

GENERALIZED CONFIDENCE INTERVALS IN REGRESSION PROBLEMS

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Weerahandi [1] developed the concept of generalized pivotal quantities and generalized confidence intervals for complex inference problems involving nuisance parameters. This generalized methodology of inference is suitable for all sample sizes and is found to be efficient for many problems where exact intervals are unavailable.

Our aim is to apply this concept to the case of simple and multiple linear regression models. In the case of simple linear regression we construct generalized confidence intervals for Pamuk, Kunst-Mackenbach and modified Kunst-Mackenbach relative indexes of inequality (see [3]), which are frequently used summary measures of socioeconomic inequality in health.

The problem of constructing a confidence interval for the ratio of two regression coefficients is addressed in the context of multiple regression (see [2]). The concept of a generalized confidence interval is used, and the resulting confidence interval is shown to perform well in the terms of coverage probability. The use of generalized inference due to Weerahandi [1], as an alternative to Fieller's theorem, which is a classic approach in the studies of the ratio of regression coefficients, is studied by Lee and Lin for constructing confidence intervals for the ratio of two independent normal means (see [4]).

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