Policy Analysis Using Dsge Models An Introduction

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New Empirical Evidence International Monetary Fund
Abstract: Estimated dynamic stochastic equilibrium (DSGE) models are now widely used for empirical research in macroeconomics as well as for quantitative policy analysis and forecasting at central banks around the world. This paper reviews recent advances in the estimation and evaluation of DSGE models, discusses current challenges, and provides avenues for future research
Financial Crises in DSGE Models Newnes
Macroeconomics is evolving in an almost dialectic fashion. The latest evolution is the development of a new synthesis that combines insights of new classical, new Keynesian and real business cycle traditions into a dynamic, stochastic general equilibrium (DSGE) model that serves as a foundation for thinking about macro policy. That new synthesis has opened up the door to a new antithesis, which is being driven by advances in computing power and analytic techniques. This new synthesis is coalescing around developments in complexity theory, automated general to specific econometric modeling, agent-based models, and non-linear and statistical dynamical models. This book thus provides the reader with an introduction to what might be called a Post Walrasian research program that is developing as the antithesis of the Walrasian DSGE synthesis.
The Oxford Handbook of Economic Forecasting International Monetary Fund
This technical note and manual (TNM) addresses the following issues: • Evaluating the full implications from the policies adopted to mitigate the impact of the COVID-19 pandemic on the economy requires a well-developed macroeconomic framework. This note illustrates how such frameworks were used to analyze Colombia and Cambodia's shock impact at the beginning of the pandemic. • The use of macroeconomic frameworks is not to infer general policy conclusions from abstract models or empirical analysis but to help policymakers think through and articulate coherent forecasts, scenarios, and policy responses. • The two country cases illustrate how to construct a baseline scenario consistent with a COVID-19 shock within structural macroeconomic models. The scenario is built gradually to incorporate the available information, the pandemic's full effects, and the policy responses. • The results demonstrate the value of combining close attention to the data, near-term forecasting, and model-based analyses to support coherent policies.
Central Bank Policy Emerald Group Publishing
Annotation Part 6: Financial Markets and the Macroeconomy. 19. Asset prices, consumption, and the business cycle (J.Y. Campbell). 20. Human behavior and the efficiency of the financial system (R.J. Shiller). 21. The financial accelerator in a quantitative business cycle framework (B. Bernanke, M. Gertler and S. Gilchrist). Part 7: Monetary and Fiscal Policy. 22. Political economics and macroeconomic policy (T. Persson, G. Tabellini). 23. Issues in the design of monetary policy rules (B.T. McCallum). 24. Inflation stabilization and BOP crises in developing countries (G.A. Calvo, C.A. Vegh). 25. Government debt (D.W. Elmendorf, N.G. Mankiw). 26. Optimal fiscal and monetary policy (V.V. Chari, P.J. Kehoe).
Beyond the Dynamic Stochastic General Equilibrium Model International Monetary Fund
This paper presents the theoretical structure of MAPMOD, a new IMF model designed to study vulnerabilities associated with excessive credit expansions, and to support macroprudential policy analysis. In MAPMOD, bank loans create purchasing power that facilitates adjustments in the real economy. But excessively large and risky loans can impair balance sheets and sow the seeds of a

financial crisis. Banks respond to losses through higher spreads and rapid credit cutbacks, with adverse effects for the real economy. These features allow the model to capture the basic facts of financial cycles. A companion paper studies the simulation properties of MAPMOD.

Post Walrasian Macroeconomics North Holland

This paper introduces methods that allow analysts to (i) decompose the estimates of unobserved quantities into observed data, (ii) to better understand revision properties of the model, and (iii) to impose subjective prior constraints on path estimates of unobserved shocks in structural economic models. For instance, a decomposition of the flexible-price output gap, or a technology shock, into contributions of output, inflation, interest rates, and other observed variables' contribution is feasible. The intuitive nature and analytical clarity of the suggested procedures are appealing for policy-related and forecasting models.

Monetary and Fiscal Policy Through a DSGE Lens International Monetary Fund

We build a two-country version of the model in Gali & Monacelli (2005), which extends for a small open economy the new Keynesain DSGE model used as tool for monetary policy analysis in closed economies. A distinctive feature of the model is that the terms of trade enters directly into the new Keynesian Phillips curve as a new pushing-cost variable feeding the inflation. Furthermore, home bias in households' preferences allows for real exchange rate fluctuation, giving rise to alternative channels of monetary transmission. Unlike most part of the literature, the small domestic open economy is derived as a limit case of the two-coutry model, rather than assuming exogenous processes for the foreign variables. This procedure preserves the role played by foreign nominal frictions in the way as international monetary policy shocks are conveyed into the small domestic economy.

Context and Concepts OUP USA

Policy analysis with potentially misspecified dynamic stochastic general equilibrium (DSGE) models faces two challenges: estimation of parameters that are relevant for policy trade-offs and treatment of estimated deviations from the cross-equation restrictions. This paper develops and explores policy analysis approaches that are either based on a generalized shock structure for the DSGE model or the explicit modelling of deviations from cross-equation restrictions. Using post-1982 U.S. data we first quantify the degree of misspecification in a state-of-the-art DSGE model and then document the performance of different interest-rate feedback rules. We find that many of the policy prescriptions derived from the benchmark DSGE model are robust to the various treatments of misspecifications considered in this paper, but that quantitatively the cost of deviating from such prescriptions varies substantially.

Handbook of Computable General Equilibrium Modeling Oxford University Press

"This paper uses a novel method for conducting policy analysis with potentially misspecified DSGE models (Del Negro and Schorfheide 2004) and applies it to a simple New Keynesian DSGE model. We illustrate the sensitivity of the results to assumptions on the policy invariance of model misspecifications"--Federal Reserve Bank of Atlanta web site.

Identification Versus Misspecification in New Keynesian Monetary Policy Models Emerald Group Publishing

This paper, together with a technical companion paper, presents MAPMOD, a new IMF model designed to study vulnerabilities associated with excessive credit expansions, and to support macroprudential policy analysis. In MAPMOD, bank loans create purchasing power that facilitates adjustments in the real economy. But excessively large and risky loans can impair balance sheets and sow the seeds of a financial crisis. Banks respond to losses through higher spreads and rapid credit cutbacks, with adverse effects for the real economy. These features allow the model to capture the basic facts of both the pre-crisis and crisis phases of financial cycles.

The Oxford Handbook of Africa and Economics Elsevier

Monetary DSGE models are widely used because they fit the data well and they can be used to address important monetary policy questions. We provide a selective review of these developments. Policy analysis with DSGE models requires using data to assign numerical values to model parameters. The chapter describes and implements Bayesian moment matching and impulse response matching procedures for this purpose -- National Bureau of Economic Research web site.

Data-Rich DSGE and Dynamic Factor Models Princeton University Press

Over the past 15 years there has been remarkable progress in the specification and estimation of dynamic stochastic general equilibrium (DSGE) models. Central banks in developed and emerging market economies have become increasingly interested in their usefulness for policy analysis and forecasting. This paper reviews some issues and challenges surrounding the use of these models at central banks. It recognises that they offer coherent frameworks for structuring policy discussions. Nonetheless, they are not ready to accomplish all that is being asked of them. First, they still need to incorporate relevant transmission mechanisms or sectors of the economy; second, issues remain on how to empirically validate them; and finally, challenges remain on how to effectively communicate their features and implications to policy makers and to the public. Overall, at their current stage DSGE models have important limitations. How much of a problem this is will depend on their specific use at central banks.

Bayesian Dynamic Factor Analysis of a Simple Monetary DSGE Model International Monetary Fund

We show how to construct optimal policy projections in Ramses, the Riksbank's open-economy medium-sized DSGE model for forecasting and policy analysis. Bayesian estimation of the parameters of the model indicates that they are relatively invariant to alternative policy assumptions and supports that the model may be regarded as structural in a stable low inflation environment. Past policy of the Riksbank until 2007:3 (the end of the sample used) is better explained as following a simple instrument rule than as optimal policy under commitment. We show and discuss the differences between policy projections for the estimated instrument rule and for optimal policy under commitment, under alternative definitions of the output gap, different initial values of the Lagrange multipliers representing policy in a timeless perspective, and different weights in the central-bank loss function.

Financial Crises in DSGE Models: A Prototype Model International Monetary Fund

Greater data availability has been coupled with developments in statistical theory and economic theory to allow more elaborate and complicated models to be entertained. These include factor models, DSGE models, restricted vector autoregressions, and non-linear models.

Forecasting and Monetary Policy Analysis International Monetary Fund

A new approach for introducing unemployment into the New Keynesian framework. The past fifteen years have witnessed the rise of the New Keynesian model as a framework of reference for the analysis of fluctuations and stabilization policies. That framework, which combines the rigor and internal consistency of dynamic general equilibrium models with such typically Keynesian assumptions as monopolistic competition and nominal rigidities, makes possible a meaningful, welfare-based analysis of the effects of monetary policy rules. But the conspicuous absence of unemployment from the standard New Keynesian model has given rise to both criticism and attempts to rectify this anomaly. In this book, Jordi Galí, one of the major contributors to the New Keynesian literature, offers a new approach to introducing unemployment into that framework. Galí's approach involves a reinterpretation of the labor market in the standard New Keynesian model with staggered wage setting (rather than a modification or extension of the model, as has been proposed by others). The resulting framework preserves the convenience of the representative household paradigm and allows one to determine the equilibrium levels of employment, the labor force, and hence the unemployment rate conditional on the monetary policy in place. Galí develops the basic model, embedding it in a standard New Keynesian framework with staggered price and wage setting; revisits the relationship between economic fluctuations and efficiency through the lens of the new model, developing a measure of the output gap; and analyzes the relation between unemployment and the design of monetary policy.

Monetary and Fiscal Policy through a DSGE Lens Princeton University Press

While dynamic stochastic general equilibrium (DSGE) models for monetary policy analysis have come a long way, there is considerable difference of opinion over the role these models should play in the policy process. The paper develops three main points about assessing the value of these models. First, we document that DSGE models continue to have aspects of crude approximation and omission. This motivates the need for tools to reveal the strengths and weaknesses of the models--both to direct development efforts and to inform how best to use the current flawed models. Second, posterior predictive analysis provides a useful and economical tool for finding and communicating strengths and weaknesses. In particular, we adapt a form of discrepancy analysis as proposed by Gelman, et al. (1996). Third, we provide a nonstandard defense of posterior predictive analysis in the DSGE context against long-standing objections. We use the iconic Smets-Wouters model for illustrative purposes, showing a number of heretofore unrecognized properties that may be important from a policymaking perspective.

Macrofinancial Modeling At Central Banks International Monetary Fund

This paper evaluates monetary policy-tradeoffs in low-income countries using a dynamic stochastic general equilibrium (DSGE) model estimated on data for Mozambique taking into account the sources of major exogenous shocks, and level of financial development. To our knowledge this is a first attempt at estimating a DSGE model for Sub-Saharan Africa excluding South Africa. Our simulations suggests that a exchange rate peg is significantly less successful than inflation targeting at stabilizing the real economy due to higher interest rate volatility, as in the literature for industrial countries and emerging markets.

A Small Open Economy as a Limit Case DSGE Models for Monetary Policy AnalysisMonetary DSGE models are widely used because they fit the data well and they can be used to address important monetary policy questions. We provide a selective review of these developments. Policy analysis with DSGE models requires using data to assign numerical values to model parameters. The chapter describes and implements Bayesian moment matching and impulse response matching procedures for this purpose -- National Bureau of Economic Research web site.Handbook of Monetary Economics

Due to the fundamental two-way interaction between the theoretical and the empirical aspects of monetary economics, together with the relationship of both to matters of public policy, any organization of material comprehensively spanning the subject is bound to be arbitrary. The 23 surveys commissioned for this Handbook have been arranged in a way that the editors feel reflects some of the most important logical divisions within the field and together they present a comprehensive account of the current state of the art. The Handbook is an indispensable reference work which should be part of every professional collection, and which makes ideal supplementary reading for graduate economics students on advanced courses. For more information on the Handbooks in Economics series, please see our home page on http://www.elsevier.nl/locate/hes

DSGE Models for Monetary Policy Analysis MIT Press

An Advanced Guide to Trade Policy Analysis provides the most recent tools for analysis of trade policy using structural gravity models.

Monetary Policy Analysis with Potentially Misspecified Models International Monetary Fund

Dynamic stochastic general equilibrium (DSGE) models have become one of the workhorses of modern macroeconomics and are extensively used for academic research as well as forecasting and policy analysis at central banks. This book introduces readers to state-of-the-art computational techniques used in the Bayesian analysis of DSGE models. The book covers Markov chain Monte Carlo techniques for linearized DSGE models, novel sequential Monte Carlo methods that can be used for parameter inference, and the estimation of nonlinear DSGE models based on particle filter approximations of the likelihood function. The theoretical foundations of the algorithms are discussed in depth, and detailed empirical applications and numerical illustrations are provided. The book also gives invaluable advice on how to tailor these algorithms to specific applications and assess the accuracy and reliability of the computations. Bayesian Estimation of DSGE Models is essential reading for graduate students, academic researchers, and practitioners at policy institutions.

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