

TAWEESAK SIRIPORNPIBUL : SENSITIVITY ANALYSIS OF PARAMETER OF
SYMMETRIC LOSS FUNCTIONS UNDER LINEAR REGRESSION EQUATION.

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In this study, the analysis of the sensitivity of the parameter of the symmetric loss functions under the linear regression equation, two main methods were adopted. First the Monte Carlo technique was used in order to generate the random numbers for the values of the independent, dependent and random error variables. Then to obtain the optimal solution of the independent variable in the period of time $T + 1$, the Numerical Method was implemented under some restricted conditions : four target values, 3.0, 5.0, 9.0 and 11.0 and 8 values of the symmetric loss function parameter, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5 and 4.0 by the varied sample sizes of 15, 30, 50 and 100 subject to the levels of significance of 0.01 and 0.05. From 100 repeated studies on each case, the optimal values of the mean and variance of the independent variable were obtained. Consequently, the tests of the difference of means were done in order to conclude for the sensitivity of the parameter of the symmetric loss functions.

According to the tests of the difference of the means, the results are as follow :

1. The approximate boundary of the parameter was dramatically narrow.
2. Under the same restricted target value, the sensitivity of the parameter was varied by the sample size.
3. For small sample size, the sensitivity of the parameter at which the target value was greater than or equal to the mean of the dependent variable was higher than the sensitivity of the parameter of which the target value was less than the mean value of dependent variable.
4. For large sample size, the sensitivity of the parameter appeared to be stable for any target value.

The conclusion of this study exists only for the special case which was founded in this study. For other cases, the conclusion may be different according to the different restricted conditions. Therefore, the implementation of this study is quite limited, but, at least, it could be a guideline for further studies.