Kolek, Peter
On the problem of non-stability in times-series analysis. (Slovak. English summary)
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The problem of non-stability of parameters in time-series analysis regression models, especially when caused by structural change in the system on which used variables are defined, is discussed and a solution by piecewise (or segmented) regression models is given.

The problem of finding the true number of stability regions (equal to the problem of finding change points, or knots) is solved by using a heuristic approach with the help of the modified Chow’s test of equality of sets of regression coefficients. The paper deals also with the problem of some enlargements of this test with the intention to find the variable which is “responsible” for the effect of structural change.

As illustration we have chosen the analysis of National Product of Czechoslovakia using Cobb-Doublas production function and comparing it with adaptive CDPF (method of quickest descent) analysis of the growth of NP given by J. Haluška [Adaptation of the parameters of the production function. (Slovak) Informačné Systémy 11 (1982)]. It seems that the described method is applicable mostly in the case of need of predicting values of exogenous variables of a complex econometric model for short-time prognostic applications. Some authors have also proved the discussed tests to be powerful enough even in case of non-normal observations (distributions of exponential type), what enlarges the field of practical applications.

MSC:
62M10 Time series, auto-correlation, regression, etc. in statistics (GARCH)
91B84 Economic time series analysis
62P20 Applications of statistics to economics

Keywords:
non-stability of parameters; time-series analysis; structural change; true number of stability regions; change points; knots; modified Chow’s test; Cobb-Doublas production function