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[ADVANCED](#)[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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## JOURNAL OF THE JAPAN STATISTICAL SOCIETY

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[\[PDF \(190K\)\]](#) [\[References\]](#)**The Cusum Test for Parameter Change in Regression Models with ARCH Errors**Sangyeol Lee<sup>1)</sup>, Yasuyoshi Tokutsu<sup>2)</sup> and Koichi Maekawa<sup>3)</sup>1) *Department of Statistics, Seoul National University*2) *Center for Research on Regional Economic Systems, Hiroshima University*3) *Faculty of Economics, Hiroshima University*

**Abstract:** In this paper we consider the problem of testing for a parameter change in regression models with ARCH errors based on the residual cusum test. It is shown that the limiting distribution of the residual cusum test statistic is the sup of a Brownian bridge. Through a simulation study, it is demonstrated that the proposed test circumvents the drawbacks of Kim *et al.*'s (2000) cusum test. For illustration, we apply the residual cusum test to the return of yen/dollar exchange rate data.

**Key words:** Brownian bridge, regression models with ARCH errors, residual cusum test, test for parameter change, weak convergence

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