

Inference on stochastic time-varying coefficient models

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Recently there has been considerable work on stochastic time-varying coefficient models as vehicles for modelling structural change in the macroeconomy with a focus on the estimation of the unobserved sample path of time series of coefficient processes. The dominant estimation methods, in this context, are based on various filters, such as the Kalman filter, that are applicable when the models are cast in state space representations. This paper examines, in a rigorous manner, alternative kernel based estimation approaches for such models in a nonparametric framework and derives their basic properties. The use of such estimation methods for stochastic time-varying coefficient models, or any persistent stochastic process for that matter, is novel and has not been suggested previously in the literature. The proposed inference methods have desirable properties such as consistency and asymptotic normality and allow a tractable studentisation. In extensive Monte Carlo and empirical studies, we find that the methods exhibit very good small sample properties and can shed light on important empirical issues such as the evolution of inflation persistence and the PPP hypothesis.