Regime Variability and Related Distributions in Markov Switching Models

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A method for calculating exact distributions of features in Markov switching models will be proposed. The method uses the inherent Markov nature of the smoothed regimes conditional on the observed data. The underlying Markov switching model is imbedded into a larger Markov model from which the distributions of interest can be easily calculated through computations based on a renewal theory argument. Distributions for many features can be calculated for the data, including those such as the number of regime changes or the longest length of a single continuous regime. These, in turn, leads to the distributions for the start points and end points of regimes such that probabilties for when regime switches occur can be computed. The procedures will be demonstrated using Markov Switching models for GNP data and for Treasury Bill excess returns data.

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