

Proper Practice Guidelines for Simple and Multiple Linear Regression Methods: Case Studies from the Rubber Sector

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Abstract

This paper presents proper practice guidelines for simple and multiple linear regression methods employing examples from the rubber sector. The main objective of this study was to popularize analysis of residuals and diagnostic checking, which are areas generally not given adequate thought while performing analysis and also in reporting. The illustration 1 on simple linear regression was done to find out whether the clones; RRIC100 and RRIC121 have a common relationship or have different relationships between girth and yield. This paper suggested the way, the model to be fitted and how the hypotheses to be tested for different slopes and different intercepts. According to the analysis a common relationship exist between girth and yield for the two clones which has an explanatory power of 69 %. The illustration on multiple regression aimed to build the relationship between physical factors of a smallholder rubber unit with the productivity. Tapping days and tappable trees/ha were found to be the most decisive factors affecting productivity of land. Problems encountered in residuals were successfully arrested by transforming the dependent variable using \log_{10} value of productivity. The explanatory power of the model was also improved to 26 % through this operation.

Keywords: model diagnostics, regression, rubber