

**THREE-TERM CONJUGATE GRADIENT METHOD UNDER
ARMIJO LINE SEARCH FOR UNEMPLOYMENT RATE IN
MALAYSIA**

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ABSTRACT

Conjugate gradient (CG) method is widely used in unconstrained optimization problems. Most studies have shown that CG is capable of handling unconstrained optimization techniques due to its simple algorithm, which requires little memory storage. It also satisfied global convergence properties. Three coefficients, Rivaie-Ismail-Mustafa-Leong (RMIL+), Dai-Yuan (DY) and Conjugate-Descent (CD) are exerted into three-term CG method under Armijo line search to determine the most efficient method. Other than that, the application of CG method in regression analysis is not widely used. Thus, research is made to compare these methods by using MATLAB R2022b subroutine programming. Several initial points with different dimensions are chosen. The effectiveness and reliability of the suggested method are demonstrated by numerical results including NOI and CPU time. TTDY is the most effective method based on numerical results but only TTRMIL+ can be applied in regression analysis.

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