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STRUCTURAL CHANGE AND LONG MEMORY IN THE DYNAMIC OF U.S. INFLATION PROCESS

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Résumé

Les phénomènes de mémoire longue et de changement de régime sont très intimement liés. Dans ce papier, nous considérons le problème de détection des dates de rupture artificielles dans le cas d'un processus générateur des données à mémoire longue. Dans ce but, nous estimons le nombre de ruptures en utilisant plusieurs techniques, à savoir, les critères d'information, le test de Bai et Perron (1998) et la méthode de Lavielle (2004). Grâce à des expériences de Monte Carlo, nous examinons l'effet d'augmentation de la mémoire longue sur le choix du nombre de ruptures et leurs localisations, et nous montrons que la méthode de Lavielle est la meilleure technique vue que sa proportion de selection du vrai nombre de changements est la plus élevée particulièrement quand l'ordre d'intégration est proche de 0,5. Comme il paraît que les taux d'inflation contiennent les phénomènes de mémoire longue et de changement structurel, une application sur le taux d'inflation américain est présentée afin d'illustrer l'utilité de ces procédures. Les résultats montrent qui la méthode de Lavielle (2004) choisit seulement deux ruptures, cependant, le nombre de ruptures détecté par les critères d'informations et la procédure séquentielle de Bai et Perron (1998) est supérieur ou égal à trois.

Mots clés: Econométrie, Modèles pour les assurances et les finances.

Abstract

Long range dependence and regime switching are very intimately related effects. In this paper we consider the problem of spuriously detecting break dates in hypothesis of long memory data generating processes. For this purpose, we address the issue of estimating the number of breaks using several techniques, namely, the information criteria, Bai and Perron's sequential selection procedure (1998), and the automatic procedure of Lavielle (2004). By means of Monte Carlo experiments, we investigate the effect of increasing the long memory parameter on selecting the number of breaks and their locations, and show that the Lavielle's method is the best technique since its frequency of choosing the true number of changes is the highest particularly when the order of integration is close to 0.5. As it seems that inflation rates contains long memory and structural breaks, an application to the U.S. inflation process is presented to illustrate the usefulness of these procedures. The results show that the Lavielle's method (2004) selects only two breaks, however, the number of breaks detected by the information criteria and the sequential procedure of Bai and Perron (1998) are superior or equal to three.

Key words: Econometrics**,** models for insurance and finance.

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