance," "Education," and "Civic Engagement" domains due to discrepancies in the data collection year, the trend of the plots for the years wherein these domains were observed showed a similar trend over time to that of the RWI. The comparison of Integrated RWI scores with the prefecture happiness rankings yielded a high correlation coefficient, this result suggests the RWI's content validity.

The OECD also uses the BLI framework to calculate Regional Well-being for regions smaller than countries. However, even the OECD regional well-being divides Japan into 10 areas, including Northern-Kanto, Southern-Kanto, and Kansai, and not into administrative units. The units of local governments that have the decision-making capacity to implement health policies and projects are more local, such as prefectures and municipalities. If this study enables benchmarking of relative well-being positions by prefecture, local residents will be able to easily recognize the relationship between their own life experiences and their well-being, and it will serve as a catalyst for policy makers to enrich the measures to improve their well-being.

The range between the maximum and minimum values for each domain indicates the degree of data variability among prefectures within the domain (Table 3). A broader range suggests possible inequalities in certain domains like "Income" and "Education" between prefectures in Japan. The "Income" domain consistently exhibited a range exceeding six points from 2010 to 2019, suggesting underlying economic disparities, which may unequally impact well-being across various prefectures. In the "Education" domain, the range surpassed six points in 2010 and 2013, suggesting its potential role in well-being disparities. Nevertheless, the gradual reduction in this range over time may indicate positive development. In

Table 3 Variability of the RWI Scores in each domain

Domain		Year			
		2010	2013	2016	2019
Income	Maximum	4.55	5.50	5.52	5.57
	Minimum	−1.72	−1.33	−1.16	−1.26
	Range	6.27	6.82	6.67	6.84
Jobs	Maximum	1.85	1.71	1.96	1.96
	Minimum	−3.24	−3.19	−2.91	−2.02
	Range	5.09	4.90	4.87	3.99
Housing	Maximum	2.05	2.05	1.99	1.93
	Minimum	−2.68	−2.68	−2.72	−2.77
	Range	4.73	4.73	4.72	4.69
Health	Maximum	1.93	2.23	2.26	1.81
	Minimum	−2.14	−2.32	−1.63	−2.09
	Range	4.07	4.55	3.88	3.90
Work-Life Balance	Maximum	2.40	2.39	2.65	2.84
	Minimum	−2.36	−2.02	−1.45	−1.69
	Range	4.76	4.41	4.09	4.54
Education	Maximum	2.39	2.55	2.56	2.43
	Minimum	−4.22	−4.13	−3.21	−2.91
	Range	6.61	6.68	5.77	5.35
Community	Maximum	2.18	2.08	2.33	1.95
	Minimum	−2.08	−2.66	−1.71	−2.37
	Range	4.26	4.74	4.04	4.33
Civic Engagement	Maximum	3.06	2.45	2.03	2.78
	Minimum	−1.72	−2.08	−2.43	−2.39
	Range	4.78	4.52	4.46	5.17
Environment	Maximum	1.67	2.55	0.58	0.33
	Minimum	−0.58	−0.77	−3.41	−4.78
	Range	2.25	3.32	4.00	5.11
Safety	Maximum	2.05	2.73	2.08	1.83
	Minimum	−2.53	−3.15	−2.62	−3.15
	Range	4.58	5.88	4.70	4.98
Life Satisfaction	Maximum	2.32	2.55	2.63	2.40
	Minimum	−2.16	−1.85	−1.92	−2.20
	Range	4.48	4.40	4.55	4.61
Potential	Maximum	26.45	28.79	26.59	25.83
Integrated RWI	Minimum	−25.43	−26.18	−25.17	−27.63

Note: All scores were standardized and unitless. Range was the difference between Maximum and Minimum.

contrast, the range in the "Jobs" and "Health" domains was relatively small and decreasing, suggesting a reduction in disparities within these areas.

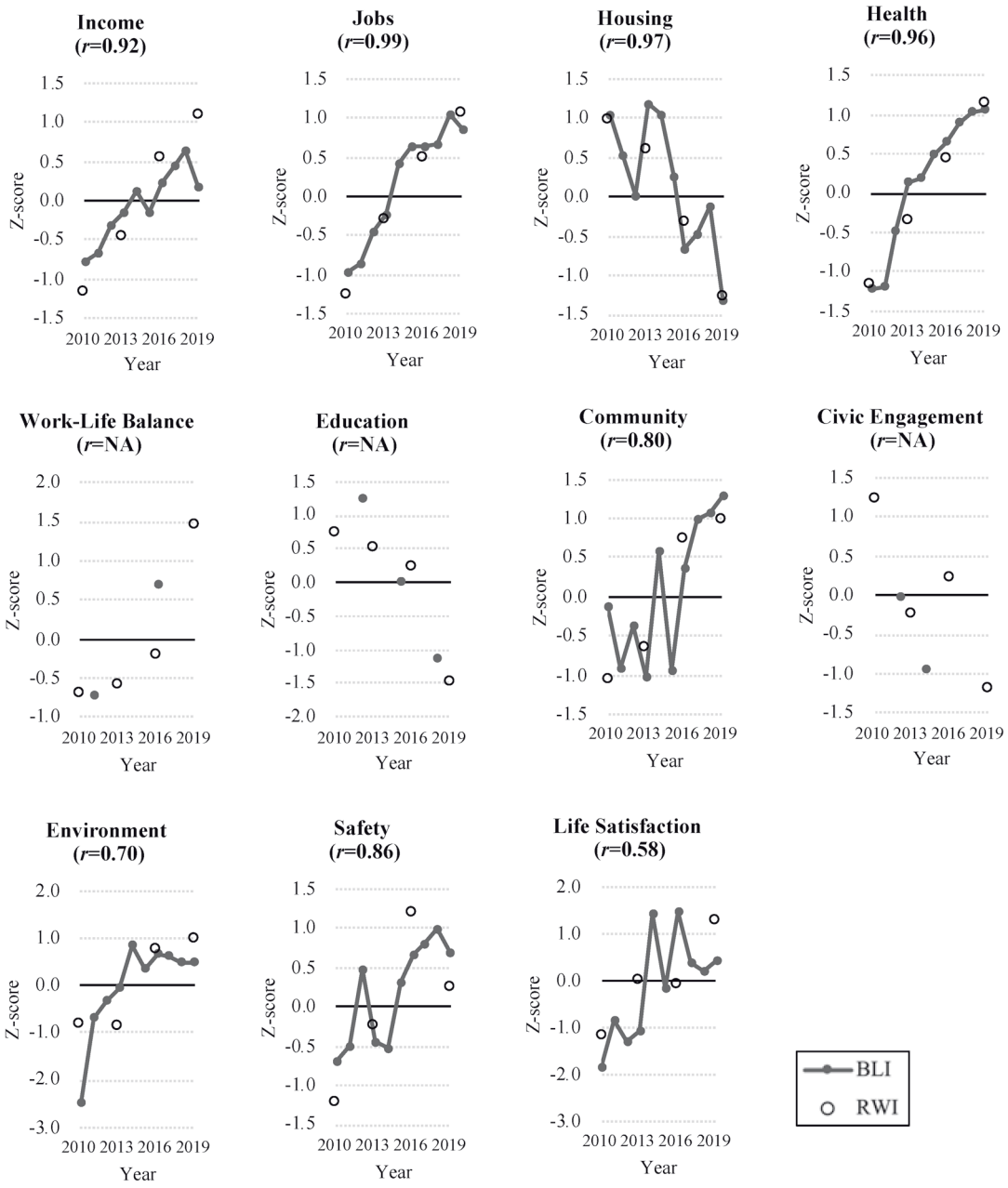
2. Limitation

This study had several limitations. Firstly, the statistics to calculate BLI and RWI or these data year in some domains were not matched. Although the statistics were not perfectly consistent, we had chosen to be as similar as possible and have taken consensus validity with multiple researchers. For example, in the statistics for Life Satisfaction domain, where we believe that there is a most large difference, we selected subjective health in the RWI as an alternative for subjective life satisfaction in the BLI. However, the other statistics were very well matched, and the impact was determined to be small.

Secondly, caution should be exercised when interpreting the statistics for missing values. Further data accumulation over time and surveys with matched data years are required.

Thirdly, correlation coefficients between Japan's RWI

Figure 3 Comparison of the Regional Well-Being Index and the Better Life Index
Note: "*r*" refers to Pearson's correlation coefficient.
Abbreviations: BLI, Better Life Index; RWI, Regional Well-being index



and the BLI ranged from 0.58 to 0.99, indicating variability. Specifically, the Life Satisfaction domain showed lower correlations ($r = 0.58$). This variation might be attributed to the RWI's substitution of subjective health for the subjective life satisfaction measures used in the BLI. Alternative statistics have been selected by several experts through consensus building, but obtaining the same statistics as the BLI and searching for more appropriate alternative statistics remains a challenge for the future.

Fourthly, as this was an ecological study and did not use individual-level data, individual-level associations could not be assessed. This should be noted when considering policies.

Fifthly, the assessment of validity for RWI was partial. The evaluation was based on data from only one year, 2016, and there is a possibility that happiness rankings measure only specific aspects of the RWI. Consequently, future research would be desired for a more comprehensive assessment of content validity and external validity.

Finally, this study did not consider the differences in weighting for each domain by prefecture. Future research should explore the domains valuable for each prefecture by considering the cultural characteristics of the region.

3. Implications and actions needed

The Japanese RWI calculated in this study quantitatively demonstrates temporal changes in well-being and scores for each domain in each prefecture in Japan and is a valuable foundational resource for policymaking toward

improved regional well-being. These detailed insights provide critical data for policymakers to identify unique regional challenges and develop tailored strategies to address them.

In the BLI, the focus is not merely on the aggregate scores of various indicators. The BLI website is designed to allow users to adjust the weightings of domains based on their personal values, emphasizing the importance of diversity in well-being across different countries. Similarly, for the RWI, it is not just the overall score that matters. Allowing users, such as regional policymakers, to customize the weighting of scores in specific domains can provide insights into the strengths and weaknesses relevant to improving well-being unique to each region. For example, the Safety domain may be important for national well-being in a country in conflict, or Income may be important in a country with large economic disparities. By adjusting weightings according to the priorities of each region, a more accurate assessment of regional well-being can be achieved, facilitating the formulation of effective policies and initiatives based on those assessments. Consequently, the development of a website for RWI, similar to that of BLI, promotes Evidence-Based Policy Making, providing foundational data for deriving customized improvement strategies tailored to each region. In applying the RWI to Japan, known for its high public safety and longevity, the Safety and Health domains might not be as crucial. Instead, economic disparity and education could be more important. However, the usefulness of these insights for policy-making needs more research.

Moreover, this study demonstrates that a comprehensive index, such as the BLI, can be substituted with domestic statistics. Instead of using a single indicator like GDP, governments and international organizations are increasingly proactive in measuring comprehensive well-being, which encompasses material wealth, quality of life, and people's subjective evaluations of their lives, by using multiple indicators. Based on this research, organizations may comprehensively evaluate well-being using national statistics, and these indices may offer insight into the well-being of smaller regions within each country, potentially aiding the development of informed policies.

V. CONCLUSION

The Regional Well-Being Index, calculated in this study based on the OECD's Better Life Index, demonstrates its potential as an effective and reliable indicator of comprehensive well-being at the regional level in Japan. This index provides foundational data for understanding unique regional well-being challenges and for formulating policies aimed at improving well-being. Moreover, this methodology may also evaluate well-being at the regional level in other countries using official statistics.

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