Interest Rates Fluctuations and Financial Frictions in Small Open Economies

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- **This paper** How to reconcile this evidence in unified framework? Simple SOE model featuring
  - Financial frictions
  - Heterogeneity in the production sector
  - Endogenous movements in productivity

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- The importance of interest rate movements in the standard model can be restored by assuming *(negatively) correlated movements of productivity and interest rates (or country risk)*
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- The importance of interest rate movements in the standard model can be restored by assuming *(negatively) correlated movements of productivity and interest rates (or country risk)*
  - [Neumeyer and Perri, 2005; Uribe and Yue, 2006; Aguiar and Gopinath, 2008]
- Latter assumption justified by EMs empirical evidence. Not true for AEs

A small open economy model for AEs and EMs

- Based on Mendoza (1991, AER)
  - No capital adj. costs
  - Add two agents, worker and entrepreneur
  - Incomplete financial markets.
  - Closed with endogenous discount factor

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- Financial frictions based on Moll (AER, 2014)
  - Borrowing constraints

$$D_{it} \leq \theta_t K_{it}$$

  - Heterogeneity in the production sector (idiosyncratic prod shocks)

$$Y_{i,t} = (z_{i,t} K_{i,t})^{\alpha} L_{i,t}^{1-\alpha}$$

where

$$\psi_t(z) = \eta z^{-\eta-1} \quad \text{with} \quad \eta > 1$$

Mechanics of the model

- Consider an exogenous negative shock to the world interest rate ($R^* \downarrow$)
  - Return on saving decreases
  - Some entrepreneurs with a low z_{it} now enter
  - Average productivity falls (proportionally to entry)
  - The larger the heterogeneity (the lower η) the larger the fall in productivity
  - Recessionary impact of fall in interest rate (if η is low enough)

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- **Result** The model with high heterogeneity (low η) is consistent with AEs' empirical evidence
  - Interest rate shocks can be positively correlated with productivity
  - Acyclical role of interest rate fluctuations in advanced economies

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- Why it works? Consider an exogenous negative shock to the world interest rate ($R^* \downarrow$)
  - If $\theta \uparrow$ the productive entrepreneurs can borrow (and produce) more
  - This will force entrepreneurs with a low z_{it} to exit
  - As a result average productivity increases
  - The increase in productivity exacerbates the expansionary impact of the shock

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- Focus of this discussion: empirical challenges (and related issues)
- Two main assumptions behind the main results
  1. Entrepreneurial heterogeneity: large in AEs, low in EMs
  2. Interest rate movements positively related to the tightness of the borrowing constraint in EMs

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  - Firms in the model are *ex ante* identical
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- Focus on
  - The variance of z_{it} in the model (and the Pareto distribution)
  - The variance of z_{it} in the data

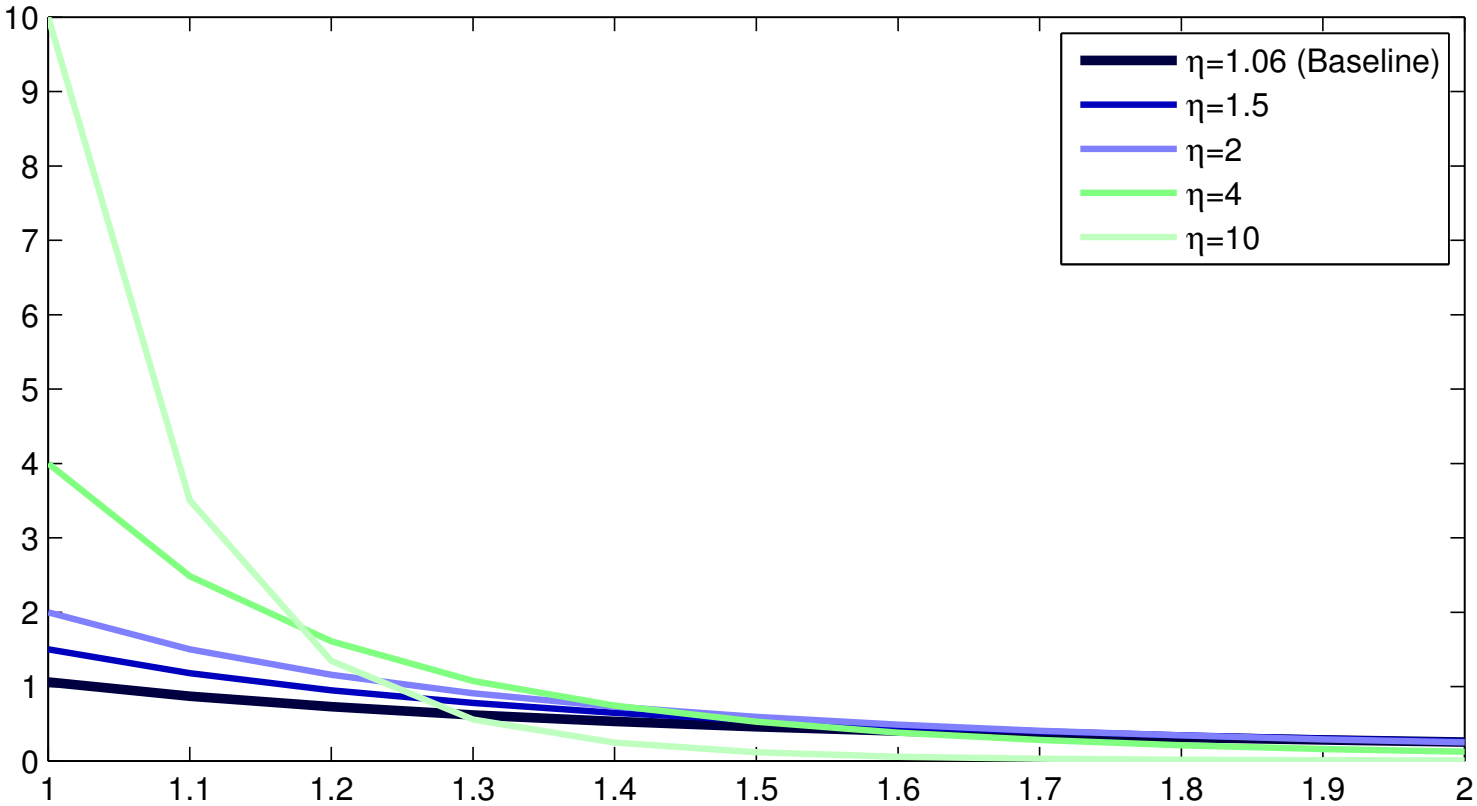
Heterogeneity

The variance of idiosyncratic productivity in the model: the Pareto distribution

- Authors follow Buera and Moll (2015) and assume a Pareto distribution for productivity draws

$$\psi_t(z) = \eta z^{-\eta-1}$$

- In baseline calibration shape parameter $\eta = 1.06$



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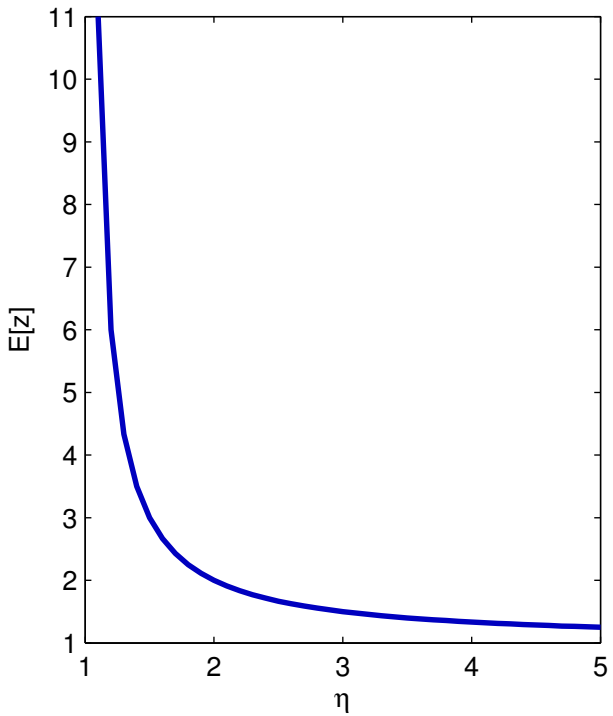
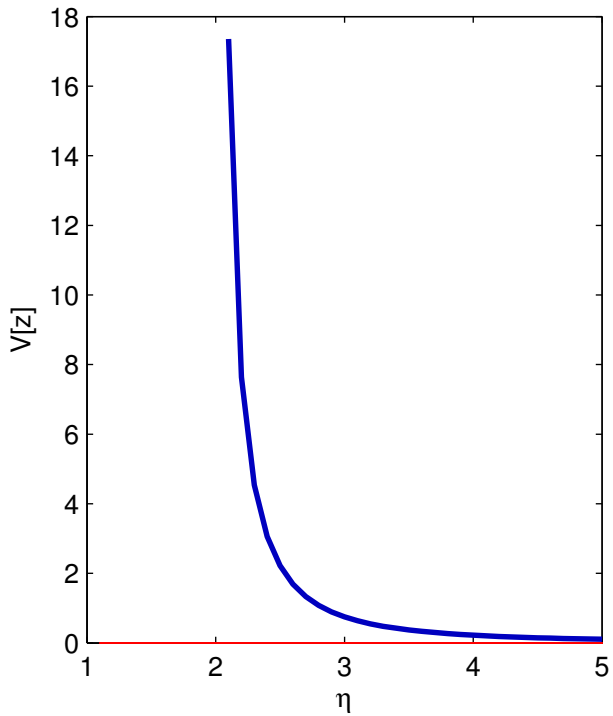
- Is the Pareto distribution an empirically justified choice? Why not (log)normal, eg BGG?

- Some (undesirable?) features of the Pareto distribution
  - When changing the shape parameter the mean of the distribution also changes
  - Variance is not well defined for $\eta < 2$





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  - Use firm level data in a typical AE/EM small open economy
  - Look at the cross-sectional dispersion of TFP
  - But: cross-country comparison very challenging

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  - But: cross-country comparison very challenging
- Additional issue: the variance of z_{it} can vary substantially over time [Bloom et al, 2014; Christiano et al., 2014]

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- Financial friction literature stresses the role of *endogenous* asset price movements in relaxing borrowing constraints
- Example: an endogenous mechanism
  - EMs borrow in foreign currency (while AE in local currency)
  - Exchange rate appreciates in response to negative world int. rate shocks
  - Appreciation implies an endogenous relaxation of the borrowing constraint

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Concluding remarks

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- Empirical work is needed to strengthen the theoretical result