

(Ongoing) Pandemic and its Impact on (ICT) Innovation

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Goals & Outline

- Pandemic as a game-changer
- Channels for impact on economy
- Impact on economic growth, on supply chains
- Innovation affected by pandemics
- Research productivity
- Innovation determinants
- Short-term effects
- Long-term effects
- Impact on innovation
- Differences between countries and sectors
- Policy response
- R&D investment
- Effects and limitations
- Responses in critical sectors

Impact on economic growth

Channels COVID-19 pandemic has negative effect:

1. decreased **consumption** of goods and services
2. indirect influence through the shock of **financial markets**
3. impact on the **supply-side**, which consists of **supply chains**, **labor demand** and **employment**

Impact on economic growth

- older models of pandemic impact do not sufficiently describe the COVID-19 pandemic
- they predicted the impact of pandemic for big economies such as EU to 2-4% GDP decline while eventually it was around 7% (almost 6% decline for Czechia in 2020 with a 3% growth in 2021).

Impact on supply chains

- over 80% of global sectors: disruptions in supply chains during pandemic
- 64% of companies across the manufacturing and industrial sectors are likely to bring production and sourcing back
- Javorcik (2020): COVID-19 experience – the coronavirus “*will not end globalization, but it will change it*” which requires innovation

Research productivity

- *Economic growth = number of researchers × research productivity*
- Bloom et al (2020):
- **research productivity declines** by a couple of percent each year in the long-term run – halving in 13 years
- to maintain the growth pace - **increase # of researchers**

Innovation determinants

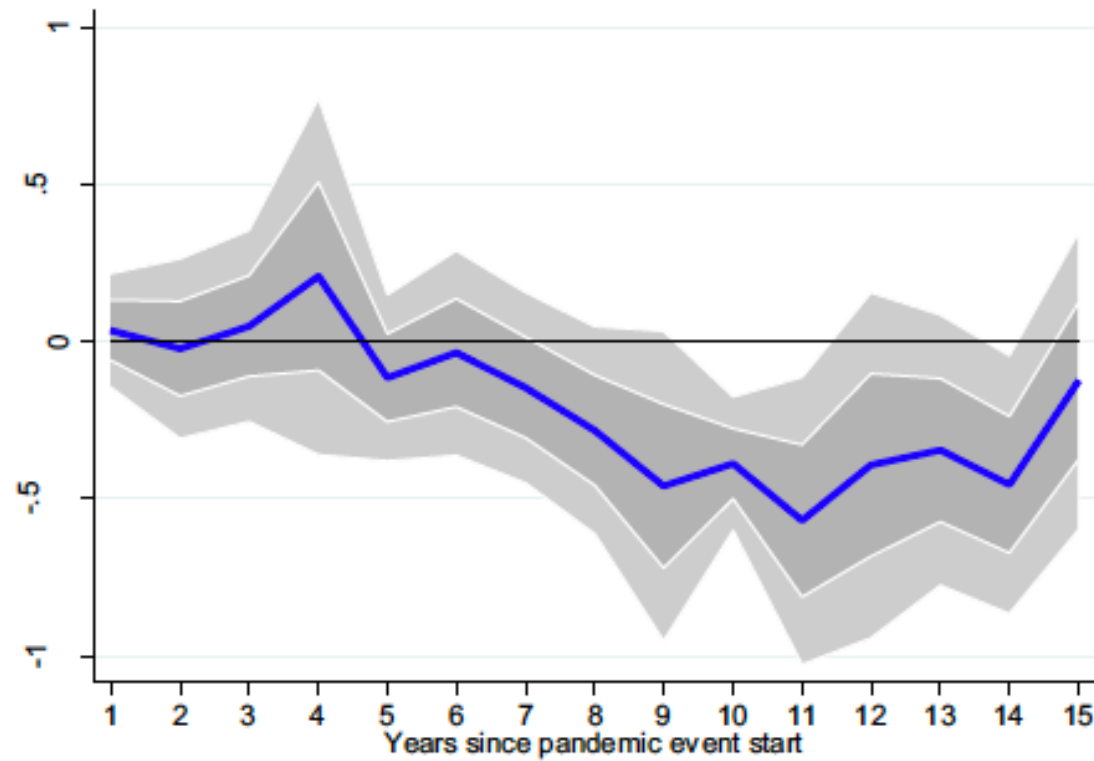
- determinants of corporate innovation – *domestic credits, financial development, institutional quality, stock market development, and trust, uncertainty shocks*
- significant + factors promoting innovations – *operation profit, total exports, management efficiency, and government subsidies*
- insignificant + factors: *state ownership, value-added productivity, firm age*

Short-term effects

- one cannot expect to return to previous business and working habits
- remote online work: 75% plan to convert 5% permanent on-site jobs to remote ones while 25% businesses convert nearly 20%
- better employee experience, larger talent acquisition base
- larger freedom and reach work-life balance

Differences between countries and sectors

Information and communication



R&D investment

- pandemics (increased infection and death toll) increase real wages for survivors in the long run but are less likely to improve their research productivity,
- increased R&D investment may not be able to represent an increased innovative ability during and after pandemic episodes

Responses in critical sectors

- pandemic threat to research productivity in the long-run,
- policies that reduce the effect of the “Great Lockdown” needed
- results vary by country and sectors of economic activity

Responses in critical sectors

- Fund and build **trust** in first-rate science
- Emphasize high-frequency **monitoring**
- Be **predictive** and implement measures well before
- Strengthens **supply-chain resilience**
- De-globalization must be limited

Conclusion

- Slow down in innovations during pandemic (ICT) sector
=> drop in economic growth
- Governments should
 - primarily **support innovators**
 - speed up **patent application processing**
 - continue to support **open science** (“ideas are not rivals”)