

**The discussion report of
“The granular origins of aggregate
fluctuations”**

Alejandro Montesinos

Qizhou Xiong

Ozan Ekin

Main idea and contributions

- The “granular” hypothesis: Idiosyncratic shocks to large firms have the potential to generate small aggregate shocks that affect GDP. According to the author’s empirical work, he concludes that the idiosyncratic shocks to large firms (top 100) can explain up to one third of the aggregate fluctuation.

Main idea and contributions

- The author provides a Microfoundation for aggregate productivity shocks of RBC models, and the chain from individual firm shocks to the aggregate shocks to GDP. The author also examined the causality carefully to correctly identify the idiosyncratic shocks

Main idea and contributions

- We saw in class (Chapter 2) that the classical RBC models suggest:

“In the growth accounting literature, the Solow Residual was a measure of our ignorance, now it is the engine of the model”

- *Au contraire*, Gabaix (2005) challenges this view and suggests that:

“RBC shocks are not, at heart, a mysterious aggregate productivity shocks or a measure of our ignorance. Instead they are well defined shocks to individual firms.” (Page 3 of the paper)

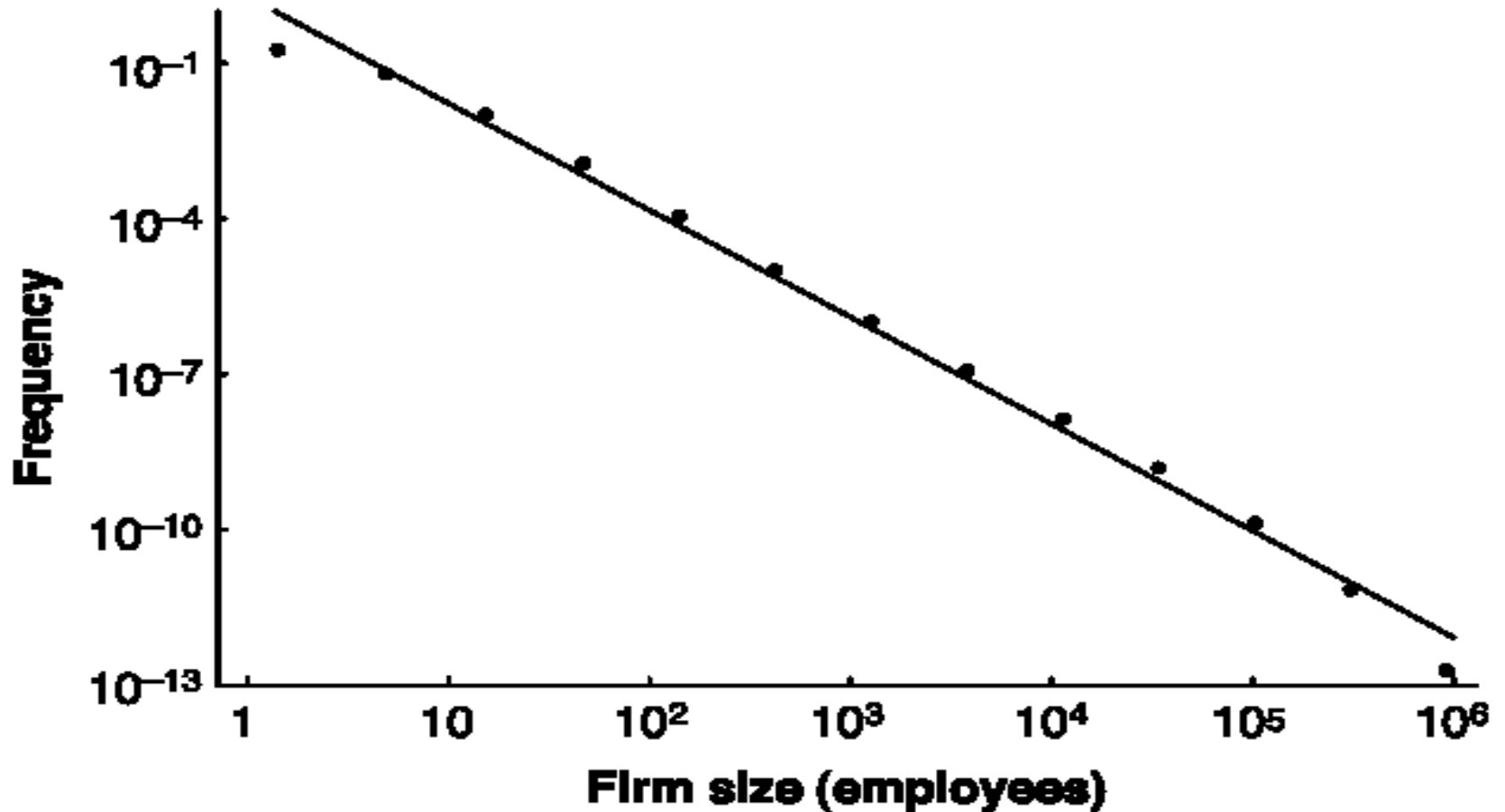
The merits of the paper

- Canals, C., X. Gabaix, J. Vilarrrubia and D. Weinstein (2007). “Trade Patterns, Trade Balances and Idiosyncratic shocks”
- Di Giovanni, J. and Levchenko, A. (2009) “International Trade and Aggregate Fluctuations in Granular Economies”

Our opinions on the paper

- However, some questions still arouse when we carefully went through the paper, from theoretical assumptions, the model and the empirical work. We summarize our comments on the paper in the following 7 points.

The fat tail property of the firm size



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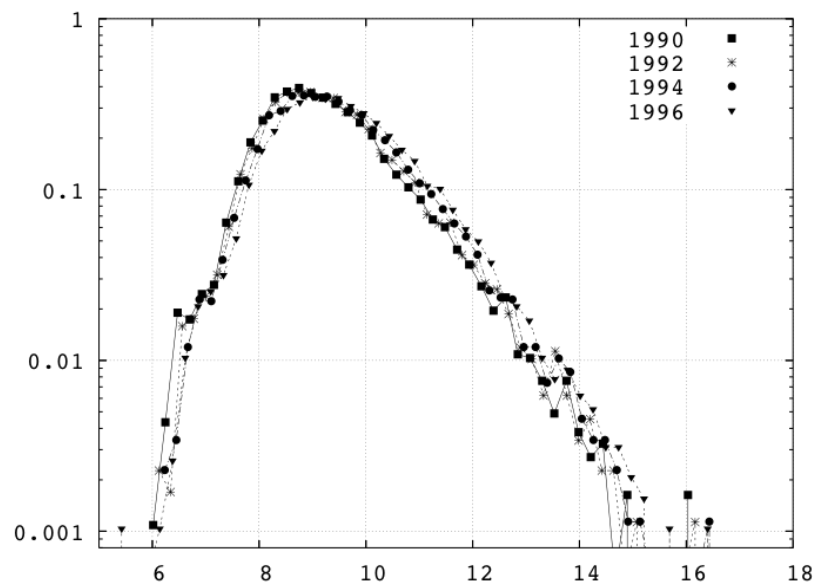


Figure 1: Empirical Densities of $\log(S_i)$ in different years. Size measured in terms of Sales.

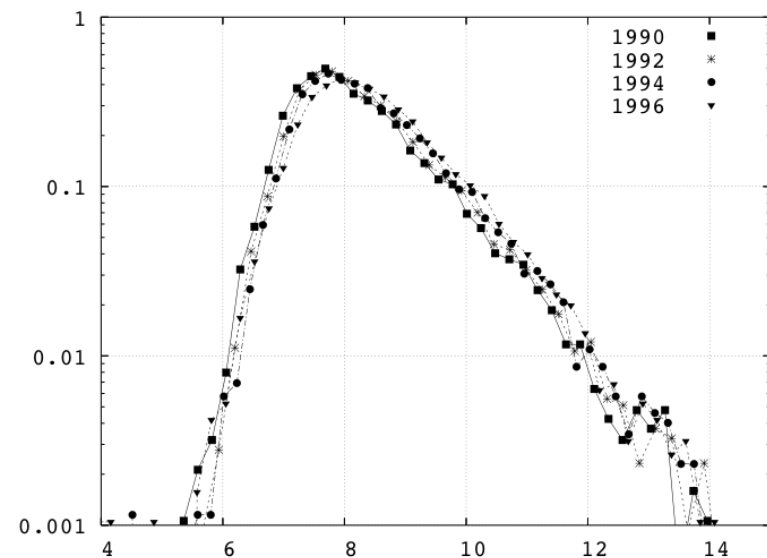


Figure 5: Empirical Densities of $\log(VA_i)$ in different years. Size measured in terms of Value Added.

Independent standard deviation

- Wagner, J. (1992). “Firm Size, Firm Growth and Persistence of Chance: Testing GIBRAT’s Law” concludes that:
 - The law is only valid for very few groups of firms in some of the periods covered by the sample they used.
 - They did not find that small firms grew systematically faster or slower than larger firms, or vice versa.
 - They found “persistence of chance” in the sense that a firm grows faster if it happened to grow faster in the past.

The exclusion of oil and energy firms

- *“For firms in the oil and energy sector, the wild swings in world-wide energy prices make too poor a proxy of total factor productivity.”*

The calibration issue

- *“The ... calibration can only be indicative a definite one would require a richer model with two types of firm-level shocks.”*

Narrative of GDP and the granular residual



Identification of idiosyncratic shocks

- *“The key challenge is to identify idiosyncratic shocks. Large firms could be volatile because of aggregate shocks, rather than the other way round.”*

About the empirical work

- In the paper , the top 100 companies are taken into account to explain the GDP growth, access to much more number of firms may increase the explanation power of the model. It is expected that the marginal explanatory power of each company will decrease due to the decreasing sales of each company in the ranking.

Thanks !

- **Wish everyone good luck in the exams!!**