Discussion: PRODUCTIVITY GROWTH AND STRUCTURAL CHANGE IN AN ERA OF GLOBAL SHOCKS by C. Criscuolo

KDI-BROOKINGS JOINT SEMINAR: PRODUCTIVITY IN A TIME OF CHANGE—APRIL 11,2023

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Roadmap

- ❑ Questions
- ❑ Digitalization, Big Data and Market Power
- ❑ Digitalization and Resilience

Questions

- ❑ Digitalization and business dynamics
  - Digitalization lowers entry costs➔ why reduced business dynamics, specially in digital sectors?
  - Does digitalization interact with other entry and exit constraints? How?

- ❑ Digitalization and inequality
  - Do we observe an increase in wage inequality across firms within high digital sectors?...
  - …and within digital firms?

Digitalization, Big Data and Market Power

- ❑ Digitalization fosters the ability of firms to use big data

- ❑ Big data can create market power (Eeckhout and Veldkamp 2022)
  - Data reduce risks: when data helps firms resolve their risk, risk-averse firms are emboldened to invest more and grow larger
  - Scale in data induce a data-rich firm to invest in producing at a lower marginal cost and capturing a larger market share

- ❑ Regulation of data-driven Market Power
  - Empowering consumers to increase data mobility through better information transparency and more user control of personal data
  - Increase data openness to increase data transparency and availability to smaller firms

Digitalization and Resilience—Considerations

- Firms and industries harnessing digital technologies can unlock productivity gains, including recessions
- Digitalization can increase risk-sharing in the context of idiosyncratic shocks by allowing firms to connect with distant customers and employees
- Digitalization also improves the ability to work remotely or sell without contact, capabilities that have shielded workers and firms from the pandemic's negative effects

Copestake, Estefania-Flores and Furceri (2022). Digitalization and Resilience. IMF WP 210.

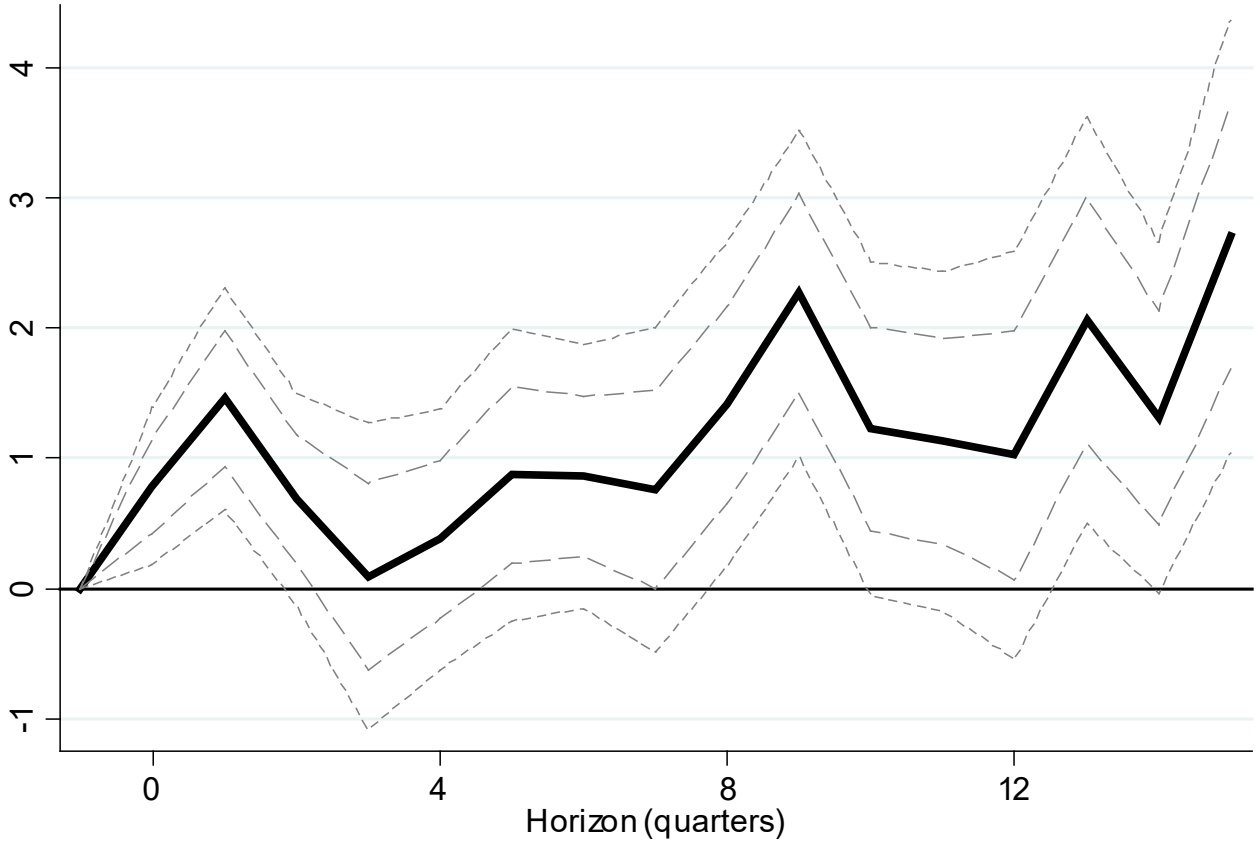
Digitalization and Resilience—Approach

$$\Delta y_{n,i,t+k} = \alpha_{ist}^{k} + \gamma_{nq}^{k} + \sum_{j=-k}^{4} \mu_{j}^{k} R_{i,t-j} * D^{m} + \sum_{j=1}^{4} \theta_{j}^{k} \Delta y_{n,i,t-j} + \varepsilon_{n,i,t}^{k}$$

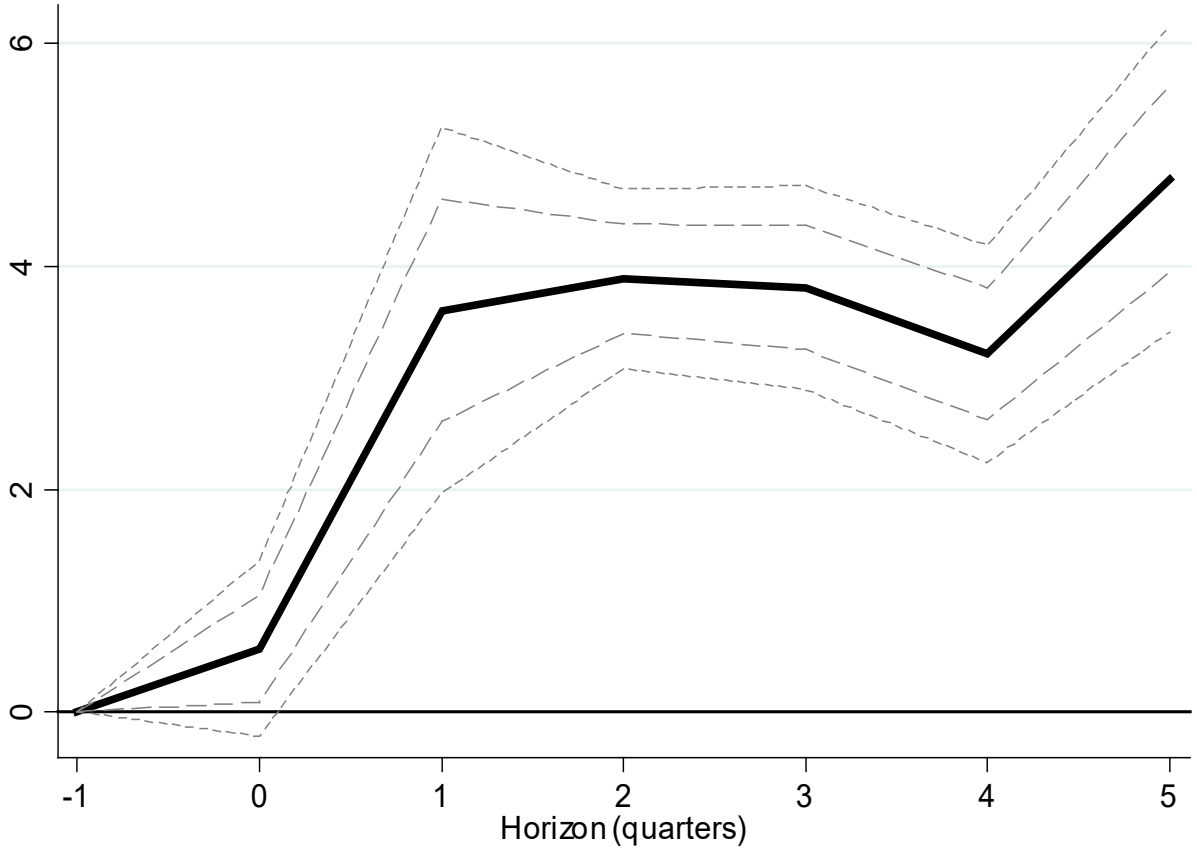
- y log revenue
- R recessions
- n firms; i countries, s sectors; t time; q quarters
- D^{m} measure of digitalization from Calvino, Criscuolo et al. (2018) based on data on ICT input shares, the number of robots per employee, the share of ICT specialists in total employment, and the share of turnover from online sales
- Sample: panel of over 24,000 firms for the period 2001Q1 to 2021Q1 (Capital IQ)

Digitalization and Resilience—Results

Differential Effect of Recession on log Revenue for Highly Digitalized Industries Vs. Average (%), all sample



Differential Effect of Recession on log Revenue for Highly Digitalized Industries Vs. Average (%), COVID-19 sample



Note: Impulse response function based on local projection methods following Jordà (2005) using firm-level quarterly data from 75 countries for the period 2001Q1 to 2021Q1. Estimates based on the regression $\Delta y_{n,i,t+k} = \alpha^k_{ist} + \gamma^k_{nq} + \sum_{j=-k}^{4} \mu^k_j R_{i,t-j} * D^m + \sum_{j=1}^{4} \theta^k_j \Delta y_{n,i,t-j} + \varepsilon^k_{n,i,t}$ for different horizons k, where $\Delta y_{n,i,t+k}$ is the log change in revenue of firm n in country i at time t over the next k quarters, $R_{i,t}$ is a dummy which takes value 1 at the start of a technical recession, $D^m = D^C_r$ is the standardized value of the Calvino et al. (2018) measure of industry-wise digitalization, α^k_{nq} are firm-quarter fixed effects, and α^k_{ist} are country-sector-time fixed effects. The regression is estimated separately for different horizons k over a four-year period. The solid line shows the point estimate for μ^k for different horizons k, while the dashed and dotted lines are the 68 percent and 90 percent confidence intervals respectively. Standard errors are clustered by firm and country-time.

Thank you!