Discussion of Structural Reforms in Granular Economies by Fabio Ghironi and Jonghyun Kim

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Basic ingredients

- Heterogenous firm model
  - continuum of monopolistically competitive firms
  - each produces variety ω with productivity $z \sim$ Pareto
  - fixed cost of production $\rightarrow$ only a fraction of firms are active
  - sunk entry cost $=$ barriers to entry
- Representative household saves by investing in firms

Short-run pain, long run gain

- Study effect of structural reforms in the model
- Decrease barriers to entry = decrease sunk entry cost
  - lower entry cost makes consumption tomorrow more valuable
  - consumption today is cut and investment in firms increases
  - competition goes up today, fewer firms are active
  - GDP, wages, consumption drop today
- Gradually, N goes up, labor market tightens, wages go up, consumption rebounds, share of active firms goes up, GDP converges to higher level.

Granularity effects

- Lower Pareto shape parameter, fatter right tail
- When shape parameter close to 1 $\rightarrow$ granularity
- In granular economy, stronger short-term contraction and stronger long-term expansion
  - bigger average size of entrants $\rightarrow$ higher initial jump of productivity threshold $\rightarrow$ stronger short-term contraction
  - higher productivity threshold $\rightarrow$ stronger long-term expansion

Pareto and granularity

- $\Pr(X > x) = \begin{cases} \left(\frac{x_m}{x}\right)^{\alpha} & x \geq x_m, \\ 1 & x < x_m, \end{cases}$
- Infinite variance if shape parameter $\alpha \leq 2$
- Infinite mean if shape parameter $\alpha \leq 1$
- $1 < \alpha \leq 2 \rightarrow$ Generalized CLT $\rightarrow$ Granularity
- Since mean decreasing in α, do you need granularity?

Evidence on firm-size distribution

- United States: Lognormal better fit than Pareto, Convolution better fit than both, Kondo, Lewis, and Stella (2018 wp)
- France: Mixture of lognormal and Pareto, Nigai (2017 JIE) and Combes et al. (2012 ECTA)
- Brazil: Convolution of lognormal and Pareto, Sager and Timoshenko (forthcoming CJE)
- Assumption in paper that emerging markets are granular. Where is the evidence?

Granularity in emerging markets

- Herfindahl index as measure of granularity
  - regression of granularity on barriers to entry and covariates
  - GDP per capita not correlated with granularity
- Evidence on product market reform with Panel VAR:
  - countries are divided based on Herfindahl index, not level of development

Micro-evidence on structural reforms

- Eslava, Haltiwanger, Kugler and Kulger (2004 JDE)
  - Impact of structural reforms in Colombia
  - aggregate productivity goes up because of reallocation away from low- and towards high-productivity businesses
  - productivity gap between entrants and incumbents declines after the reforms.
  - productivity gap between incumbents and exiters increases after the reforms.

No endogenous growth

- Literature on structural reform uses stationary DSGE models.
- Structural reform has impact on level of production, not growth.
- Yet, when we think of benefits of structural reforms, we think of higher potential growth rates.
- "Innovation, Reallocation and Growth" by Acemoglu et al., forthcoming AER.

Additional Slides

- ▸ Primer on heavy-tailed distributions
- ▸ Pareto distribution

Primer on heavy-tailed distributions

- **Definition**: tails heavier than exponential
- Pareto, Log-normal, Weibull, Zipf, Cauchy, Student's t, ...
- **Property 1**: Catastrophe principle (Subexponential)
- **Property 2**: Pareto principle (Scale invariance)

Pareto

- $\Pr(X > x) = \begin{cases} \left(\frac{x_m}{x}\right)^{\alpha} & x \geq x_m, \\ 1 & x < x_m, \end{cases}$
- $x_m > 0$ and $\alpha > 0$
- Infinite variance if shape parameter $\alpha \leq 2$
- Infinite mean if shape parameter $\alpha \leq 1$