

# Discussion of “Productivity and Business Dynamics through the lens of COVID-19” by Chiara Criscuolo

ECB SINTRA

September 28<sup>th</sup> 2021

John Van Reenen (LSE and MIT)



Programme on  
Innovation and Diffusion



## Overall

- Comprehensive overview of what we know about impact of COVID on business landscape, focusing on Euro-Area countries
  - Recommended reading!

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- Comprehensive overview of what we know about impact of COVID on business landscape, focusing on Euro-Area countries
  - Recommended reading!
- Lots of fascinating nuggets around 2020-21 productivity changes
  - Hours fell faster than Output, so productivity up!
  - **Between Sector** reallocation: relative movement of hours towards more productive industries (e.g. retail to manufacturing)
  - **Within Sector** reallocation? Slowed, but still positive
  - Entry has been high in Pandemic relative to Global Financial Crisis
  - Faster Diffusion of (i) Digital tech; (ii) Telework/WFH
    - But more in existing adopters, so firm inequality up
- Pre-crisis trends in market power: “Increasing Differences” (Van Reenen, Jackson Hole, 2018)

# OUTLINE OF TALK

## **The Challenge**

Analytical Framework

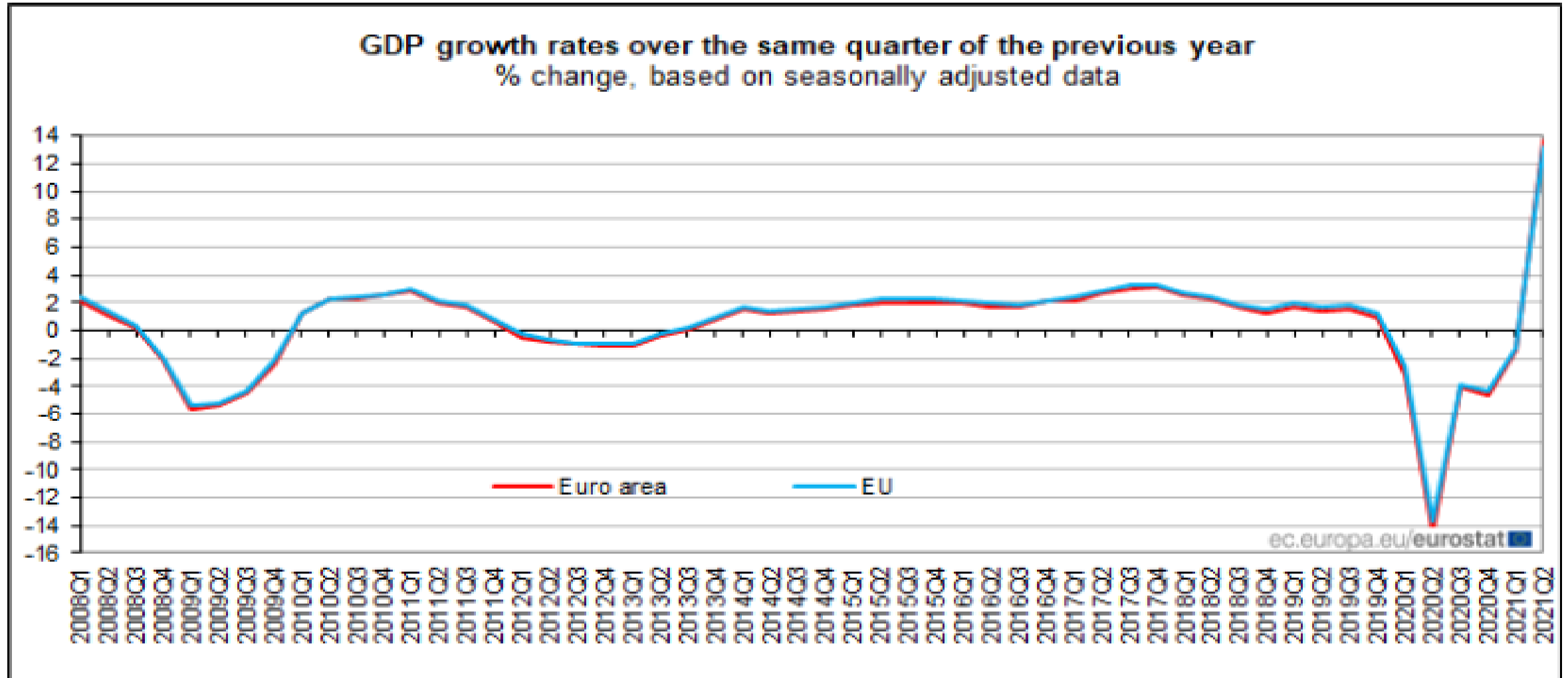
Measurement

Reallocation

Adoption

Politics of a Growth Plan

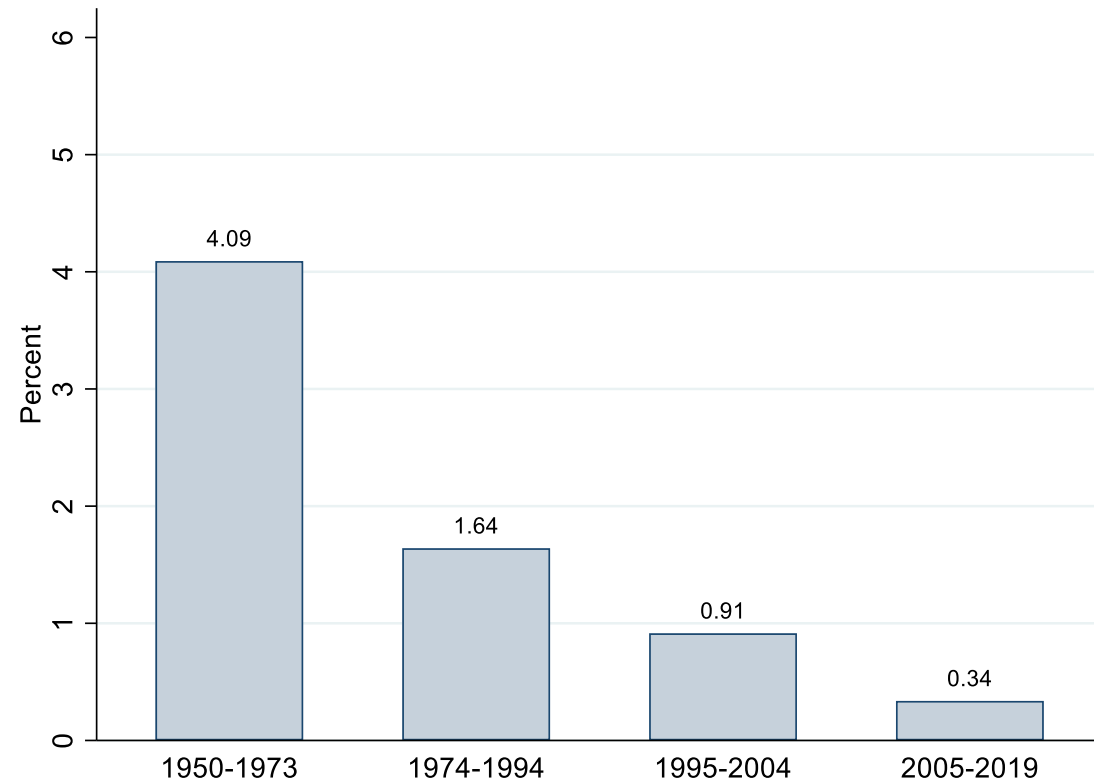
# The Pandemic's Big Hit on European growth



Source: Eurostat, July 30<sup>th</sup> 2021 <https://ec.europa.eu/eurostat/documents/2995521/11563211/2-30072021-BP-EN.pdf/0567c280-b56c-2734-2a4b-e4af85a55bf5?t=1627630313030>

# Slowing Productivity growth preceded COVID crisis (TFP 1950-2019)

Panel B: Euro zone

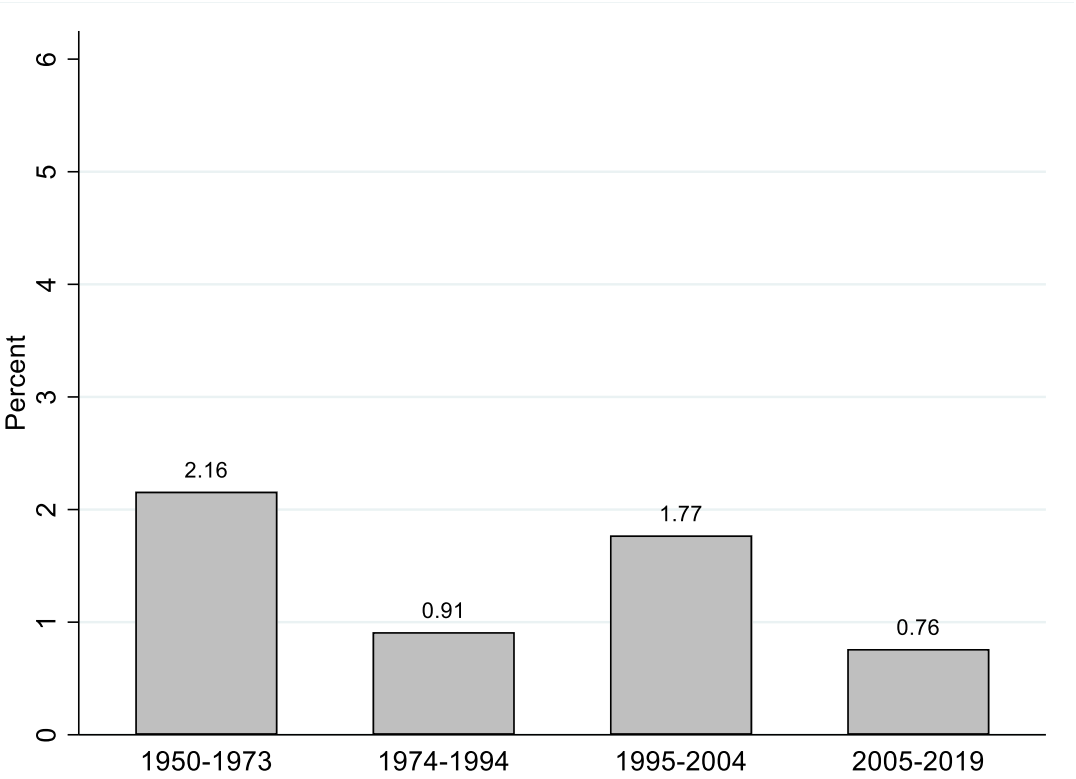


**Source:** TFP growth based on Bergeaud, Cette, and Lecat (2016).

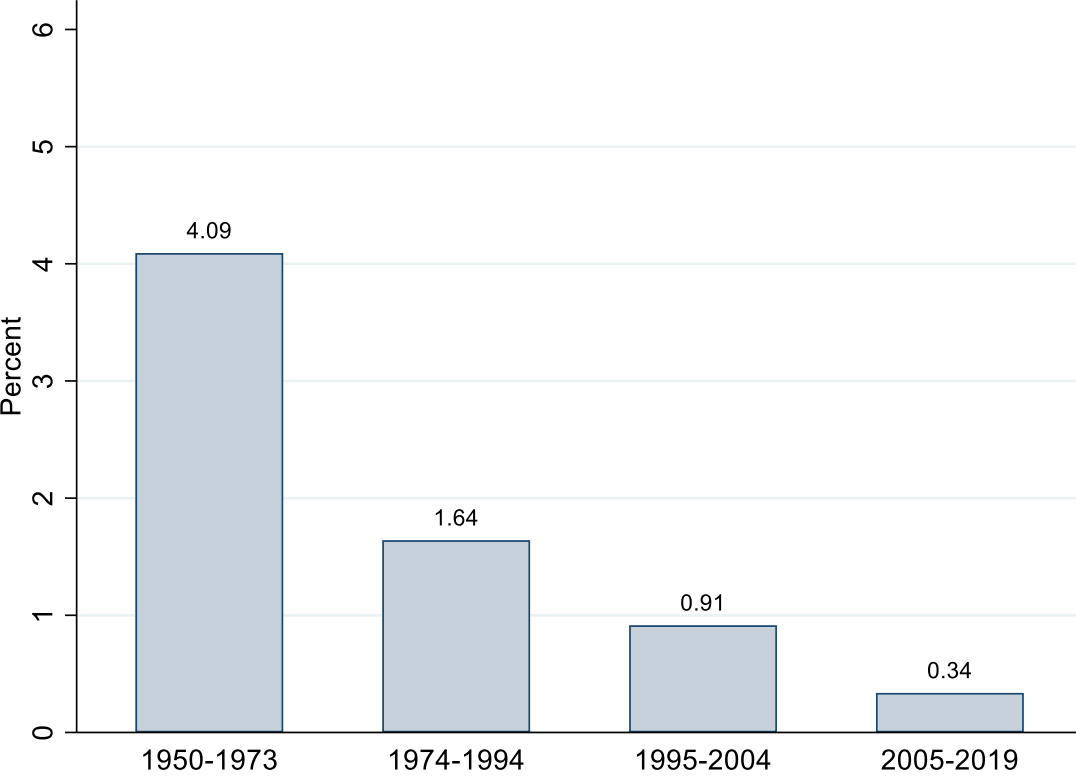
**Note:** “Euro Zone” is Germany, France, Italy, Spain, Netherlands, and Finland.

# Slowing Productivity growth preceded COVID crisis (TFP 1950-2019)

Panel A: US



Panel B: Euro zone



**Source:** TFP growth based on updated data from Bergeaud, Cette, and Lecat (2016).

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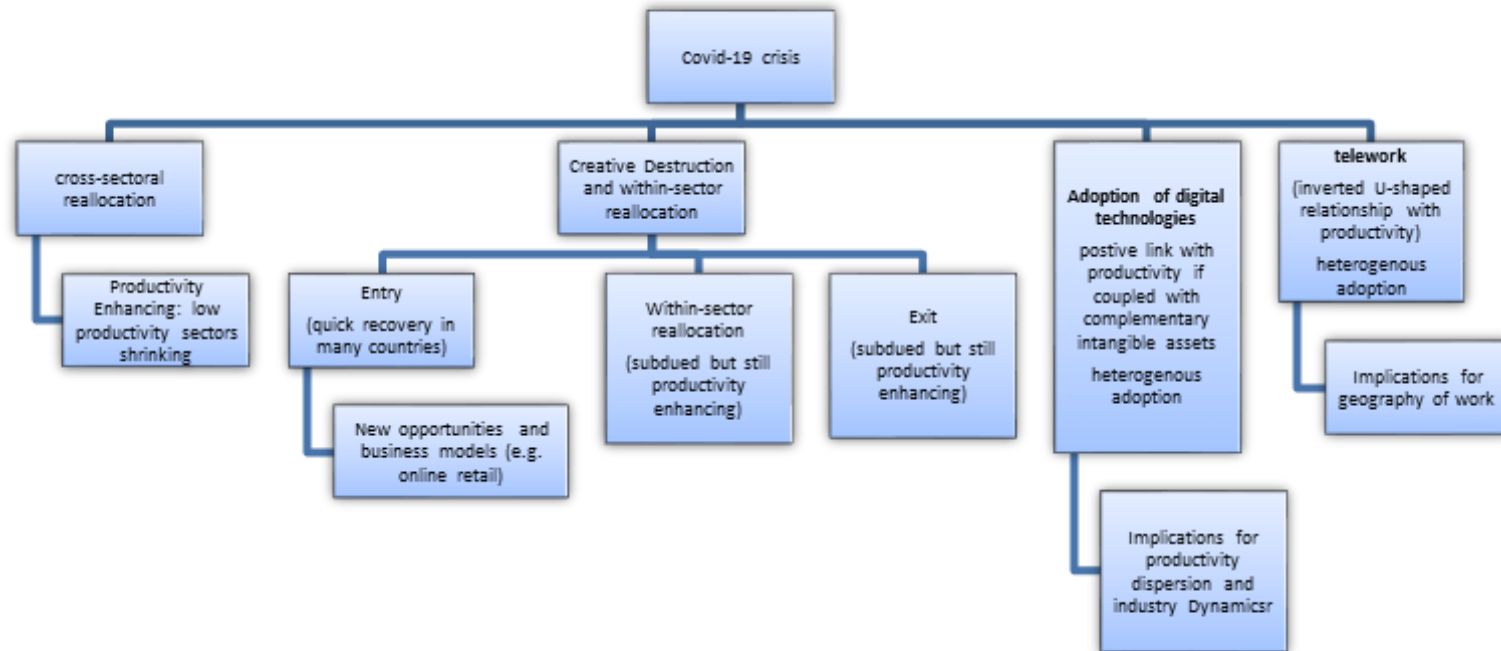
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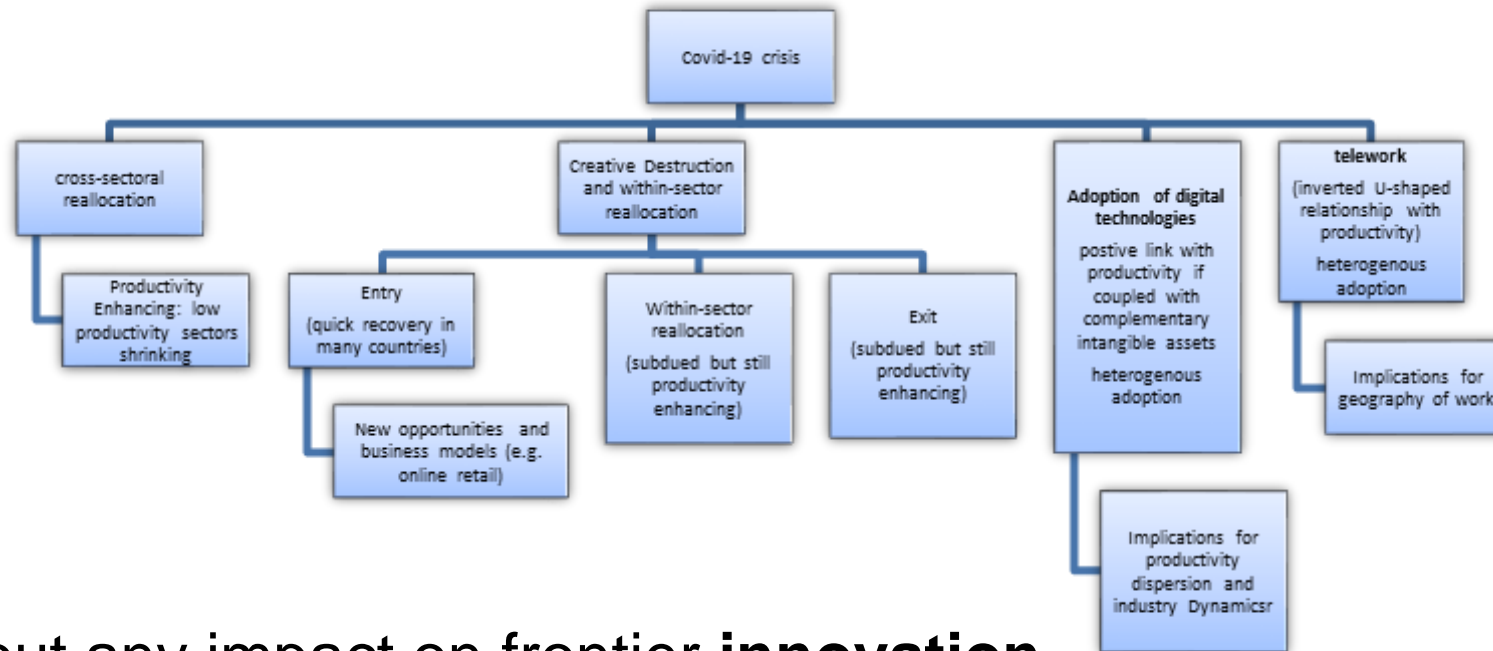
Politics of a Growth Plan



# Issues with the Analytical Framework (Figure 1)



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- Misses out any impact on frontier **innovation**
  - Likely leads to firms cutting-back R&D via worse **incentives** (lower demand, higher uncertainty) and lower **ability** (credit shock & managerial time diversion)
  - Some survey evidence on this (but possibly offsetting effects)
- Nothing on **direction** of technical change: this is probably the main effect

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# How do we know what is happening to productivity right now?

- Data always problematic in real time, especially in crisis & particularly with COVID, as many changes might be very temporary
- **Numerator** of labour productivity (**GDP**)
  - Real Output affected by lags, revisions, inventories, price measurement
- **Denominator** of labour productivity (**worker-hours**)
  - Reported #workers and #hours heavily impacted by subsidies & home-working

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- Likely that we are hugely mismeasuring
- But even if we knew precisely what happened to productivity 2020-21, how much would it matter?
  - Key issue is what will happen to fundamental productivity when things start to return to “normal”?

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## **Problems with emphasis on Reallocation**

- COVID accelerates and changes pressure for reallocation in many dimensions
  - Offline to online
  - Digital platforms to enable WFH and serving clients at a distance
  - Decline of offline retail, aviation, etc.



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  - Relative decline of activity in “low productivity” units looks good
  - **But** if high productivity units do not expand sufficiently to absorb there is waste: unemployment, underemployment, stranded assets, etc.
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- In short-run policy must balance **protection** against reallocation. A major lesson from Global Financial Crisis was that we moved to austerity too quickly

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# Issues with COVID impact on Adoption

- Evidence that there is greater adoption of digital technologies and teleworking (e.g. Riom & Valero, 2021)
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- What about adoption more generally? COVID might change direction of technical change without speeding it up, making productivity effects ambiguous
- I did not see any analysis on firm level productivity change
  - In aggregate terms, this dominates between firm effects
  - Data are available: adoption studies also have productivity (e.g. BoE DMP suggests fall in productivity within firms & this dominates)

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# Post-Pandemic Policy Making

- My view is that ultimately, the effect of Pandemic on productivity is whether it will change policy making
- Challenges we face in OECD are tremendous: Pandemic recovery, slow pre-crisis TFP growth and need for net zero climate transition
- This requires ambitious thinking: a new **Marshall Plan** based around innovation & diffusion of best practice
- Needs to be based on rigorous evidence

## Innovation Policy in the European Union

Andreas Teichgraber  
John Van Reenen

September 12<sup>th</sup> 2021

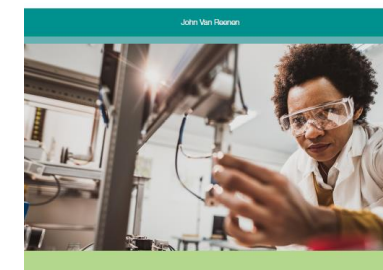
### Abstract

What innovation policies should Europe adopt? The world faces a challenge to rebuild after the Pandemic, but also faces the same structural slowdown of productivity growth that occurred in the decades before the COVID crisis. We argue that Europe needs a comprehensive Growth Plan, based around innovation to generate an equitable increase in living standards. We show that Europe is less innovative on many dimensions compared to other advanced regions, such as the US and parts of Asia. We review the econometric evidence on innovation policies and argue that there is good evidence for the efficacy of many of them. A mix of R&D subsidies, reinvigorated competition and a big push on expanding the quantity and quality of human capital is needed. These could be bound together around the need for green innovation in order to achieve the mission to radically reduce carbon emissions.

**Keywords:** Innovation, R&D, human capital, Europe

**JEL Classification:** O31, O32, J24

**Acknowledgements** This paper was written for the '2022 Science, Research and Innovation Performance (SRIP) in the EU Report'. John Van Reenen is Ronald Coase School Professor at the London School of Economics, fellow of the Institute for the Digital Economy at the Massachusetts Institute of Technology, and a research associate of the National Bureau of Economic Research. Andreas Teichgraber is a research economist at POID. This builds on work with many coauthors, in particular Nick Bloom and Heidi Williams. Financial support from the European Commission and ESRC is gratefully



# Policy toolkits: “Lightbulb” Table for Innovation and “Spanner” Table for Management

## Toolkit for Innovation Policies

(1) Policy	(2) Quality of evidence	(3) Conclusiveness of evidence	(4) Benefit - Cost	(5) Time frame:	(6) Effect on inequality
<b>Direct R&amp;D Grants</b>	Medium	Medium		Medium-Run	↑
<b>R&amp;D tax credits</b>	High	High		Short-Run	↑
<b>Patent Box</b>	Medium	Medium	Negative	n/a	↑
<b>Skilled Immigration</b>	High	High		Short to Medium-Run	↓
<b>Universities: incentives</b>	Medium	Low		Medium-Run	↑
<b>Universities: STEM Supply</b>	Medium	Medium		Long-Run	↓
<b>Exposure Policies</b>	Medium	Low		Long-run	↓
<b>Trade and competition</b>	High	Medium		Medium-Run	↑
<b>Grand Innovation Challenge</b>	Low	Low		Medium-Run	↓

Source: Bloom, Van Reenen and Williams (2019)

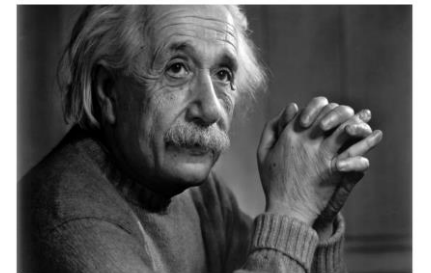
## Toolkit for Management Policies

Policy type	Strength of evidence	Policy Net benefit (out of 5)	Difficulty of implementation	Time frame
<b>Structural</b>				
Competition	H		M	medium
Trade and FDI	H		L	medium
Education	M		M	long
Labour Deregulation	M		L	medium
Governance	M		M/L	long
<b>Direct</b>				
Training - consulting	H		H	short
Training - formal classroom	M		H	medium
Information/benchmarking	L/M		H	medium

Source: Scur, Sadun, Van Reenen, Bloom and Lemos (2021)

# Successful Innovation Policies

- R&D tax credits
- Direct government grants
- **Human capital supply**
  - Expanding STEM workforce
  - Universities
  - Immigration
  - **“Lost Einsteins & Marie Curies”**: under-representation of women, minorities and kids from low income families in inventor pool represents a major loss of talent
    - Bell et al (2019a,b)



# Growth Plan (e.g. EU Rescue & Resiliency Facility)

- Exact policy Mix will depend on a country's conditions
- Key Requirements:
  - Short-run balance between protection & reallocation
  - Institutional reform to combat policy ADD (e.g. infrastructure)
  - Bundle policies around the climate mission – Reforms over tax; industrial strategy; competition; corp governance; human capital (e.g. Lost Einsteins)
- Optimistic? post-WWII recovery galvanized by negative shock (like COVID)

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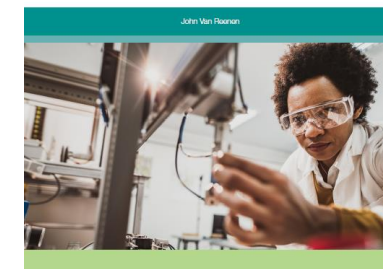
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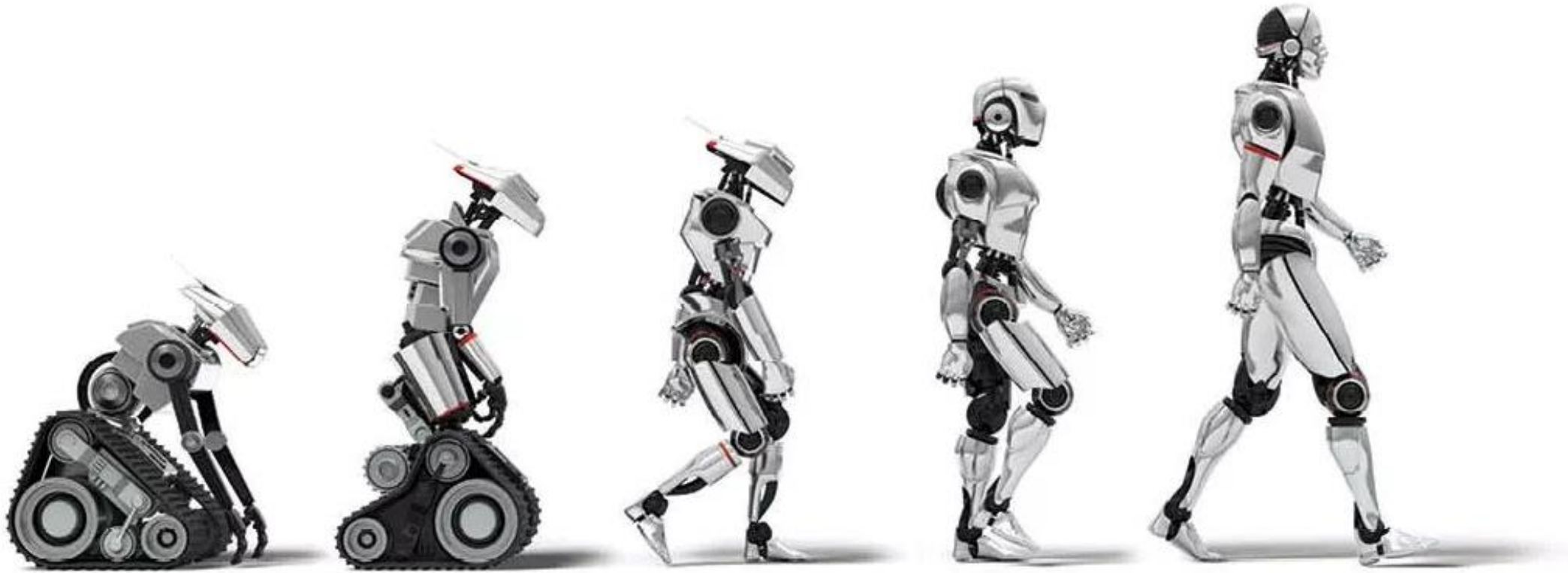
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**THANKS!**



## Further reading

- “The World Management Survey at 18” (Bloom, Lemos, Sadun, Scur & Van Reenen, 2021), Oxford Review of Economic Policy <https://poid.lse.ac.uk/textonly/publications/downloads/poidwp002.pdf>
- World Management Survey <http://worldmanagementsurvey.org/>
- LSE Growth Commission Final Report  
<http://www.lse.ac.uk/researchAndExpertise/units/growthCommission/documents/pdf/GCReportSummary.pdf>
- “Management as a Technology” (Bloom, Sadun and Van Reenen, 2020):  
<http://mitsloan.mit.edu/shared/ods/documents/?DocumentID=2685>

## Some Further Reading (and viewing)

<https://poid.lse.ac.uk/>

“Innovation Policies to Boost Productivity” (2020) Hamilton Policy Proposal 2020-13

[https://www.hamiltonproject.org/assets/files/JVR\\_PP\\_LO\\_6.15\\_FINAL.pdf](https://www.hamiltonproject.org/assets/files/JVR_PP_LO_6.15_FINAL.pdf) [webinar](#)

“A Toolkit of Policies to promote Innovation” (Nick Bloom, Heidi Williams and John Van Reenen), [\*Journal of Economic Perspectives\*](#) (2019) 33(3) 163–184 <http://cep.lse.ac.uk/pubs/download/dp1634.pdf>

“Why Do We Undervalue Competent Management” (Raffaella Sadun, Nick Bloom and John Van Reenen) [\*Harvard Business Review\*](#) (2017), September-October

“Measuring and Explaining Management practices across firms and nations” (Nick Bloom and John Van Reenen) [\*Quarterly Journal of Economics\*](#) (2007) 122(4), 1351–1408.

“Who Becomes an Inventor in America? The Importance of Exposure to Innovation” (Alex Bell, Raj Chetty, Xavier Jaravel, Neviana Petkova and John Van Reenen), <http://cep.lse.ac.uk/pubs/download/dp1519.pdf>  
[Data](#) [\*Quarterly Journal of Economics\*](#) (2019)134(2) 647–713, [New York Times](#) [Vox](#) [Atlantic](#) [Fortune](#)  
[Conversation](#) [VoxUS](#) [Economist](#) [VC](#) [Centrepiece](#) [INET](#)

## Some other points

- The entry/exit is useful, but not very compelling in my view
  - Vast majority of new entrants firms have low/no jobs (need intensive margin)
  - Acemoglu et al 2018 basically quantitative theory. Empirical contribution of entry/exit in data is 2<sup>nd</sup> or 3<sup>rd</sup> order.
- Do we really believe cross-industry reallocation to high VA per hour sectors unmitigated good in terms of welfare?
  - E.g. Fig 4 says Finance 50% higher than manufacturing, but the UK model of moving workers into the City did not end well.
- Tension in paper between explaining what the official numbers say (e.g. labor productivity rose in 2020 because reported hours fell faster than reported turnover) and whether this is really meaningful/useful (not really)
- Inequality: Tech adoption, etc. is stronger in larger, more productive, already high tech firms. So this will increase between firm dispersion
  - Interesting, but unclear whether it is good or bad for welfare. Maybe low tech firms exit & high prod firms grow, raising overall productivity?



## Minor points

- P.2 I think “uncertainty” (2<sup>nd</sup> moment) is less important than first moment of **certainly** lower demand in a crisis depressing investment, etc.
- In terms of complementarity of technology with good management (p.7) the key reference is (of course) Bloom, Sadun and Van Reenen (2012, AER)
- P.18 2<sup>nd</sup> para is where things can get misleading on reallocation. Just shutting down low productivity firms isn’t sufficient if they are not moved to high productivity firms
- At various places, sounds like you’re saying so long as any reallocation in crisis it is good. But that is too low a bar. Question is whether it is greater than in normal times.
- It was unclear to me if Fig 9 is net of bankruptcies (as table notes suggest) or just entry (the latter would be more natural as Fig 10 has bankruptcies).
- P.35 The lower opportunity cost in a crisis is the main mechanism detailed in Bloom et al (2021) “Trapped Factor” [\*Economic Journal\*](#) 131(633) 156–191 with evidence from Bloom, Draco & Van Reenen (2016, ReStud)
- P.35 The Gibbons & Roberts book reference is wrong. You are thinking of the Schmitt (1997 ReStud) paper or Hart (1983, I think).

## Minor points

- P.42 How on earth do we know that the “optimal” level of working from home is 1-2 days a week? These numbers are more or less plucked from the air in these papers!
- P.57. The main Autor et al paper is the QJE one “The Fall of the Labor Share and the Rise of Superstar Firms” (with David Autor, David Dorn, Larry Katz and Christina Patterson), [\*Quarterly Journal of Economics\*](#) 135(2) 645-709
- P.58 is it so obvious the growth in CONC is less in the EU than US? Your previous work suggested it was actually pretty similar in % growth terms over a comparable period. It’s hard to make quantitative comparisons.
- My 2018 paper is published as “Increasing Difference Between Firms: Market Power and the Macro Economy” *Changing Market Structures and Implications for Monetary Policy*, Kansas City Federal Reserve: Jackson Hole Symposium (2018) 19-65
- Anna and I surveyed the work on COVID and tech adoption here <https://www.economicsobservatory.com/how-covid-19-affecting-firms-adoption-new-technologies>