KIT

Karlsruher Institut für Technologie

Workshop on Economics and Finance/ HeiKaMEtrics-Seminar

Joint Heidelberg, Karlsruhe and Mannheim research seminar in Econometrics

A Bootstrap Stationarity Test for Predictive Regression Invalidity

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Building 20.14, Room 103.1

Abstract:

We examine how the familiar spurious regression problem can manifest itself in the context of recently proposed predictability tests. For these tests to provide asymptotically valid inference, account has to be taken of the degree of persistence of the putative predictors. Failure to do so can lead to spurious over-rejections of the no predictability null hypothesis. A number of methods have been developed to achieve this. However, these approaches all make an underlying assumption that any predictability in the variable of interest is purely attributable to the predictors under test, rather than to any unobserved persistent latent variables, themselves uncorrelated with the predictors being tested. We show that where this assumption is violated, something that could very plausibly happen in practice, sizeable (spurious) rejections of the null can occur in cases where the variables under test are not valid predictors. In response, we propose a screening test for predictive regression invalidity based on a stationarity testing approach. In order to allow for an unknown degree of persistence in the putative predictors, and for both conditional and unconditional heteroskedasticity in the data, we implement our proposed test using a fixed regressor wild bootstrap procedure. We establish the asymptotic validity of this bootstrap test, which entails establishing a *conditional* invariance principle along with its bootstrap counterpart, both of which appear to be new to the literature and are likely to have important applications beyond the present context. We also show how our bootstrap test can be used, in conjunction with extant predictability tests, to deliver a two-step feasible procedure. Monte Carlo simulations suggest that our proposed bootstrap methods work well infinite samples. An illustration employing US stock returns data demonstrates the practical usefulness of our procedures.