Chapter 22
DSGE Models in Central Banks: Progress and Prospects - Outline

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Abstract This chapter presents DSGE modeling from a historical perspective, tracing its academic developments and its gradual adoption by central banks. The integration of DSGE modeling into central bank practice occurred through the work of Smets and Wouters (2003, 2007). Their medium-scale DSGE model combined the theoretical structure of "New-Keynesian" models with a rich set of frictions. The Smets–Wouters models empirical success marked a turning point. It bridged the gap between theoretical rigor and empirical relevance, showing that DSGE models could serve both as structural laboratories for policy analysis and as quantitative tools for forecasting and scenario simulation. Central banks rapidly adopted variants of this framework, including the New Area-WideModel (NAWM) at the ECB, the SIGMA model at the Federal Reserve, and the ToTEM model at the Bank of Canada (see Christoffel, Coenen, and Warne, 2008). By the mid-2000s, a broad consensus emerged around the NK DSGE framework as the "core model" of modern macroeconomics and monetary policy (see Gali, 2008; Woodford, 2003). The resulting "New Neoclassical Synthesis" unified the microfoundations of RBC models with the nominal and real rigidities of Keynesian analysis. Central banks employed these models to study the transmission of monetary shocks, estimate potential output, and evaluate policy rules. Yet this consensus was soon challenged by new developments. The global financial crisis of 2008 revealed the inadequacy of representative-agent, frictionless models to capture financial instability, liquidity traps, and heterogeneity in behavior. These shortcomings motivated extensions incorporating financial frictions (e.g. Bernanke, Gertler, and Gilchrist, 1999; Carlstrom and Fuerst, 1997; Christiano, Motto, and Rostagno, 2014) and the rise of Heterogeneous-Agent New Keynesian (HANK) models, which reintroduced distributional mechanisms into the DSGE framework.

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22.5 Conclusions