

Time Series Analysis of Yokohama Household Consumption by Autoregressive Analysis and Yokohama Weather Data from 2000 to 2016.

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-Abstract-

This paper is an investigation on the impact of weather against household total consumption. I study Yokohama, Japan weather from 2000 to 2016 to analyze Yokohama total consumption. My main purpose is to study the relationship between weather and household consumption.

Data in many periods on weather in Japan can be found on Japan Meteorological Agency Database. However, data on consumption in Yokohama does only exist from 2000 to the previous year. Thus, in this paper analysis is mainly focused on 2000s.

In chapter one, I provide a general introduction of weather and consumption data. In chapter two, I study consumption time series data, using autoregressive model of autoregressive moving average model(ARMA), autoregressive integrated moving average model(ARIMA) and seasonal autoregressive integrated moving average model(SARIMA). Scoring the accuracy of these models with root mean square error provides that ARIMA model was the most accurate. In chapter three, weather variables are taken into account by conducting vector autoregressive model(VAR) and granger causality model. In the last chapter, I compare the results of the results of chapter two and three, showing some evidence that weather has almost no effect on consumption compared to past consumption time series data.

-References-

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