INSTITUT TEKNOLOGI MARA

MULTICOLLINEARITY IN REGRESSION ANALYSIS:
EFFECTS, DETECTION AND METHODS OF MINIMISING.

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INTRODUCTION AND OBJECTIVES

The general purpose of this paper is to examine the effects of multicollinearity in regression analysis, explore ways of detecting and present methods of minimising these effects. The specific objectives of this paper are:

(1) To examine the effect of multicollinearity;

(2) To study and analyse the best possible methods used in detecting the presence of multicollinearity; and

(3) To examine the possible methods that can best be used in minimising or reducing the effects of multicollinearity.

There are many approaches in detecting the presence of multicollinearity but the emphasis is more on suitable ones which consists of:

(a) The Analysis of Variance Table(ANOVA Table);

(b) Examining the correlation coefficients of the independent variable;

(c) The Ridge method; and

(d) The Farrar-Glauber Test.

The methods used to minimise the effects of multicollinearity are:

(a) Reparameterization to improve computational accuracy;

(b) Ridge Regression; and

(c) Centering the input data.

The method of Reparameterization and Ridge Regression are useful in multiple regression while the method of centering