DISCUSSION PAPERS IN ECONOMICS

Working Paper No. 00-04

General Equilibrium Macroeconomic Models and Superior Information

Martin Boileau
Department of Economics, University of Colorado at Boulder
Boulder, Colorado

Michel Normandin
Université du Québec à Montréal
Montréal, Canada

June 2000

Center for Economic Analysis
Department of Economics

University of Colorado at Boulder
Boulder, Colorado 80309

[redacted]

Martin Boileau* and Michel Normandin

[redacted]

[redacted]

[redacted]

JEL Classification Codes: E32 [redacted]

Corresponding Author (*):
[redacted]

Michel Normandin
Department of Economics
[redacted]

1. Introduction

[redacted]

The Actual Economy

[redacted]

(2)

(3)

[redacted]

$$\begin{pmatrix} y_t \\ z_t \end{pmatrix} = \begin{pmatrix} \pi_{11} & \pi_{12} \\ \pi_{21} & \text{[redacted]} \end{pmatrix} \begin{pmatrix} y_{t-1} \\ \text{[redacted]} \end{pmatrix} + \begin{pmatrix} u_{yt} \\ \text{[redacted]} \end{pmatrix}$$

or

$$W_t = \Pi W_{t-1} + U_t, \tag{4}$$

where y_t is the forcing variable, z_t is a composite of other exogenous variables, and U_t is [redacted]

(5)

[redacted]

$$X_t = \Gamma X_{t-1} + V_t, \tag{7}$$

where $X_t = (y_t \quad p_t)' = \Upsilon W_t$, $\Gamma = \Upsilon \Pi \Upsilon^{-1}$, $V_t = \Upsilon U_t$, and $\Upsilon = (e_1' \quad \Theta')'$

3. The Artificial Economy

[redacted]

As in most RBC studies, this law of motion involves only the forcing variable:

$$y_{dt} = \gamma y_{dt-1} + v_{yt}. \tag{8}$$

[illegible] (5) from estimates of (8) to obtain (7) we construct the expectations in

$$p_{st} = \text{[redacted]} \; y_{dt} = \lambda y_{dt}, \tag{9}$$

or

$$X_{dt} = \Gamma X_{dt-1} + V_t,$$

[redacted]

$$p_{at} = e_1 \beta \Gamma \left(I - \beta \Gamma \right)^{-1} X_{dt} = \Lambda X_{dt} = \lambda_1 y_{dt} + \lambda_2 p_{dt},$$

[redacted]

$$X_{at} = \Gamma_a X_{at-1} + V_{at},$$

[redacted]

3.3. A Numerical Comparison

[redacted]

$\chi^2(1)$-distributed test that a generated statistic is identical to the true statistic. [redacted]

4. Conclusion

The standard procedure to evaluate general equilibrium macroeconomic models is a joint [redacted]

References

[redacted]

[redacted]

[redacted]

King, R.G., C.I. Plosser, and S. Rebelo, 1987, Production, Growth and Business Cycles: [illegible] Technical Appendix, [illegible] University of Rochester.

Lucas, R.E. Jr., 1978, Asset Prices in an Exchange Economy, *Econometrica* 46: 1429-1445.

Table 1. A Numerical Comparison

Panel A: No Superior Information

		$\pi_{12} = 0.0$		
$\pi_{11} = \pi_{22}$	Statistic	True	Standard	Augmented
	σ_p	0.38	0.37 (0.94)	0.37 (0.94)
	$\rho(p_t, p_{t-1})$	-0.49	-0.49 (1.00)	-0.49 (1.00)
	$\rho(p_t, y_t)$	-1.[illegible]	-1.00 (1.00)	-1.00 (1.00)
	σ_p	1.03	1.06 (0.92)	1.06 (0.92)
	$\rho(p_t, p_{t-1})$	0.51	0.51 (1.00)	[redacted]
	$\rho(p_t, y_t)$	1.00	1.00 (1.00)	

Panel B: Superior Information

		$\pi_{12} = -0.5$			$\pi_{12} = 0.5$		
$\pi_{11} = \pi_{22}$	Statistic	True	Standard	Augmented	True	Standard	Augmented
	σ_p	0.59	[redacted]	[redacted]	0.57	0.49 (0.20)	0.54 (0.70)
	[redacted]				-0.69	-0.56 (0.02)	-0.69 (1.00)
					-0.90	-1.00 (0.00)	-0.90 (1.00)
	σ_p	0.49	0.06 (0.00)	0.51 (0.80)	0.53	0.02 (0.00)	0.57 (0.71)
	$\rho(p_t, p_{t-1})$	0.04	-0.06 (0.16)	-0.05 (0.36)	-0.03	-0.01 (0.86)	0.02 (0.61)
	$\rho(p_t, y_t)$	0.00	-1.00 (0.32)	[redacted]	-0.06	-1.00 (0.35)	0.03 (0.59)
	σ_p	2.77	2.26 (0.41)	2.53 (0.74)	2.89	1.76 (0.07)	[redacted]
	$\rho(p_t, p_{t-1})$	[redacted]	0.58 (0.94)	0.62 (0.52)	0.64	[redacted]	
	$\rho(p_t, y_t)$		1.00 (0.00)	0.82 (0.22)	[redacted]		

[redacted]