Incompleteness Shocks

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Discussed by Urban Jermann

Contribution

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- Analytical results
  - IS leads to inefficient capital allocation and lower output
  - IS matters even if it is hedgeable or fully anticipated
- Capital reallocation can be significant, output effects are more muted

Model

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- Equilibrium capital allocation

$$
\begin{aligned}
Q_t &= Z_t^E F'\left(K_t^E\right) + E_t\left(m_{t+1}^E Q_{t+1}\right) \\
Q_t &= Z_t^H F'\left(K_t^H\right) + E_t\left(m_{t+1}^H Q_{t+1}\right)
\end{aligned}
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- Capital is productive input and durable store of value

Incompleteness shock

- Rewrite foc for capital

$$Q_t = Z_t^E F'\left(K_t^E\right) + E_t\left(m_{t+1}^E\right) E_t\left(Q_{t+1}\right) + cov_t\left(m_{t+1}^E, Q_{t+1}\right)$$

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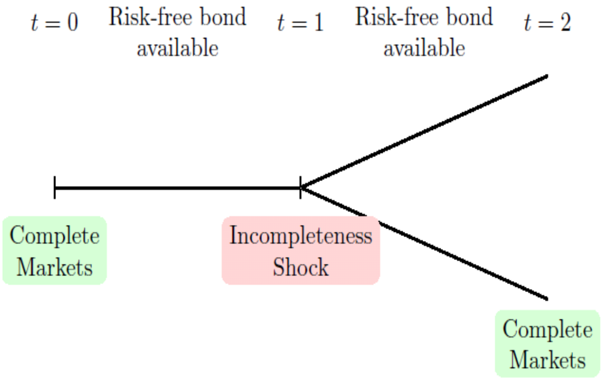
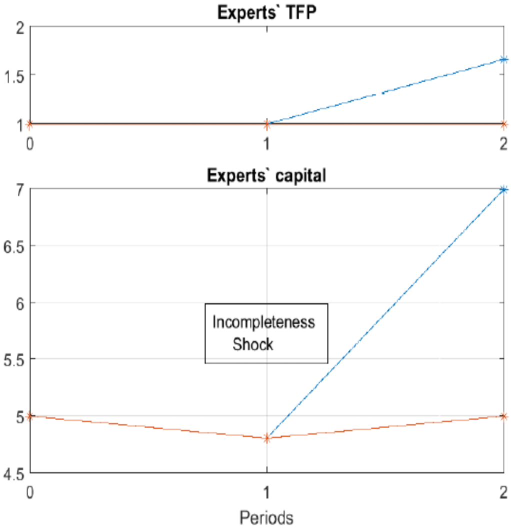
- "Risky wedge" with one-period bond

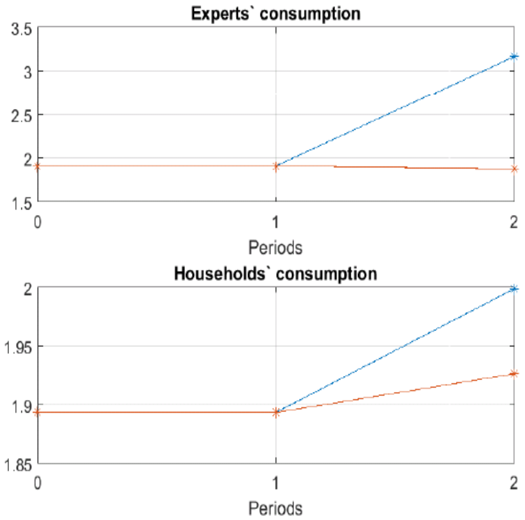
$$Z_t^E F'\left(K_t^E\right) - Z_t^H F'\left(K_t^H\right) = cov_t\left(m_{t+1}^H - m_{t+1}^E, Q_{t+1}\right)$$

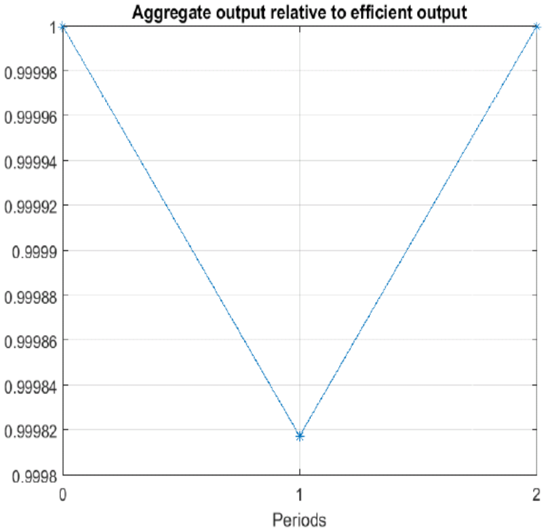
Risky wedge example

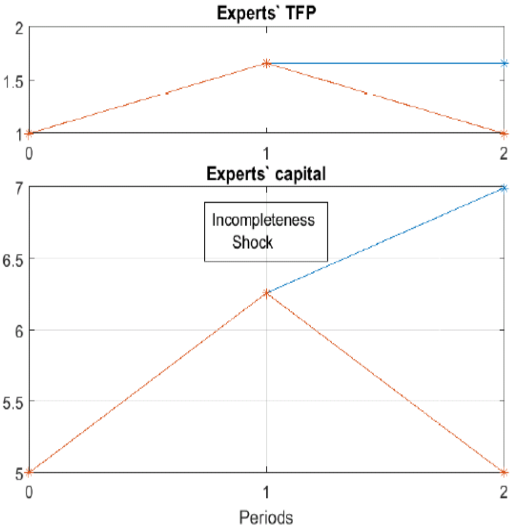


With $Z^H = Z_0^E = Z_1^E = 1$ and $1 = Z_{2D}^E < Z_{2U}^E = 1.66$


Experts` TFP
2
1.5
1
0
1
2
Experts` capital
7
6.5
6
5.5
5
4.5
Incompleteness
Shock
0
1
2
Periods


Experts` consumption
3.5
3
2.5
2
1.5
0
1
2
Periods
Households` consumption
2
1.95
1.9
1.85
0
1
2
Periods


Aggregate output relative to efficient output
1
0.99998
0.99996
0.99994
0.99992
0.9999
0.99988
0.99986
0.99984
0.99982
0.9998
0
1
2
Periods


Experts` TFP
2
1.5
1
0
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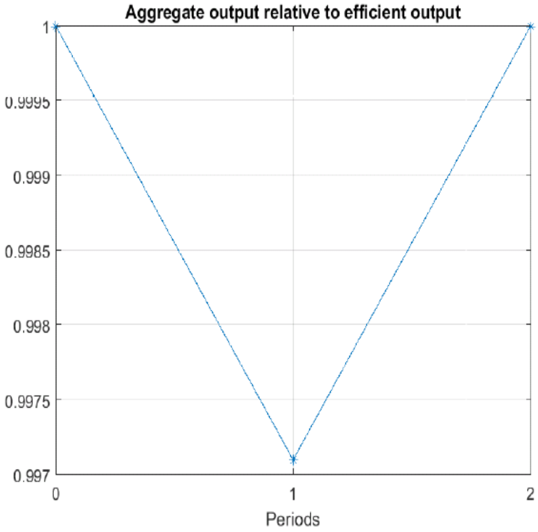
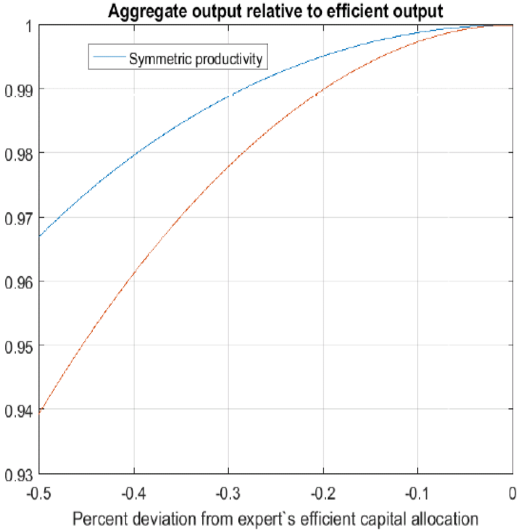
Experts` capital
7
6.5
6
5.5
5
0
1
2
Incompleteness Shock
Periods


Aggregate output relative to efficient output
1
0.9995
0.999
0.9985
0.998
0.9975
0.997
0
1
2
Periods


Aggregate output relative to efficient output
Symmetric productivity
1
0.99
0.98
0.97
0.96
0.95
0.94
0.93
-0.5
-0.4
-0.3
-0.2
-0.1
0
Percent deviation from expert`s efficient capital allocation

Other points

- "Benchmark results" are based on non-representative simulated paths

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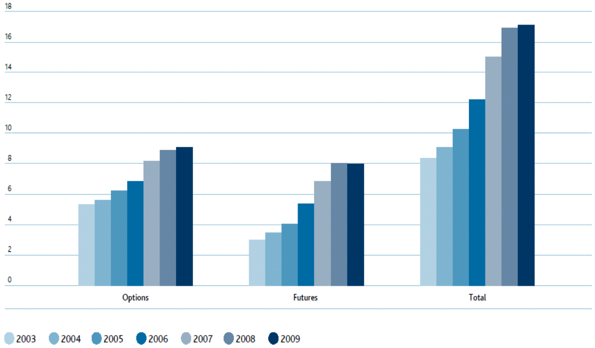
- Empirical evidence on "Risky wedge" incompleteness shock?

Derivatives volume growth (billion contracts)



Conclusion

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- Is this quantitatively important?