European Firm Concentration and Aggregate Productivity

Tommaso Bighelli[1], Filippo di Mauro[2], Marc Melitz[3], and Matthias Mertens[1]

[1]Halle Institute for Economic Research and CompNet

[2]National University of Singapore and CompNet

[3]Harvard University, CEPR and NBER

Firm Dynamics, Market Structures and Productivity in the Macroeconomy, University of Kent
December 8–10, 2021

Discussant: Riccardo Silvestrini (Erasmus School of Economics)

Summary

The paper investigates the link between concentration, productivity and market structure in Europe, as well as their joint trends.

The main findings are:

1. Aggregate **European concentration** increased by 43% between 2009 and 2016.

2. There is a positive association between **concentration and productivity**, while the one between markups and concentration is insignificant.

3. European concentration is rising due to a **reallocation** of economic activity towards more concentrated industries, mostly located in Germany.

What I Liked...

A very good paper, which enriches the literature on several dimensions:

- Contribution is both **theoretical and empirical**.
- Focus on the EU, with a far superior dataset.
- Analysis of *good vs. bad* concentration: highly relevant for policy.

Moreover,

- This is a very hot and timely topic.
- Extensive robustness exercises regarding the limitations of the sample. e.g. time dimension and multinationals.
- Use of *cleaner* cost-weighted markups.

... and Some Open Questions

1. Definition and interpretation of the (aggregate) HHI.
2. Decomposition of the HHI in between and within components.

Definition of Aggregate HHI

The aggregate HHI is defined as follows:

$$HHI \equiv \sum_i \left(\frac{r_i}{\sum_i r_i} \right)^2$$

The definition of the HHI implies a definition of a market. Here, the market is the common European market.

What about the **substitutability** within and between sectors? $\rightarrow$ The definition of the HHI at the *European sectoral level* seems more sound.

To have a meaningful definition, I think we need firms to actually compete in the market we are referring to, which also depends on **geographical** constraints.

Definition of Aggregate HHI - Example

For instance, assume the following scenario:

1. Two countries, Italy and Germany, and two sectors, cars and hotels.
2. Same relative output size for countries and sectors.
3. Consumers can substitute within cars but not hotels.
4. National monopolist in each country for each good, no multinationals.

The aggregate European HHI for cars is 0.5, and it is the same for the aggregate European HHI for hotels.

However, the market structure is completely different, i.e. **duopoly vs. monopolies**. And what about the aggregate HHI equal to 0.25?

Still, you have strong results for **manufacturing**, where the definition surely works $\rightarrow$ push more on this subset.

Decomposition of Aggregate HHI

Proposed decomposition, inspired by De Loecker, Eeckhout and Unger (2020):

$$\Delta HHI_t = \sum_{n=1}^{N} HHI_{nt} s_{nt} - \sum_{n=1}^{N} HHI_{nt-1} s_{nt-1} = \sum_{n=1}^{N} \left(HHI_{nt} s_{nt} - HHI_{nt-1} s_{nt-1} \right)$$

$$= \sum_{n=1}^{N} \left[HHI_{nt} \left(s_{nt} - s_{nt-1} \right) + s_{nt-1} \left(HHI_{nt} - HHI_{nt-1} \right) \right]$$

This can be written as between plus within component:

$$\Delta HHI_t = \sum_{n=1}^{N} HHI_{nt} \left(s_{nt} - s_{nt-1} \right) + \sum_{n=1}^{N} s_{nt-1} \left(HHI_{nt} - HHI_{nt-1} \right)$$

Decomposition of Aggregate HHI (II)

In the paper, a similar decomposition is presented, but in levels:

$$HHI_t = \sum_{n=1}^{N} HHI_{nt} s_{nt} = ... = N\overline{HHI}_t \bar{s}_t + cov(HHI_{nt}, s_{nt}) =$$

$$\overline{HHI}_t + \overline{HHI}_t (N\bar{s}_t - 1) + cov(HHI_{nt}, s_{nt}) =$$

$$= \overline{HHI}_t + cov(HHI_{nt}, s_{nt}) \quad \text{if} \quad \overline{HHI}_t (N\bar{s}_t - 1) \to 0$$

Thus, as in Olley and Pakes (1996):

$$\Delta HHI_t = \Delta\overline{HHI}_t + \Delta cov(HHI_{nt}, s_{nt})$$

But $N\bar{s}_t$ does not always go to one, actually it is $\in [1/N, 1]$. I think this should be the benchmark decomposition.

Thank you for listening!