

## Discussion

“An Equilibrium Asset Pricing Model with Labor Market Search”  
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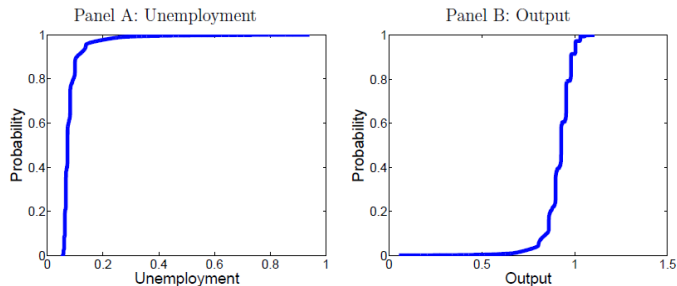
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# An Eq'm Asset Pricing Model with Labor Market Search

- Paper combines two well-known models
  - Production-based asset pricing model (RBC + Epstein-Zin preferences)
  - Search model of the labor market (Diamond-Mortensen-Pissarides-Merz)
- Predictions for labor markets do not change much
  - Tallarini (2000)
  - My intuition: discount factor dominated by separation rate
- Predictions for asset prices improve substantially
- Contributions
  - Methodological: non-linear solution is key
  - Substantive: asset pricing
- Very interesting (and much discussed) paper!

- Asset pricing model with labor market search delivers
  - “a coherent account of asset prices”
  - “endogenous rare disasters”
- Non-linearity makes *deep* recessions *even deeper*
  - Endogenous rare disasters
  - High equity premium
  - Time-varying equity premium (predictable from labor market conditions)
  - Stock market volatility
  - Time-varying volatility (uncertainty ‘shocks’)
  - Highly volatile profits, procyclical dividends (profits minus investment)
- All of these results bring the model closer to the data
  - Wide range of statistics for asset prices
  - Probability and size of disasters (Barro-Ursúa)

# Non-linearity and rare disasters



Skewness in unemployment:

2.5 percentile	median	97.5 percentile
5.9%	7.3%	19.3%

# Non-linearity and rare disasters: mechanism

- Sources of the non-linearity

- Costs of posting vacancies increases in recessions

$$\text{Cost per hire } \kappa_t = \frac{\kappa_0}{q(\theta)} + \kappa_1, \quad q'(\theta) < 0, \quad q''(\theta) > 0$$

- Diminishing returns in the matching function,  $q'' > 0$
- Fixed costs of posting vacancies  $\kappa_1$
- Wage rigidity increases in recessions

$$W_t = \eta (X_t + \kappa_t \theta_t) + (1 - \eta) b$$

- Volatile labor market makes this relevant

- Countercyclical hiring costs
- Small profits (small surplus calibration)
- Wage rigidity
- Why need a relatively high separation rate?
  - My intuition: otherwise (convex) hiring costs too small (?)

# How realistic is this mechanism?

- Intuitively, something is not right
  - Rare disasters are just recessions with particularly low job creation
  - Was the financial crisis so severe because hiring costs were particularly high?
  - Is Greece in so much trouble because wages have become (even) more rigid?
- A peace offering
  - I will buy into the mechanism, ...
  - if this is *one out of many* types of disasters
- But then, why is the model fit so good?
  - In the model,  $\theta$  predicts excess returns much better than in the data
  - Yet, the model matches the average level of the equity premium
- Possible explanation:
  - Full participation  $\Rightarrow$  skewness unemployment spills over to employment
  - With participation margin, skewness employment will be less

- Compare results to model with competitive labor market
  - Current comparative statics stop short of removing search frictions
  - Need to model endogenous participation, to avoid full employment
- Distinguish between wage rigidity and small surplus
  - Conceptually different
  - Close link comes from Nash bargaining assumption, not realistic
- Use timing consistent with job finding rate between 0 and 1
  - Steady state unemployment rate  $\bar{u} = \frac{s}{s+f(\theta_t)} \rightarrow 0$  as  $f(\theta_t) \rightarrow 1$
  - Alternative timing assumption (Blanchard-Gali)

$$u_{t+1} = (1 - f(\theta_t)) [u_t + s(1 - u_t)] \Rightarrow \bar{u} = \frac{(1 - f(\theta_t)) s}{(1 - f(\theta_t)) s + f(\theta_t)}$$

- Calibration of  $b$  matters for other model predictions (Costain-Reiter)