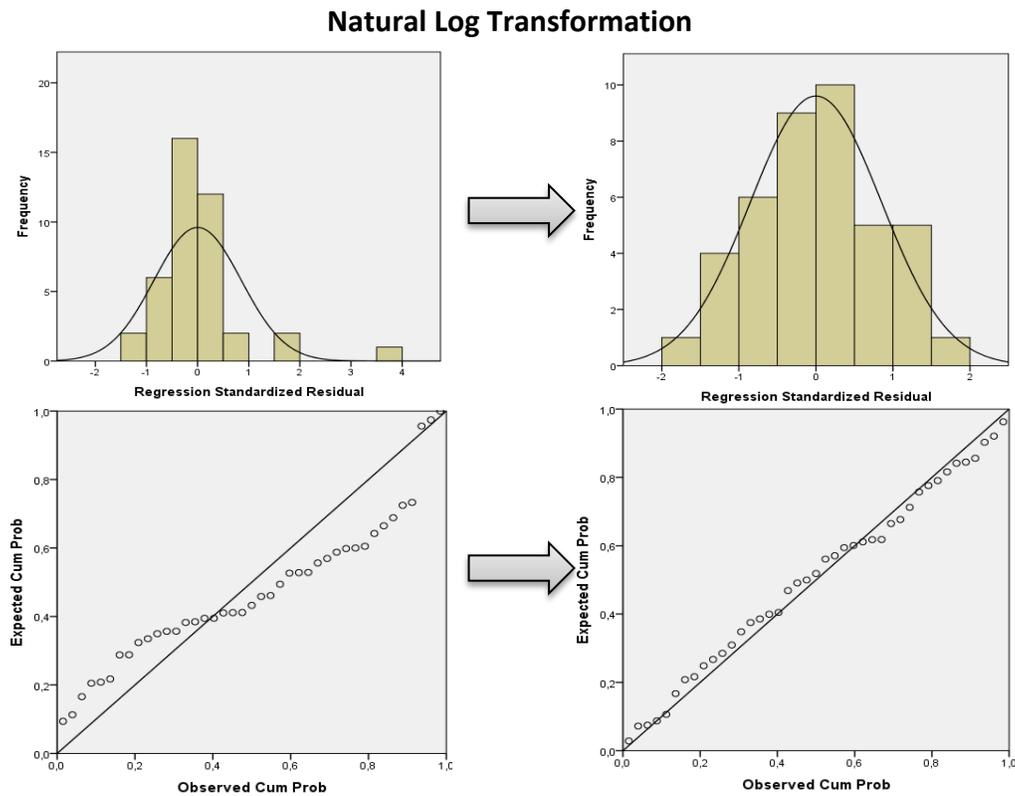


Appendix A: Analysis of Regression Assumptions

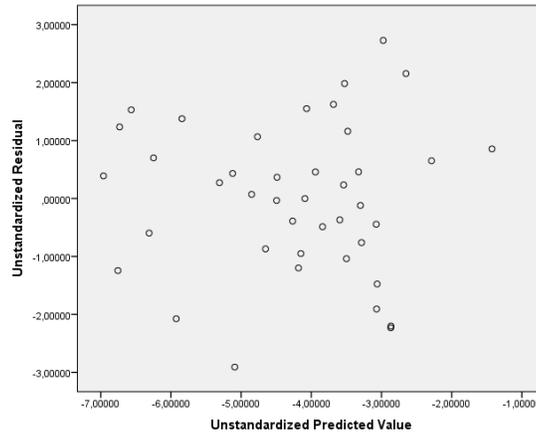
Assumption 1: Normal distribution of residuals

Original data of the dependent variable is heavily skewed towards null. The data is percentual and 21 observations lie between the narrow range of 0-1%. Normal distribution of residuals is assessed after which was decided that natural logarithmic transformation was necessary to best meet the assumption of normality. Three cases in the dataset are recorded as zero - meaning that no landscape elements are found on the agricultural parcels of these farmers through aerial observation. In order not to lose valuable data a constant is added and calculated as 1/3 of the smallest non-zero observation. Histograms and normal P-P plots of regression standardized residuals are depicted below to illustrate the transformation.

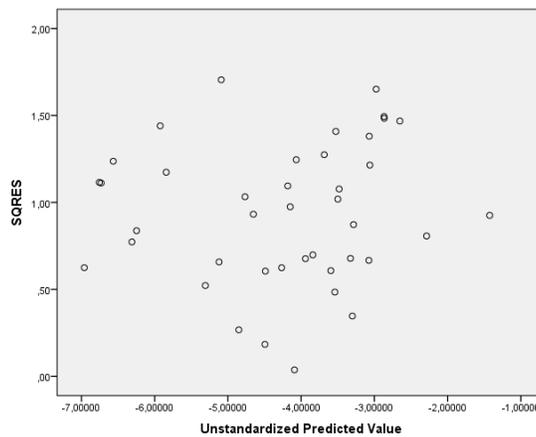


Assumption 2: Homoscedasticity: Variation of Y Does Not Depend on X

Regression analysis with all relevant independent variables (See appendix B). To assess this assumption predicated Y-values are plotted against Errors (Residuals).



No patterns observed. Observations distributed randomly no evidence for the violation of the assumption.



The scale-location plot depicted, which draws the square root of the absolute value of the residuals against the predicted values, shows if residuals are spread equally along the ranges of predictors. There are no discernable patterns observed from the plot. In addition, plots of continuous predictors are assessed and reveal no reasons for concern.

Assumption 3: Linearity of the relationship between dependent and independent variables

Individual analysis of plots of the observed residuals versus predicted values for each predictor reveals little reason for concern.

Assumption 4: Limited multicollinearity of independent variables in regression model

Multicollinearity occurs when there are high correlations among predictor variables, leading to unreliable and unstable estimates of regression coefficients. Widely applied diagnostics for multicollinearity, are the variance inflation factor (VIF) and tolerance.

If VIF for one of the variables is around or greater than five, it means that collinearity could be at stake. A tolerance statistic below .20 is generally also considered a reason for concern. Variables do not reach in to critical levels (See appendix B).