ABSTRACT

Linear regression analysis has assumptions about residual that needs to be fulfilled, i.e. identical, independent, and normal distribution. If one of the assumptions is not fulfilled, then it is assumed that there is one spatial aspect that affects. One of the methods that has an attention to spatial aspect is Geographically Weighted Regression. GWR is the development of linear regression by taking the position of latitude and longitude from the observation point into account.

Spatial regression model can be applied in the field of healthcare, such as in the case of infant mortality. The case of infant mortality is varied in every area due to different characteristics of each area. Infant Mortality Rate (IMR) in the province of NTT in 2012 was 45 deaths per 1,000 live birth, while national IMR was 32 deaths per 1,000 live birth. The aim of this study was to determine which GWR model to use for analyzing the case of infant mortality in NTT Province in 2013.

This research applied GWR method to analyze the impact of several factors that affect infant mortality in the province of NTT. The data that was used was secondary data collected from the publication of BPS of NTT Province in 2014. The independent variable were ratio of puskesmas (X1), ratio of posyandu (X2), percentage of the poor (X3), literacy rate (X4), level of education (X5), percentage of clean water (X6), and percentage of the help of health workers in delivering the baby (X7).

The result of testing the method of GWR was different in each area. The value of R^2 produced by GWR model was 87.57%. As for the result of GWR, there were 4 groups created based on the similarity of the variables that affected the infant mortality. Factor that affected the infant mortality were ratio of posyandu, percentage of the poor, and percentage of household using clean water.

As for the conclusion, the result of GWR model is better that that of linear regression because it has smaller AIC value (120,701) and bigger R^2 (87.57%). The grouping that is created by GWR model would be better if it is displayed in the form of a map.

Keywords: Linear regression, GWR, infant mortality