

## What's the Post-Crisis Scoop on Dynamic Stochastic General Equilibrium Models – Retain, Revise, or Reject?

### PRIMARY ISSUE:

Over the past twelve years, since the publication of the famous Smets-Wouters article [3], DSGE models have moved into the mainstream of macroeconomic theory. Following the economic/financial crisis of 2007-2009, some commentators (e.g., [1]) have called for a complete shake-up in mainstream DSGE macroeconomic theorizing while others (e.g., [2-4]) have argued that these concerns are overblown or at least resolvable.

The following discussion questions focus on the post-crisis evaluation of DSGE models as suitable vehicles for macroeconomic policy making.

### Key Discussion Questions:

**Discussion Question 1:** Explain, in general verbal terms, the basic structural characteristics of DSGE models as set out in Ref. [2]. In particular:

1. At what level of aggregation are relationships modeled (i.e., roughly where do DSGE models fall between IS/LM and Walrasian GE modeling)?
2. What types of goods, services, and financial assets are included?
3. What key types of decision makers (consumers, firms, etc.) are included?
4. How are expectations modeled?
5. What kinds of external shocks are assumed?
6. What types of equilibrium conditions are imposed?

**Discussion Question 2:** According to a famous dictum by George E. P. Box (1987): “all models are wrong, but some are useful.”

What makes a model “useful” (or not) for the specific purpose of macroeconomic policy making? In particular, does a macroeconomic policy model have to exhibit *output empirical validity*, in the sense that its outputs match real-world data? Does the model have to exhibit *process empirical validity*, in the sense that its postulated physical constraints, institutional arrangements, and human behaviors permit the realistic modeling of real-world economic processes? Does the model have to exhibit *input empirical validity*, in the sense that its specific settings for the values of exogenous variables and the forms of exogenous functions make empirical sense?

**Discussion Question 3:** To what extent (if any) does the basic DSGE model discussed in Ref. [2] exhibit output empirical validity? process empirical validity? input empirical validity?

**Discussion Question 4:** According to Ref. [2], in what ways (if any) have DSGE models been shown to be useful for macroeconomic policy making? Deficient for macroeconomic policy making? Taking into account your responses to Questions 1 through 3, above, to what extent (if any) do you agree with these Ref. [2] assessments?

**Discussion Question 5:** Following the economic/financial crisis of 2007-2009, some commentators have called for central banks to cease relying on DSGE models in view of their “obvious” failure. Other commentators have stated that, to the contrary, DSGE models can be appropriately extended to address all criticisms without any change in core DSGE assumptions. What’s your take on this confusing discussion?

#### **Required (\*\*) and Recommended (\*) Readings:**

[1] [ \*] Ricardo J. Caballero, “**Macroeconomics After the Crisis: Time to Deal with the Pretense of Knowledge Syndrome,**” *Journal of Economic Perspectives*, Vol. 24, No. 4, Fall 2010, 85-102.

<http://www.econ.iastate.edu/tesfatsi/MacroAfterCrisis.RJCaballero.JEP2010.pdf>

[2] [\*\*] Argia M. Sbordone, Andrea Tambalotti, Krishna Rao, and Kieran Walsh, **Policy Analysis Using DSGE Models: An Introduction**, FRBNY Economic Policy Review, Federal Reserve Bank of New York, October 2010 (**Syllabus Section V.A**)

[www2.econ.iastate.edu/classes/econ502/tesfatsion/](http://www2.econ.iastate.edu/classes/econ502/tesfatsion/)

[DSGEIntroAndPolicyAnalysisIllustration.SBordone2010.pdf](#)

[3] [ \*] Frank Smets and Raf Wouters, “**An Estimated Dynamic Stochastic General Equilibrium Model of the Euro Area,**” National Bank of Belgium Working Paper, 2003, 71pp. **Note:** The European Central Bank uses the Smets-Wouters DSGE model to analyze the Euro area, i.e., the particular set of European countries that have commonly adopted the Euro as their currency.

[www.econ.iastate.edu/classes/econ502/tesfatsion/DSGEEuro.SmetsWouters2003.pdf](http://www.econ.iastate.edu/classes/econ502/tesfatsion/DSGEEuro.SmetsWouters2003.pdf)

[4] [ \*] C. E. Tovar, “**DSGE Models and Central Banks,**” BIS Working Paper No. 258, Bank for International Settlements, September 2008, 29pp. **Note:** The BIS is famous for being one of the few agencies to issue strong warnings about excessive risk taking in financial markets in advance of the economic/financial crisis of 2007-2009.

[www.econ.iastate.edu/classes/econ502/tesfatsion/DSGEAndCentralBanks.CTovar2008.pdf](http://www.econ.iastate.edu/classes/econ502/tesfatsion/DSGEAndCentralBanks.CTovar2008.pdf)