

# Relationship of Subjective Well-being of Citizens and Local Government Policy in Akita, Japan

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**ABSTRACT---** *This paper presents a framework and an empirical analysis for “Citizens Awareness Survey” of 2,126 citizens over twenty-year old, conducted by Akita local government to understand the feelings and needs of the citizens against the prefectural policy. The results of the research model using Structural Equation Model (SEM) imply that Akita local government’s policies in “Health and medical services,” “Promotion of agriculture, forestry and fisheries,” and “Employment and child care support” are related to their citizens’ life satisfaction in some extent, while “Promotion of commerce and industry” and “Volunteer activities” are not.*

**Keywords---** Well-being, Life satisfaction, Government policy, Structural Equation Model

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## 1. INTRODUCTION

Movements to measure progress by well-being indicators have become active worldwide, and Japan is no exception. Many local governments across Japan have been developing their own indicators of well-being and prosperity. In Akita Prefecture, its local government has been conducting the “Citizens Awareness Survey” since 2011, in order to understand the feelings and needs of the citizens against the prefectural policy. The survey results have been used for the policy evaluation and the development of the management guidelines of the prefectural government’s “the second phase hometown Akita well-being creation plan (tentative)” (Akita Prefecture, 2016). Akita is a large prefecture at the Sea of Japan coast in the northern Tohoku Region. Among Akita’s main attractions are its natural beauty of mountains and the sea, and hot springs, and its economy remains dominated by traditional industries, such as agriculture, fishing, and forestry. This has led many young people to migrate to Tokyo and other large cities. It has the lowest number of children as a percentage of the population, at 11.2% (The Japan Times, 2010). Akita Prefecture is where declines in population are most severe in Japan. As of October 1, 2014, it has a population of just over 1 million people, where it had the highest rate of decrease of -1.26% according to the Japanese Statistics Bureau (2014).

The authors test the association between Akita citizens’ life satisfaction and factors related to the local government policy, such as “Promotion of commerce and industry,” “Employment and child care assistance,” “Health and medical services,” “Promotion of agriculture, forestry and fisheries,” and “Volunteer activities,” using the dataset from “2014 Citizens Awareness Survey.” This paper is structured as follows: in the next section the authors give a brief overview on well-being. Subsequently, a research model, hypotheses, data and variables are detailed. In the fifth section, the results are discussed as well as their implications.

## 2. RELATED WORKS

The theory of subjective well-being is “a person’s evaluative reactions to his or her life – either in terms of life satisfaction (cognitive evaluation) or affect (ongoing emotional reactions)” (Diener and Diener, 1995). Diener (1984) proposed “Subjective Well-being” (SWB) which has three distinct components: life satisfaction (LS), positive affect (PA), and negative affect (NA). Later, Diener, Suh, Lucas, and Smith (1999) included satisfaction in specific life domains (i.e., domain satisfaction [DS], e.g., satisfaction with health) in the definition of SWB.

There are some comparative studies of subjective well-being among different societies. Inglehart (2004) found that all high-income countries rank high or medium-high on subjective well-being, which implies individuals in wealthier nations are far happier, on average, than people in less wealthy nations. Morrison, Tay, and Diener (2011) examined the relationship between satisfaction with one’s country and subjective well-being utilizing data from a representative worldwide poll, and found that national satisfaction was a strong positive predictor of individual-level life satisfaction.

The Gallup-Healthways Global Well-Being Index in 2013 conducted surveys in 135 countries to measure well-being in five elements, such as purpose, social, financial, community, and physical (Standish & Witters 2014). The Index reported that residents of the Americas region are the most likely to be thriving in three or more elements (33%), while those in sub-Saharan Africa are the least likely (9%).

As for Japan, the movement toward measuring well-being started about 40 years ago, since the former Economic Planning Agency introduced a set of “Social Indicators,” as alternative indexes to GDP (Japan for Sustainability 2013). “Social Indicators,” which was revised to “New Social Indicators,” focused more on individuals’ lives, were used between 1974 and 1990. Then, indicators which measure well-being of Japanese people have developed as “People’s Life Indicators” (1992-1999) and then as “Life Reform Index” (2002-2005). Most recently, “National Well-Being – proposed well-being indicators–” was introduced in 2010. Japanese people are evaluated their well-being in terms of these factors; family, health, household budget (income and consumption), and mental relaxation (or free time), according to a survey conducted in 2009 and 2010 (Cabinet Office 2011). The figure 1 presents a framework of well-being indicators Japan, which suggested by the commission on measuring well-being of Japanese Cabinet Office.

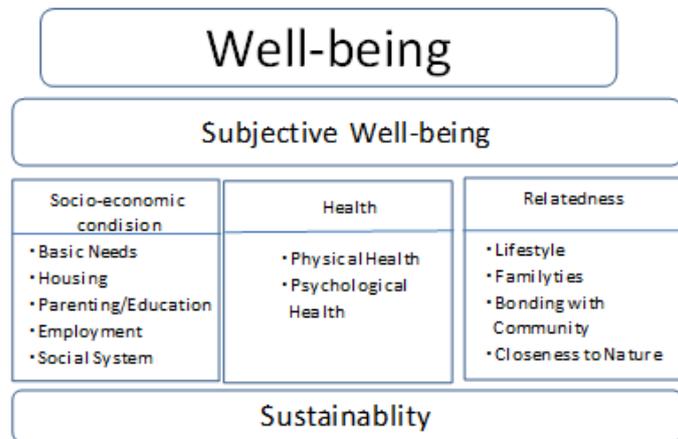


Fig. 1: A framework for measuring well-being (Source: Cabinet Office 2011)

### 3. RESEARCH MODEL AND HYPOTHESES

Based on the framework of measuring well-being suggested by previous literature and Japanese Cabinet Office as conceptual frameworks, the author would like to propose the research model to gain a better understanding of relationships among Akita citizens’ life satisfaction and the local government policy related factors, such as “Promotion of commerce and industry,” “Employment and child care assistance,” “Health and medical services,” “Promotion of agriculture, forestry and fisheries,” and “Volunteer activities.” According to the purpose of this study, the research framework was developed as shown in Fig.2.

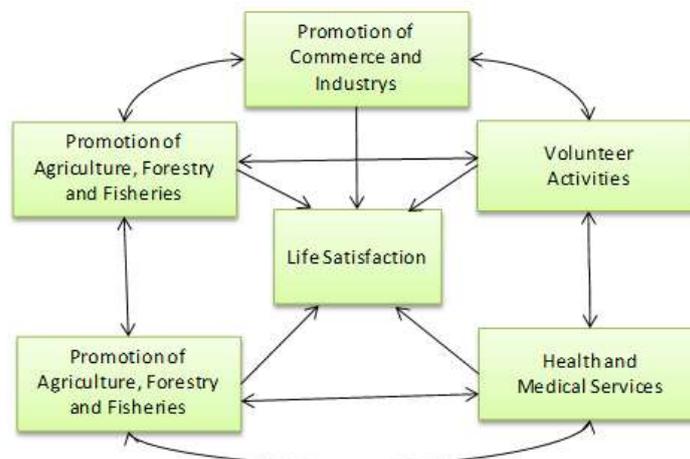


Fig. 2: A Research Model

The author had formed five hypotheses based on this framework as follows.

- H1: There is a significant, positive relationship between factors related to Promotion of commerce and industry and Life Satisfaction.  
H2: There is a significant, positive relationship between factors related to Employment and child care assistance and Life Satisfaction.  
H3: There is a significant, positive relationship between factors related to Health and medical services and Life Satisfaction.  
H4: There is a significant, positive relationship between factors related to Promotion of agriculture, forestry and fisheries and Life Satisfaction.  
H5: There is a significant, positive relationship between factors related to Volunteer activities and Life Satisfaction.

#### 4. DATA

Based on the prefectural policy called “A Hometown Akita Well-Being Creation Plan” started in 2010, Akita prefectural government has tried to measure status quo of each strategy in the plan by conducting a questionnaire survey to the citizens of Akita every year. The questionnaire used for this study was sent by mail from June 25, 2014 to July 14, 2014. Questionnaires were mailed to 4,000 male and female over twenty-year old that live in Akita. A two-stage random sampling method stratified on the basis of the Basic Resident Register was used.

Table 1: Description of the samples

Attributes		valid responses	
		Number	(%)
Total		2,126	100
SEX	Male	979	46
	Female	1,103	51.9
	No answer	44	2.1
Age	20~29yr old	146	6.9
	30~39yr old	279	13.1
	40~49yr old	312	14.7
	50~59yr old	437	20.6
	60~69yr old	503	23.7
	70yr old~	404	19
	No Answer	45	2.1
Family	Single	167	7.9
	Husband and wife only	427	20.1
	Parent-child two generations	889	41.8
	Parent-child-grandchild three generations	434	20.4
	Others	117	5.5
	No Answer	92	4.3

Table 2: A list of variables

Promotion of commerce and industry	<p>Q1 Efforts of the development of new industrial products and new technologies by local companies</p> <p>Q2 Efforts of technology entrants by local companies to major companies</p> <p>Q10 Overall, activities on the promotion of tourism, industry and commerce and trade</p> <p>Q4 Efforts of the creation of new energy promotion and related industries</p> <p>Q5 Efforts on development assistance and selling of processed goods</p> <p>Q8 Situation of company location and attract activities in the prefecture</p> <p>Q7 Attract activities of tourism and business visitors from other part of Japan and abroad</p> <p>Q3 Promotion of environmental recycling business by taking advantage of mine -related technology</p> <p>Q9 Efforts for human resource development to support the prefecture industry</p> <p>Q6 Efforts of trade and economic exchanges with foreign countries such as China and Russia</p> <p>Q17 Efforts of research in the development of new varieties and new technology</p>
Employment and child care assistance	<p>Q30 Feeling toward the declining birthrate</p> <p>Q28 Economic support for child caring families</p> <p>Q27 Maintaining friendly environment for childbirth and child-rearing</p> <p>Q26 Support for childcare and home compatible with the work by the company</p> <p>Q29 Support system to child caring home by Region</p> <p>Q23 System to support efforts for the declining birthrate</p> <p>Q22 Enlightenment movement about the declining birthrate</p> <p>Q24 Promotional effort for young people within the prefecture employment and "coming back to Akita" campaign</p> <p>Q25 Support to single men and women of dating and marriage</p> <p>Q33 Efforts for suicide prevention</p> <p>Q54 A child birth and raised-friendly environment in your family, community, and in the workplace.</p>
Health and medical services	<p>Q38 Health and medical services</p> <p>Q36 Development status of the General Hospital of the region</p> <p>Q37 Ease of use of hospital</p> <p>Q35 Medical systems for emergency medical care, pregnancy and childbirth</p> <p>Q34 Efforts for physicians ensure by province</p> <p>Q32 Comprehensive measures due to cancer screening and cancer health care provider system maintenance , etc.</p> <p>Q31 Efforts to improve , such as eating habits for the lifestyle-related disease prevention</p>
Promotion of agriculture, forestry and fisheries	<p>Q21 Promotion of agriculture, forestry and fisheries</p> <p>Q16 Secure and develop the leaders of agriculture and fisheries</p> <p>Q12 Locality development of agricultural and livestock products</p> <p>Q15 Cooperative efforts of agriculture, commerce and industry for food development</p> <p>Q20 Efforts of forest management and forest road maintenance such as thinning</p> <p>Q19 Efforts of infrastructure development such as paddy fields and agricultural irrigation canals</p> <p>Q14 PR activities of the prefecture production of agriculture, forestry and fishery products</p> <p>Q11 Direct sales and processing of agricultural product. Efforts of the new business development.</p> <p>Q18 Efforts of dissemination and establishment of new breed and new technology</p> <p>Q13 Production and provision system of safe and secure county agricultural products</p>
Volunteer activities	<p>Q43 The local community building (people collaborate with each other)</p> <p>Q39 The residents participate in volunteer activities and NPOs, etc.</p> <p>Q40 Support to the NPO and volunteer activities, etc.</p> <p>Q42 Services to local residents by a cooperation of prefecture and municipality</p> <p>Q41 Deployment of new business by local residents</p>

There were 2,132 responses with a response rate of 53.3%. After omitting ineligible responses, 2,126 (53.2%) were used for the analyses. Most of the questionnaires are asked by a 10 point scale. A list of description of the samples is shown in Table 1, a list of variables is shown in Table 2, and response rates by different cities in Akita are shown in Fig. 3. Citizens, who live around Akita city, a capital city of Akita prefecture, responded the survey the most.

A question, which asks for the life satisfaction, is “Overall, how satisfied are you with your daily life?” Zero means he/she is “completely dissatisfied” and ten means he/she is “completely satisfied.” A histogram of the life satisfaction in Akita is shown in Fig. 4. Most people answered between three to eight points, and five is the highest.

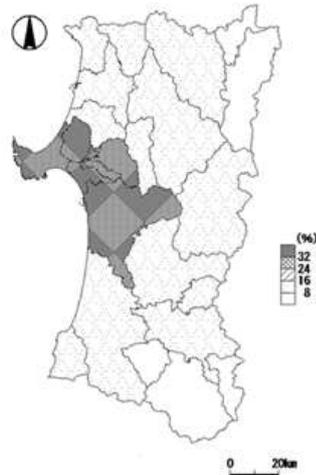


Fig3: Response Rates by Cities

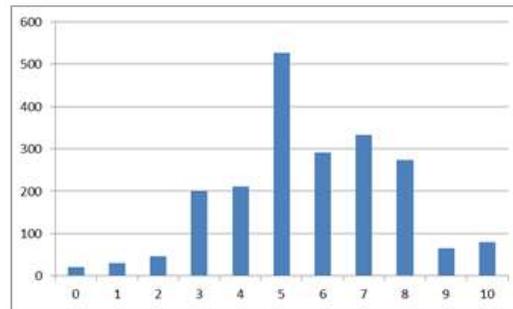


Fig4: The Life Satisfaction in Akita.

## 5. RESULTS

Testing the efficacy of the structural equation model was conducted by AMOS 22, and the major results of analysis are shown in Fig. 5 and Table 4. The path diagram highlights the structural relationships. In this diagram, the measured variables are enclosed in boxes, latent variables are circled, and arrows connecting two variables represent relations, and open arrows represent errors.

When SEM is used to verify a theoretical model, a better goodness of fit is required for SEM analysis (Byrne, 2010); the better the fit, the closer the model matrix and the sample matrix. By means of various goodness-of-fit indexes, including the comparative fit index (CFI) (Bentler, 1990), the incremental fit index (IFI) (Bentler, 1990), and the root mean squared error of approximation (RMSEA) (Browne & Cudeck, 1993), the estimated matrix can be evaluated against the observed sample covariance matrix to determine whether the hypothesized model is an acceptable representation of the data. In general, incremental fit indexes (*i.e.*, CFI, IFI) above 0.90 signify good model fit. RMSEA values lower than 0.08 signify acceptable model fit, with values lower than 0.05 indicative of good model fit (Browne and Cudeck 1992). The research model is shown in figure 4; CFI=0.906, IFI=0.906, RMSEA= 0.05 (see Table 4). The Path Coefficient for the structural model suggested that the regression coefficient for all constructs, except promotion of commerce and industry to life satisfaction, and volunteer activities to life satisfaction, show significance.

Since all of the indexes satisfy the cut-off values, these results are regarded as acceptable.

The followings are results of hypotheses.

H1: There is a positive but not significant relationship between factors related to Promotion of commerce and industry and Life Satisfaction.

H2: There is a significant, positive relationship between factors related to Employment and child care assistance and Life Satisfaction.

H3: There is a significant, positive relationship between factors related to Health and medical services and Life Satisfaction.

H4: There is a significant, positive relationship between factors related to Promotion of agriculture, forestry and fisheries and Life Satisfaction.

H5: There is a negative and not significant relationship between factors related to Volunteer activities and Life Satisfaction.

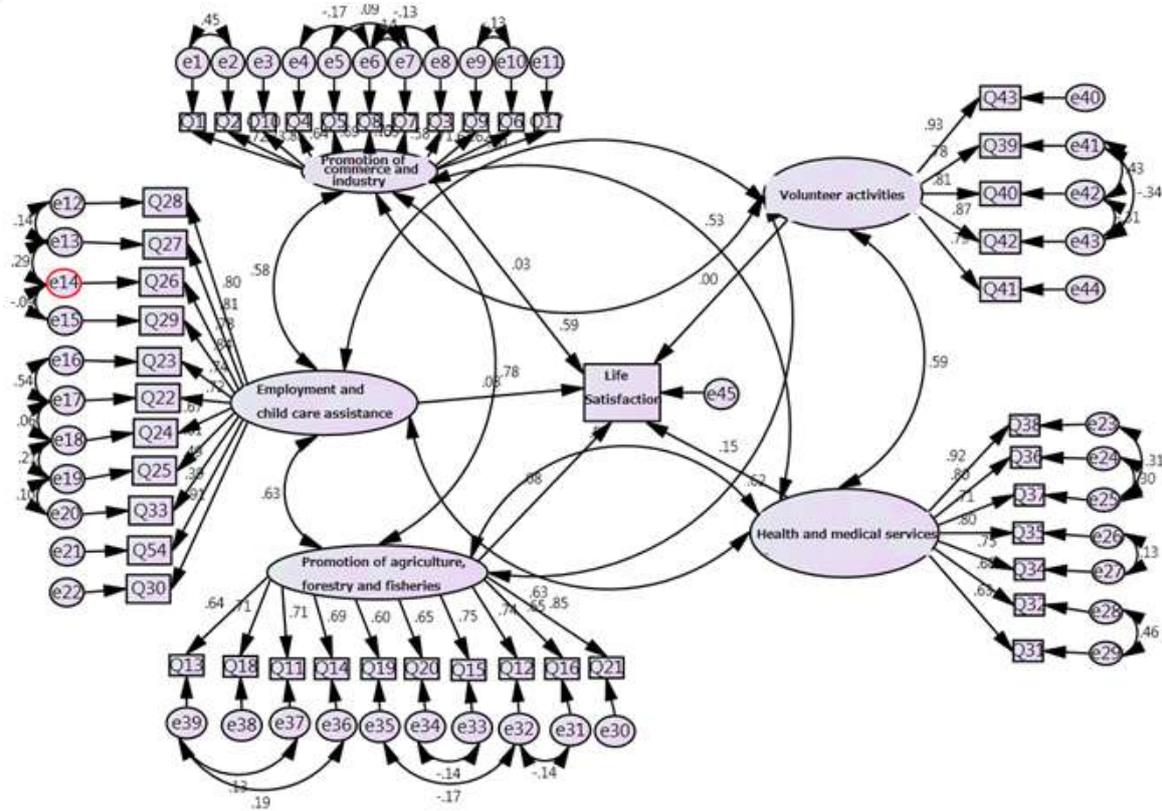


Fig5: Results of the Research Model

Table 3: The Path Coefficients of the Research Model

construct		Std weight	Unstd weight	S.E.	C.R. (t-value)	P value
Q1	<--- Promotion of commerce and industry	0.725	1			
Q2	<--- Promotion of commerce and industry	0.734	0.94	0.026	36.733	***
Q10	<--- Promotion of commerce and industry	0.848	1.025	0.032	32.474	***
Q4	<--- Promotion of commerce and industry	0.642	0.96	0.039	24.428	***
Q5	<--- Promotion of commerce and industry	0.689	0.908	0.034	26.494	***
Q8	<--- Promotion of commerce and industry	0.728	0.905	0.032	28.049	***
Q7	<--- Promotion of commerce and industry	0.646	0.911	0.036	25.117	***
Q3	<--- Promotion of commerce and industry	0.576	0.866	0.041	21.027	***
Q9	<--- Promotion of commerce and industry	0.712	0.865	0.031	27.598	***
Q6	<--- Promotion of commerce and industry	0.614	0.837	0.038	22.209	***
Q17	<--- Promotion of commerce and industry	0.615	0.786	0.034	23.212	***
Q28	<--- Employment and child care assistance	0.803	1			
Q27	<--- Employment and child care assistance	0.812	0.949	0.022	43.348	***
Q26	<--- Employment and child care assistance	0.785	0.884	0.023	37.981	***
Q29	<--- Employment and child care assistance	0.842	0.982	0.023	41.906	***
Q23	<--- Employment and child care assistance	0.742	0.875	0.025	35.689	***
Q22	<--- Employment and child care assistance	0.716	0.869	0.026	33.958	***
Q24	<--- Employment and child care assistance	0.669	0.734	0.024	31.232	***
Q25	<--- Employment and child care assistance	0.61	0.729	0.026	27.673	***
Q33	<--- Employment and child care assistance	0.486	0.611	0.029	21.18	***
Q54	<--- Employment and child care assistance	0.386	0.546	0.032	17.149	***
Q30	<--- Employment and child care assistance	0.913	1.027	0.022	46.919	***
Q38	<--- Health and medical services	0.919	1			
Q36	<--- Health and medical services	0.797	0.99	0.021	46.278	***

Q37	<-- Health and medical services	0.715	0.873	0.02	42.818	***
Q35	<-- Health and medical services	0.798	0.963	0.021	45.14	***
Q34	<-- Health and medical services	0.749	0.893	0.022	39.739	***
Q32	<-- Health and medical services	0.678	0.753	0.021	35.456	***
Q31	<-- Health and medical services	0.632	0.667	0.021	31.658	***
Q21	<-- Promotion of agriculture, forestry and fisheries	0.853	1			
Q16	<-- Promotion of agriculture, forestry and fisheries	0.651	0.76	0.025	30.013	***
Q12	<-- Promotion of agriculture, forestry and fisheries	0.739	0.938	0.026	36.153	***
Q15	<-- Promotion of agriculture, forestry and fisheries	0.755	0.938	0.026	36.616	***
Q20	<-- Promotion of agriculture, forestry and fisheries	0.646	0.84	0.03	28.348	***
Q19	<-- Promotion of agriculture, forestry and fisheries	0.599	0.825	0.031	26.357	***
Q14	<-- Promotion of agriculture, forestry and fisheries	0.69	0.886	0.027	33.068	***
Q11	<-- Promotion of agriculture, forestry and fisheries	0.713	0.916	0.026	34.62	***
Q18	<-- Promotion of agriculture, forestry and fisheries	0.714	0.872	0.027	32.432	***
Q13	<-- Promotion of agriculture, forestry and fisheries	0.642	0.814	0.027	29.902	***
Q43	<-- Volunteer activities	0.927	1			
Q39	<-- Volunteer activities	0.776	0.911	0.024	37.629	***
Q40	<-- Volunteer activities	0.811	0.903	0.022	40.589	***
Q42	<-- Volunteer activities	0.875	0.993	0.02	49.439	***
Q41	<-- Volunteer activities	0.79	0.906	0.022	41.501	***
Life Satisfaction	<-- Health and medical services	0.151	0.369	0.081	4.558	***
Life Satisfaction	<-- Promotion of agriculture, forestry and fisheries	0.083	0.232	0.129	1.802	0.072
Life Satisfaction	<-- Promotion of commerce and industry	0.027	0.079	0.124	0.633	0.527
Life Satisfaction	<-- Employment and child care assistance	0.082	0.197	0.084	2.344	0.019
Life Satisfaction	<-- Volunteer activities	-0.003	-0.008	0.097	-0.084	0.933

Table 4: Reliability Test

Fit indices	Recommended level	A Research Model
CMIN/DF	5.0 (Wheaton et al, 1977) ~2.0 (Tabachnick and Fidell, 2007)	6.32
IFI	$\geq 0.90$ (Bollen, 1989)	0.906
CFI	$\geq 0.90$ (Bentler, 1990)	0.906
RMSEA	$\leq 0.08$ (Browne and Cudeck, 1992)	0.05
AIC	Smaller values suggest a good fitting (Akaike, 1974)	6074.312

## 6. CONCLUSION

This paper presents a framework and empirical analysis for the survey data from "2014 Citizens Awareness Survey" conducted by Akita government, in order to gain a better understanding of relationships among more than 2,000 Akita citizens' life satisfaction and the local government policy related factors, such as "Promotion of commerce and industry," "Employment and child care assistance," "Health and medical services," "Promotion of agriculture, forestry and fisheries," and "Volunteer activities."

The results of the research model using SEM show that there are positive and significant relationships between Life satisfaction and those factors; "Health and medical services," "Promotion of agriculture, forestry and fisheries," and "Employment and child care support," although their coefficients of the standardized estimates are small; 0.151, 0.083, and 0.082, respectively. The relationships between Life satisfaction and "Promotion of commerce and industry" and "Volunteer activities" are not statistically significant at all. The results imply that Akita local government's policies in "Health and medical services," "Promotion of agriculture, forestry and fisheries," and "Employment and child care support" are related to their citizens' life satisfaction in some extent, while "Promotion of commerce and industry" and "Volunteer activities" are not. Within the report of "2014 Citizens Awareness Survey," it stated that Akita prefectural government meant to measure status quo of each strategy by conducting yearly "Citizens Awareness Survey." The result of 2014 survey implies the status quo of the local government' strategies have not fully led to life satisfaction of its citizens yet. The improvement of well-being, *i.e.*, life satisfaction of Akita citizens by the local government policy is expected in near future.

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