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# ANALYSIS OF NONLINEAR MACROECONOMIC DYNAMICS AND STOCHASTIC REGIME SHIFTS

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## SUMMARY

This thesis proposes an analysis of nonlinear macroeconomic dynamics, emphasizing the differentiated effects of adverse shocks, conditioned by the economy's position in various economic regimes (expansion/recession, low/high volatility, active/less active monetary policy). The novelty introduced in the empirical studies proposed in this thesis aims to define, estimate and adapt regime transition models to the particularities of the Romanian economy in order to investigate the effects of shocks such as monetary policy, demand, supply, exchange rate, or markup shocks on the most frequently followed macroeconomic indicators, including economic growth, inflation, interest rate or exchange rate. The regime transition hypothesis refers to smooth and abrupt transitions, such as Markov switching regime models with time-invariant and time-varying regime switching probabilities. The econometric techniques are based on Bayesian estimation to estimate vector autoregressive and dynamic stochastic general equilibrium models. The results confirm a differentiated impact of the analyzed shocks, conditioned by the economic context and emphasize the necessity to assess the economic framework from a nonlinear perspective, depending on the current regime. Moreover, the recent adverse effects reflected in increased uncertainty, high volatility of time series and frequent revisions of the dataset motivate the investigation of a more complex model with an extended dataset and unconventional indicators, based on dynamic factor analysis. The results validate shreds of evidence from the literature through which a model built on the basis of a data-rich environment can mitigate the possibility of overestimating the effects of structural shocks.



**KEY WORDS:** nonlinear models, regime-switching, volatility, economic shocks, probability, Markov-switching.

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