

Title: Analysis of subjective well-being during the COVID-19 pandemic period in Japan
Abstract:

The unexpected emergence of the COVID-19 pandemic in 2020 impacted all industries worldwide. The tourism, airline, and service industries have taken a hit, and the global economy has slowed significantly. Accordingly, the pandemic not only hurts people's physical health, but can also have a dramatic impact on mental health and well-being.

This paper will discuss the effects of various elements on people's well-being in the chronological order of how the COVID 19 pandemic developed in Japan. The dataset used in this thesis come from the Happiness Survey which began in December 2019 and covered more than 20,000 respondents across Japan, excluding Okinawa. Seven surveys have been conducted so far. The time duration of this survey overlapped with the COVID-19 pandemic in Japan, with the first wave of the survey just prior to the COVID-19 outbreak and the subsequent surveys lying during COVID-19. The temporal characteristics of this dataset provide a good opportunity to investigate the changes of the subjective well-being of Japanese people and correlated factors during the COVID-19 pandemic.

Using this dataset, we mainly make analysis on subjective well-being (SWB) from three aspects. The first applied a Bayesian hierarchical model to the SWB, supposing that well-being is decomposed into regional and individual factors. As a result, regional heteroscedasticity and individual factors are identified jointly. From the identified regional factors in prefectural levels, we find that Social Welfare Expenditure (SWE) per capita and Ratio of Forest Area (RFA) are positively related with SWB. Some prefectures in Capital Region, which are at the bottom of happiness ranking, are correlated with lower SWE and FRA. In addition, coastal areas in Tohoku region damaged by the 2011 tsunami and nuclear plant accidents also have relatively lower subjective well-being.

The second uses happiness surveys for around 26, 000 respondents all over Japan except Okinawa on the five periods in Dec. 2019, Sep. 2020, Dec. 2020, Mar. 2021 and Jun. 2021. We applied a dynamic regression model that describes joint effects of individual and spatial factors to visualize space-time behaviors of Japanese subjective well-being. Namely we quantified the factors of happiness driven by individual factors, which are age, gender, income and so on, and those by spatial factors in prefectural levels after controlling the individual ones. Examining the dynamic changes on the five periods, we find that the COVID-19 outbreak in Japan has damaged the SWB of young females most seriously and the crucial damages still are continuing especially for the low-income group.

The last one explores subjective well-being of 24,808 Japanese from 46 prefectures in

December 2021. Two years since the outbreak of COVID-19 in Japan, the average SWB of Japanese fell dramatically, the number of very happy people declined while the number of very unhappy people grew. We apply quantile regression to examine the impact of social connection, prosocial behaviors, health-related variables, on different quantiles of SWB. The result show that social connection is vital in all populations' SWB during the pandemic. The benefits of communication with family are detected at the whole SWB distribution, while contact with friends and neighbors only show positive effect at the lower quantiles of SWB with smaller coefficients. In addition, we find that people at the lower quantiles of the SWB distribution are more “mentally vulnerable” than those at the upper quantiles. After controlling for socio-demographic characteristics, we find that they are more likely to be harmed by risk factors (e.g., job loss, smoking, diabetes, hypertension) but it is harder for them to benefit from protective factors (e.g., prosocial behaviors, meditation) on their SWB. Given the persistence of the COVID-19 pandemic and consequent physical distancing policy, the influence of COVID-19 will continue to influence the SWB of the whole Japanese, but not equally. Therefore, the less happy people can learn a lot from the very happy individuals to protect themselves and improve their well-being.