**Analyzing Tax Policy and Economic Growth**

**by Using Semi-Parametric Approach**

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**Abstract**

Due to complexities in measuring the impact of tax policy on economic growth, there is need to explore functional relationship between response and predictors. Semi-parametric approaches are often very handy in modeling relationships which are non-linear but cant be completely described either through parametric or non-parametric approaches. To determine the effects of tax policy on economic growth functional, cubic smoothing spline method is used along with cross validation test to control the smoothing parameter. To replace the functional form of smoothing coefficients into linear mixed model, maximum likelihood estimation is used. Results indicate that proposed methodology is robust in determining functional form and in achieving increasing average marginal tax rates has negative impact on economic growth results. Empirical results indicate that high AMTRs and population growth rate reduce the performance of economic growth in the developing countries. A reduction on dependence of AMTRs in South Asian countries is needed.

**Keywords:**Spline smoothing method, Semi-parametric, Tax structure, Economic growth, Average marginal tax rate

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