Estimating the unemployment rate using least square and conjugate gradient methods

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Abstract

Unemployment rate is one of the major issues among Malaysian citizens. The unemployment rate indicates the percentage of the total workforce who are actively seeking employment and currently unemployed. In this paper, a data of unemployment rate of a state in Ma-laysia from year 2000 until 2015 is collected. The statistics data is extracted by Labour Force Survey Malaysia (LFSM) which was con-ducted monthly by using household approach targeted to working ages between 15 to 64 years old. An estimation data for year 2016 can be forecasted by using discrete least square method of numerical analysis and conjugate gradient method in unconstrained optimization. These methods have been chosen based on its simplicity and accuracy. The calculations are based on linear and quadratic models for each the method together with their errors. Results showed that the conjugate gradient method is comparable with the least square meth-od.

Keywords: *Conjugate gradient method; Least square method; Unconstrained optimization; Workforce.*

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