

What Are the Labor and Product Market Effects of Automation? Discussion

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Summary



- A great paper!
- Detailed French firm level data used to provide broad assessment of a relevant topic: automation and the ghost of “technological unemployment”
- Recovers measures of automation and exploits alternative identification strategies/levels of aggregation to assess their impact on production
- Rationalizes findings in a CES framework

Summary (results)



1. At **firm level**, automation has following effects:
 - a) **Positive on Employment** (low=mid=high skilled)
 - b) Positive on Sales
 - c) None on wages, labor share, inequality
 - d) Negative on competitors' employment (firms in same 5d industry)
2. At **industry level**, automation has following effects:
 - a) **Positive on Employment (similar elasticity as in 1.a)**
 - b) Positive on sales, VA, profits
 - c) Negative on prices
3. Implied elasticity of substitution between varieties (industries) : 6.2

Comment (1): mechanism



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- Automaton increasing employment → **productivity gains > displacement**
 - Main measure of automation are **investments in industrial equipment & machinery** (K_{auto} a proxy for robots) hence $K_{auto} \subset K$
 - **Shock** to automation is measured by **large changes in investment** in K_{auto}

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 - **Shock** to automation is measured by **large changes in investment** in K_{auto}
 - But no evidence in the paper that shocks to K_{auto} increases productivity
 - Could try some productivity measure as TFP

Comment (1): interpretation



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 - **Shock** to automation is measured by **large changes in investment** in K_{auto}
- What if shock was capturing a broader «event» (e.g. a shock to K)?
 - would it matter for interpretation?
- Could replicate the analysis using K on LHS and compare the responses of both K and L
 - would it matter if $K/L \uparrow\uparrow$

Comments (2): business stealing



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 - b) ...
 - c) ...
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 2. At industry level, automation has following effects:
 - a) Positive on employment (with similar elasticity as in 1.a)
- If automating firm i lowers employment of non-automating firms in same industry (“**business stealing**”), this should attenuate aggregate estimates..
 - How to reconcile 1a+1d and 2a? “**International business stealing**”



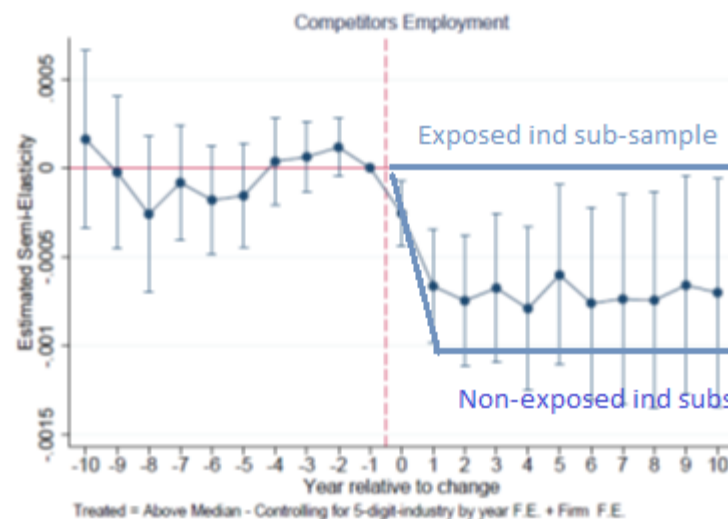
Comments (2): business stealing

- IBS implies (observable) business stealing **only occurs in non-tradables**
- At industry level, show that the (domestic) employment elasticity to automation ϵ_L is
 - $\epsilon_L^{ind} = 0$ if *ind* NOT exposed to foreign competition.
 - $\epsilon_L^{ind} > 0$ (and $\epsilon_L^{ind} \cong \epsilon_L^{firm}$) if *ind* IS exposed to foreign competition ;
- Must be that *exporters* expand at the expenses of foreign rather than domestic competitors
- Do we need to assume **French firms in tradables industries do not compete** at all in the domestic market? i.e. their Exp/sales $\rightarrow 1$

Comments (2): business stealing



- Could provide more direct evidence (vs comparing ϵ_L^{ind}): plot **domestic competitors' employment response** (as in Fig. 8) **by industry exposure**: should be negligible in case of *exposed*.



(iii) Business Stealing across Firms