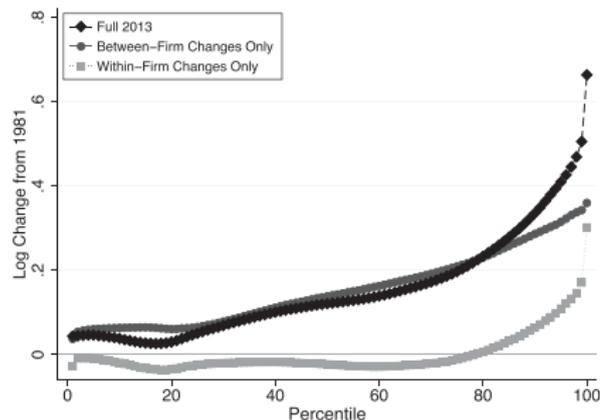


Discussion of “Robot Adoption, Worker-Firm
Sorting and Wage Inequality: Evidence from
Administrative Panel Data” by Faia, Ottaviano
and Spinella

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Context



- Song et al (2019) show that most of the rise in wage income inequality occurred between firms.
 - First reaction: this contradicts a SBTC or automation story.
 - Faia, Ottaviano and Spinella (2022) show that this is not necessarily true.
 - Similarly, Hubmer and Restrepo (2022) show that even though the decline in the labor share is a between firm phenomenon, it can be caused by automation.

This paper (1)

- Decompose labor income inequality into between-firm and within-firm effects
 - Key element: what is the covariance between worker fixed effects and firm fixed effects?
 - This requires precisely estimated fixed effects... which AKM cannot deliver.
 - They adapt Bonhomme, Lamadon and Mansera (2019)'s approach which groups firms and workers in classes.
 - Result: sorting and segregation play a sizable, growing (but not majoritarian) role in the variance of wages.
- Italian CZ more exposed to robots experience:
 - More sorting: higher types workers match with higher types firms;
 - More segregation: similar workers cluster more in the same firms.
 - Exercise similar to Acemoglu and Restrepo (2020) but on a different outcome variable.

This paper (2)

- To rationalize the findings, build a search-and-matching model where
 - workers search on the job, and higher types workers search more;
 - this allows higher type workers to climb up the ladder.
 - A change in production function which increases supermodularity between workers and firms leads to more sorting, more segregation and more income inequality.

General comments

- Impressive paper on top of the literature in several fields.
- Many moving parts so: How well exactly do the different parts fit with each other?
- The paper ends up being quite long.

Variance decomposition (1)

- Traditional issue with AKM: too few switchers to identify worker fixed effects + interactions
 - It seems that here we really go to another extreme with 6 types of workers and 10 types of firms only.
- How much do we gain compared to a simpler sector / occupation decomposition?
 - The between sector / between task element is very important for income inequality;
 - This approach would be much more straightforward and may have as much (or more) explanatory power;
 - If not, then the comparison would justify the Bonhomme, Lamadon and Mansera (2019)'s approach.

Variance decomposition (2)

- There are two related notions of segregation / sorting.
- For the decomposition exercise:

$$\begin{aligned} \text{var}(y_{ijt}) &= \text{var}(\theta_i - \bar{\theta}^j) + \text{var}(\epsilon_{ijt}) + \text{var}(\psi_j) \\ &\quad + \underbrace{2\text{cov}(\bar{\theta}^j, \psi_j)}_{\text{sorting}} + \underbrace{\text{var}(\bar{\theta}^j)}_{\text{segregation}} \end{aligned}$$

- For the robot exercise:

$$\text{corr}(\theta_i, \psi_j) = \underbrace{\frac{\text{sd}(\bar{\theta}^j)}{\text{sd}(\theta_i)}}_{\text{segregation}} \underbrace{\text{corr}(\bar{\theta}^j, \psi_j)}_{\text{sorting}}$$

Robots

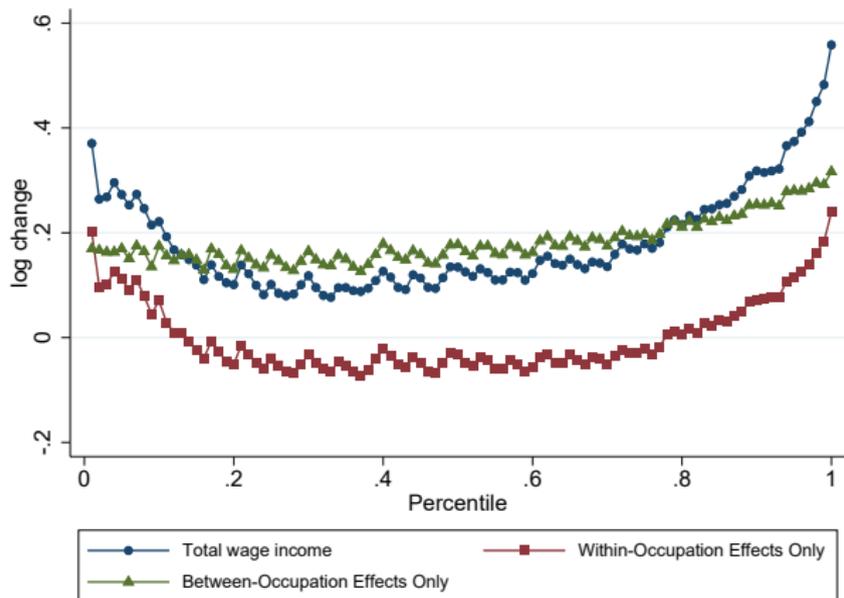
- Do robots only affect sorting and segregation?
- Shift-share concern: Adao, Kolesar and Morales (2019)
- Are robots the main factor here?
 - Other automation technologies?
 - Other machinery investment (not necessarily automation)?
 - IT?
 - Outsourcing.

Model

- Nice labor market model but robots are not modelled in an explicit way.
 - Instead, robotization is a decrease in ξ where
$$s(x, y) = [x^\xi + y^\xi]^{\frac{2}{\xi}},$$
 - robotization may cause that but again probably not the only technology here.
- RBTC: where is the evidence in the paper?
- Core Biased TC: new technology requires workers with specialized knowledge.
 - There is segregation in the model, but is it really CBTC? Looks more like specialization on the ladder;
 - Similar hard to see horizontal specialization in the empirical exercise with 6 types of workers and 10 types of firms.

Occupational inequality

- Gottlieb, Hémous, Hicks and Olsen (2022) decompose changes in wage income inequality in the US between 1980 and 2012 in between and within occupation changes.



Conclusion

- Impressive paper but perhaps doing a bit too much (at least for me!)
- Alternative 1: Paper on the effect of automation across occupations and industries:
 - Drop the BDM analysis and focus on the variance decomposition across occupation and industries;
 - Adjust the robot exercise.
- Alternative 2: A paper about sorting / segregation across firms:
 - Add more clusters of workers / firms (or perhaps residualize on occupation / sectors);
 - Not sure, I would include the robot's analysis there;
 - Model would be a good fit.

Additional points

- It would be better and should be possible to include female workers.
- Figure 4 compares AKM and 2s AKM but why not showing the results for BLM as well?
 - More generally, you defend well why $2s \text{ AKM} > \text{AKM}$ but it is not clear to me why $\text{BLM} > 2s \text{ AKM}$ from the paper.
- I understand this is for tractability, but robotization ends up changing unemployment benefits.