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Assessing DSGE Model Nonlinearities

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Abstract

We develop a new class of time series models to identify nonlinearities in the data and to evaluate DSGE models. U.S. output growth and the federal funds rate display nonlinear conditional mean dynamics, while inflation and nominal wage growth feature conditional heteroskedasticity. We estimate a DSGE model with asymmetric wage and price adjustment costs and use predictive checks to assess its ability to account for nonlinearities. While it is able to match the nonlinear inflation and wage dynamics, thanks to the estimated downward wage and price rigidities, these do not spill over to output growth or the interest rate. (JEL C11, C32, C52, E32)

Key words: Asymmetric Adjustment Costs; Bayesian Analysis; Downward Rigidities; DSGE Models; Econometric Model Evaluation; Nonlinear Dynamics; Perturbation Solution; Predictive Checks; Quadratic Autoregressions

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