

Anggun Kurnia Dewi, 2012, Mixed Geographically Weighted Regression Model Estimation Based on Weighted Least Square Estimator. This skripsi under guidance of Drs. Suliyanto, M.Si. and Drs. H. Sediono, M.Si, Department of Mathematic Faculty of Science and Technology Airlangga University, Surabaya.

---

## ABSTRACT

Mixed Geographically Weighted Regression (MGWR) Model is a model which combines the global regression model with the Geographically Weighted Regression (GWR) model that expressed in the form :

$$y_i = \sum_{k=1}^q \beta_k x_{ik} + \sum_{k=q+1}^p \beta_k(u_i, v_i) x_{ik} + \varepsilon_i, i = 1, 2, \dots, n$$

The purposes of this final report are to identify predictor variables of MGWR model, to estimate of MGWR model using Weighted Least Square (WLS) method, and to determine inference of MGWR model.

The data used in the application of MGWR model is the percentage of poor citizen in East Java province in 2009 as response variable ( $y$ ), and for predictor variables are the percentage of citizen who complete primary school ( $x_1$ ), the percentage of citizen aged 10 and above who can not read or write letters ( $x_2$ ), the percentage of households in which do not own the house they live in ( $x_3$ ), the percentage of households which the largest wall of their house is not made of brick/wood/bamboo ( $x_4$ ), the percentage of households do not have excrement facility ( $x_5$ ), the percentage of citizen which are unemployed ( $x_6$ ), the percentage of households who have Askeskin (poor health insurance) ( $x_7$ ), the percentage of households who get free health care ( $x_8$ ), the percentage of households who have bought cheap rice/rice poor ( $x_9$ ), and the percentage of citizen working as farmers ( $x_{10}$ ).

Based on data analysis, six globally influential predictor variables and four locally influential predictor variables. From that matter, it can be concluded that the percentage of citizen who complete primary school, the percentage of households in which do not own the house they live in, and the percentage of citizen working as farmers significantly influenced at each region/city in East Java. While the percentage of households do not have excrement facility, the percentage of citizen which are unemployed, the percentage of households who have Askeskin (poor health insurance), and the percentage of households who have bought cheap rice/rice poor significantly influenced in four locations in East Java.

**Keywords :** *Mixed Geographically Weighted Regression, Estimator Weighted Least Square.*