

Geographically Weighted Zero-Inflated Poisson Regression (GWZIPR) for Excess Zero Problems and Heterogeneity of Spatial Data: Application for Number of Diphtheria Disease Cases in West Java Province in 2014

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Abstract

Poisson regression is used to find the relationship between independent and dependent variables that is distributed by poisson and have equidispersion assumption where have same value for mean and variance. In its application, Excess Zero occurs in data, this will cause overdispersion such as mean value greater than variant, then the Poisson regression can no longer handle it, so that other method is needed to correct the deficiencies. Zero-Inflated Poisson Regression (ZIP) is a method that can handle the problem globally, if the data of each observation location influenced by spatial effects that are not always homogeneous variations at each location of observation or called spatial heterogeneity caused by several things such as differences in geographic, socio-cultural conditions, to different economic policies at each location. This will be a problem if the data is still analyzed without regard to both of them simultaneously. In this study consider these two things into a Geographically Weighted Zero Inflated Poisson Regression (GWZIPR) model to handle both of these. And applied to cases of infectious diseases in West Java province 2014, and compared with other models. From the calculation results can be that the value of AIC GWZIPR smaller than other methods.

Keywords

ZIP, GWZIP, Overdispersion, Spatial Data, GWR.

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Biographie

Ma'rufah Hayati Mt is a lecturer in department of statistics, faculty of science and technology, The University of Nahdlatul Ulama Lampung. She earned a Bachelor's degree in Mathematics from Lampung University, Master in Mathematics from Gadjah Mada University, and she is currently studying at Bogor Agricultural University for her PhD. She was interested in research on high dimensional and spatial data.

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