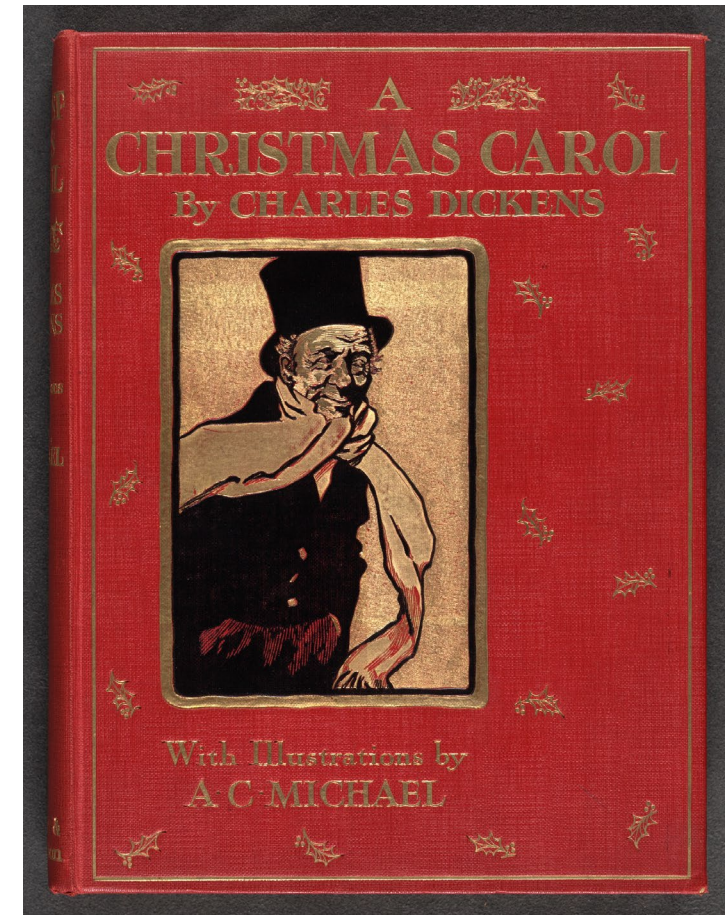


Productivity Growth: Past, Present and Yet to Come

Nick Bloom (Stanford)

October 29th 2021



Thanks to Jose Barrero, Steve Davis, Lucy Eldridge, John Fernald and Bob Gordon for feedback and discussion.

Summary

Pre-COVID: Labor productivity and TFP growth 2010-2019 were 1.1% and 0.6% respectively

During-COVID: We see in top down (macro data) and bottom-up (aggregated firm) data similar trends

- Labor productivity growth *rose* to about 3%
- TFP productivity growth *fell* to about 0.3%

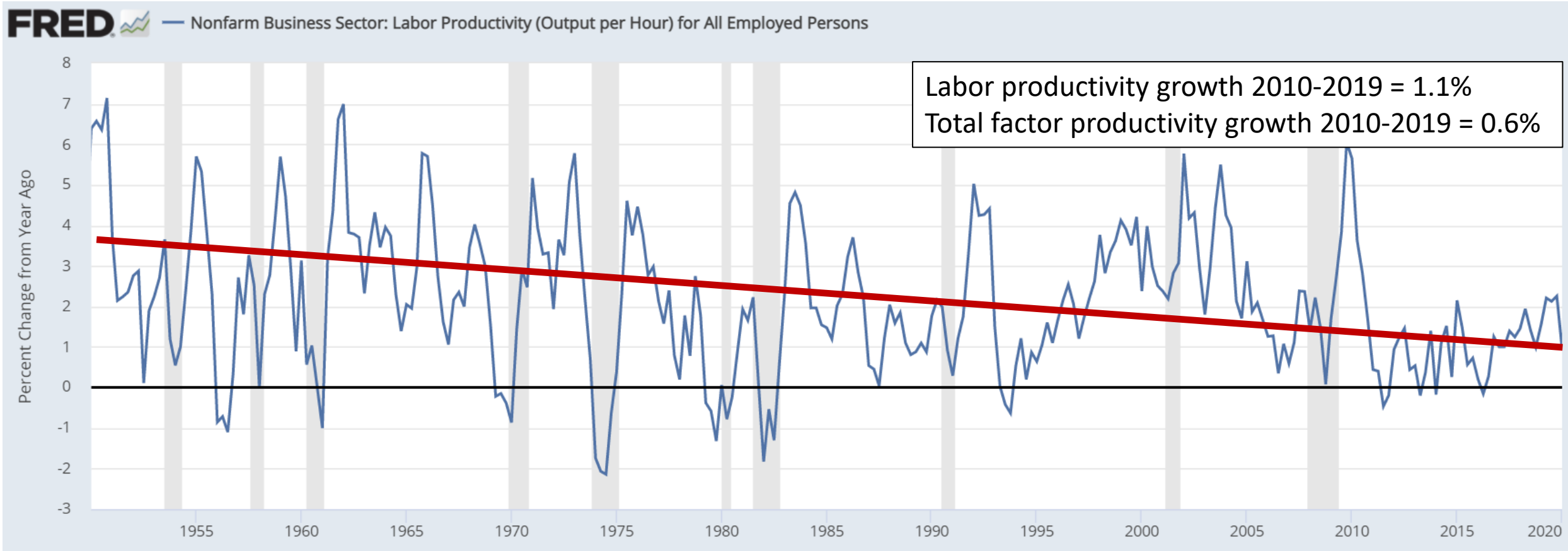
Caused by positive reallocation across sectors and firms, and negative within firm capacity/cost impacts

Post-COVID: I will discuss one positive and three negative factors that could impact productivity

- + Working from home likely increases productivity by about 3% to 5%
- Lost CEO time, lower capital utilization and supply constraints likely negative, but hard to quantify

So, my guess would likely be similar to pre-COVID: LP and TFP growth of about 1% and 0.5%

Pre-COVID: US Productivity Growth Has Long Been Slowing



Source: US Bureau of Labor Statistics <https://fred.stlouisfed.org/series/OPHNFB#0>

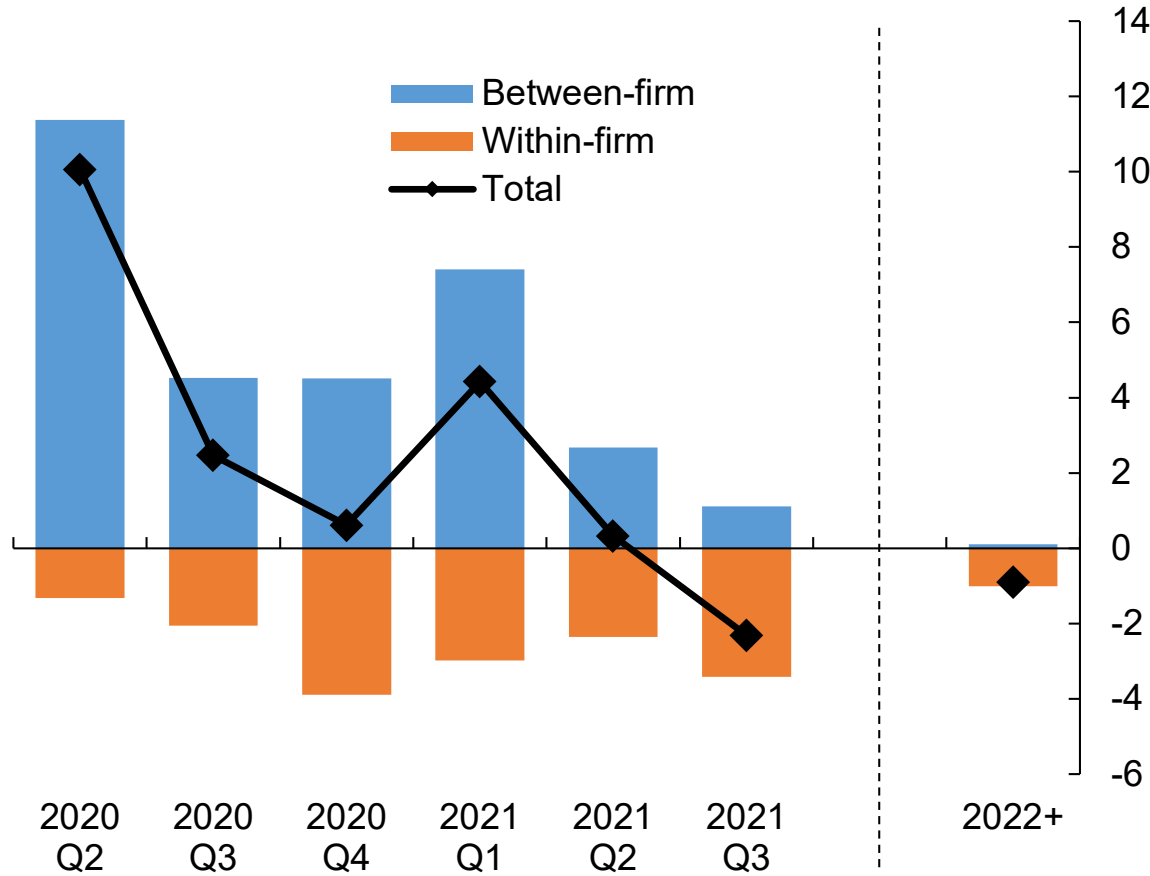
During COVID: Use UK micro firm data from the Bank-Nottingham-Stanford Decision Maker Panel (DMP) to examine COVID impact

- Monthly 10-minute online survey
- Surveys around 3000 firms monthly, covering about 10% UK employment
- Asks about impact of COVID on firm inputs and outputs

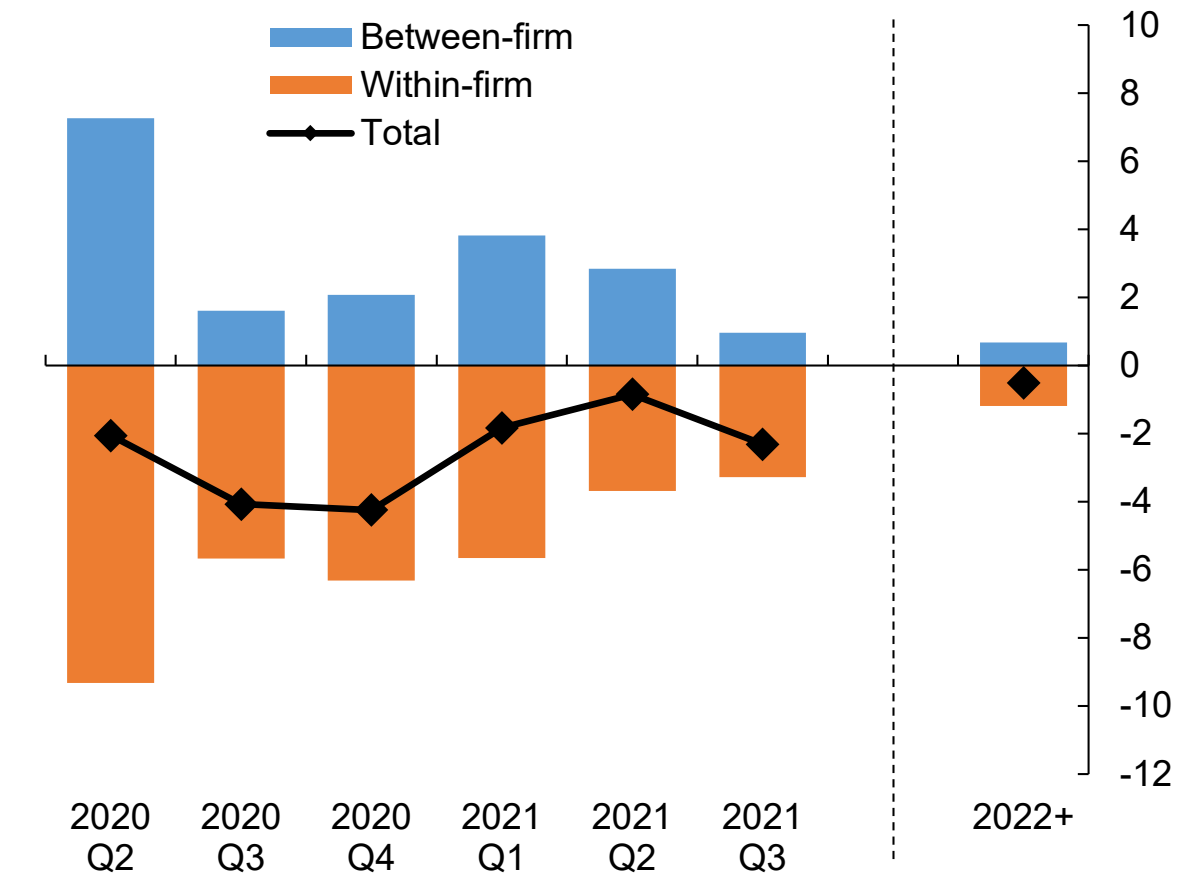


During Covid: positive LP and negative TFP impact of COVID on firms (matches macro UK ONS and US John Fernald data)

Panel A: % Impact on Labour Productivity (LP)



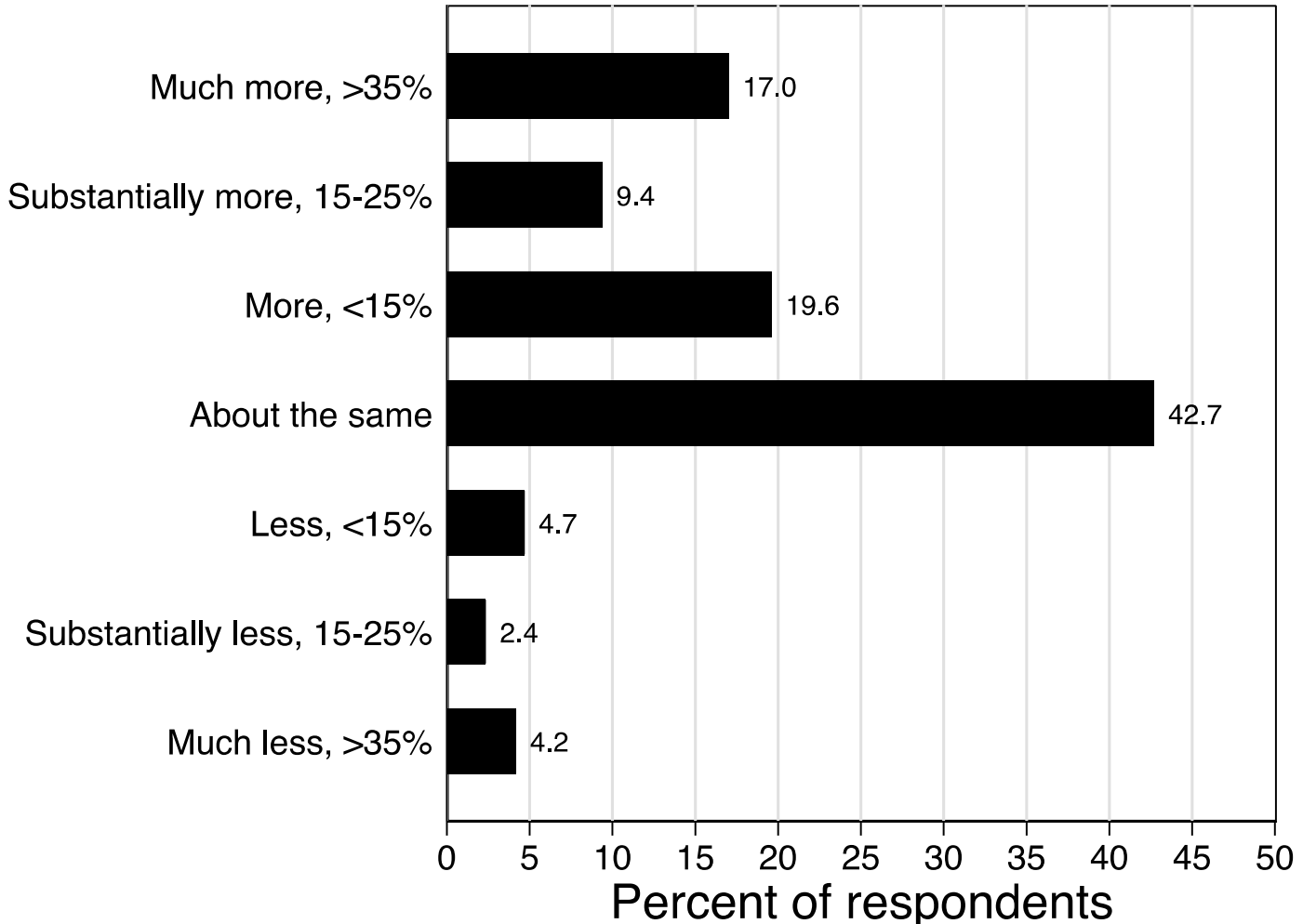
Panel B: % Impact on TFP



Notes: Calculations from aggregating up firm survey response panels of about 3,000 firms per month, with details in “The Impact of COVID-19 on Productivity”, by Nicholas Bloom, Phil Bunn, Paul Mizen, Pawel Smietanka and Greg Thwaites, NBER Working Paper August 2021.

Source: Decision Maker Panel <https://decisionmakerpanel.co.uk/>

Post-COVID: hybrid-WFH could raise labor productivity by 3%-5%



How does your efficiency working from home ***during the COVID-19 pandemic*** compare to your efficiency working on business premises ***before the pandemic?***

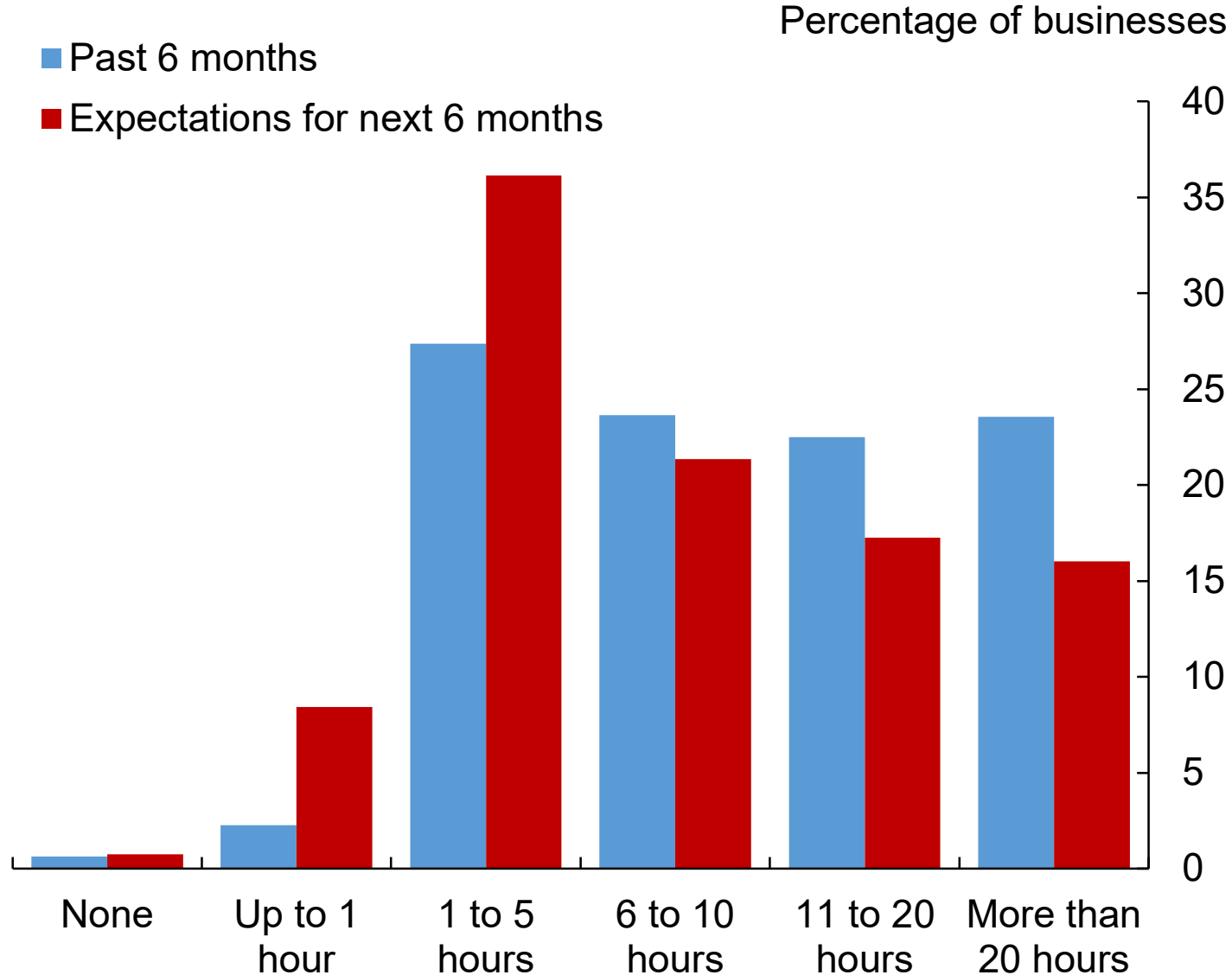
Note: An important question is what will show up in BLS data since about 2/3 of this productivity increase comes from commute time savings.

Notes: Data are from the July, August, and September 2021 survey waves of the Survey of Working Arrangements and Attitudes (SWAA) carried out by QuestionPro and IncQuery with 5000 responses per month. We re-weight raw responses to match the share of working age respondents in the 2010-2019 CPS in each {industry x state x earnings} cell.

Source: www.wfhresearch.com and “Why working from home will stick”, Jose Barrero, Nick Bloom and Steve Davis (2021, NBER WP)

Post-COVID: lost management time could reduce productivity

Average hours per week spent by CEOs managing effects of Covid-19 (UK data)

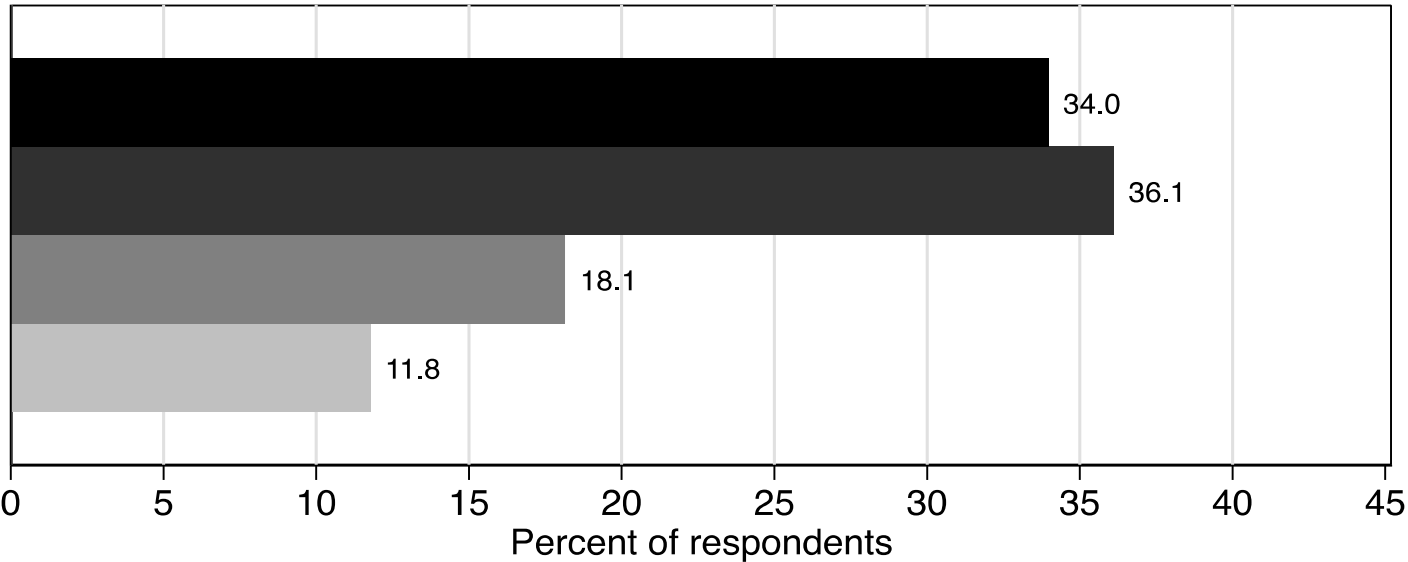


Notes: Based on the question 'Approximately how many hours a week has the CEO of your business spent managing the effects of Covid-19 on your business over the past six months? And how many hours a week do you expect them to spend on this over the next six months?'. Data were collected between November 2020 and January 2021.

Source: "The Impact of COVID-19 on Productivity", by Nicholas Bloom, Phil Bunn, Paul Mizen, Pawel Smietanka and Greg Thwaites, NBER Working Paper August 2021, and Decision Maker Panel <https://decisionmakerpanel.co.uk/>

Post-COVID: lower capital utilization could lower productivity

Which of the following would best fit your views on return to activity post-COVID after vaccination (in 2022+)?



- Completely
- Substantially - I'd avoid the subway, crowded elevators
- Partially - I'd avoid eating out, taxis
- Would not - continued social distancing



Notes: www.wfhresearch.com survey data of 5000 responses per month, re-weighted to match the share of working age respondents in the 2010-2019 CPS in each {industry x state x earnings} cell. The sample includes data from the July, August, and September 2021 survey waves only. **Source:** "Why working from home will stick", Jose Barrero, Nick Bloom and Steve Davis (2021, NBER WP)

Post-COVID: response to supply constraints could lower productivity

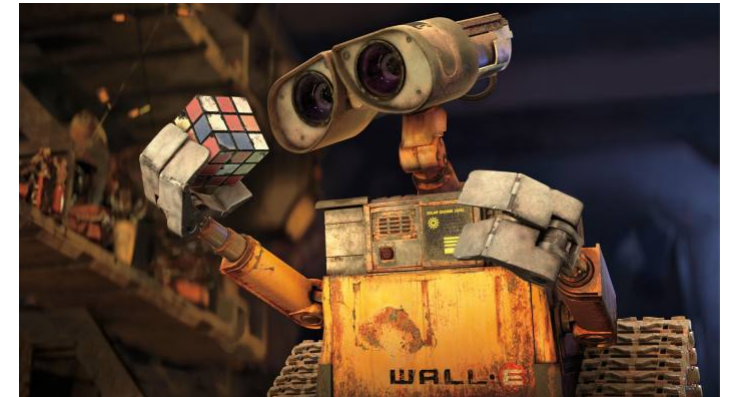
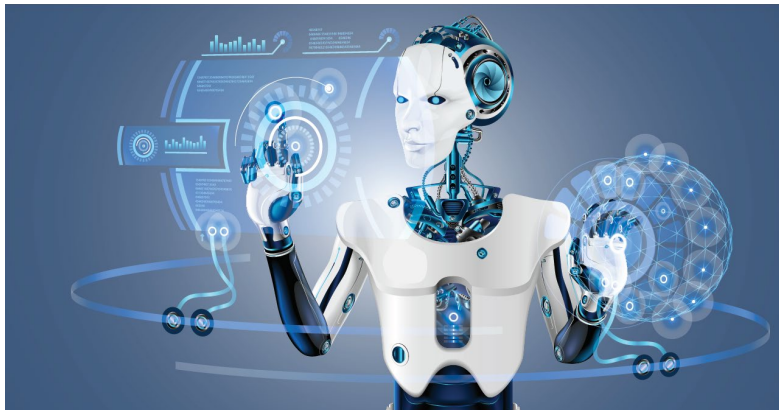
Qu: “<i>What, if anything, is your firm doing to mitigate the adverse impact of supply disruptions going forward? Select all that apply.</i>”	Percent of firms
Find new or redundant suppliers	47.4
Change the products, product lines, services offered, and/or delivery dates	34.1
Change inventory management from "Just-in-time" to "Just-in-case"	29.7
Turn away business or sales opportunities	24.3
Switch to suppliers that are physically closer to your firm's location(s)	15.7
Diversify shipping logistics (hire new transportation firms, change shipping modes, etc.)	14.0
Replace outside suppliers with new or expanded in-house production	7.7
Implement or expand automation technologies to manage shifts in demand and supply	5.6
Acquire upstream suppliers	3.3

Notes: Data are from the Atlanta Fed, Chicago University and Stanford University Survey of Business Uncertainty, sampling 428 US firms from October 2021, spread across US geographies and industries <https://www.atlantafed.org/research/surveys/business-uncertainty>

Summary: my bet is productivity growth will remain at $\approx 0.5\%$ to 1%

- LP and TFP short-run impacted by COVID in ways we understand
- Long-run factors include positive (WFH) and negative (CEO time, capacity & supply)
- Some hope the pandemic will accelerate technology – AI, robots, computers, VR etc

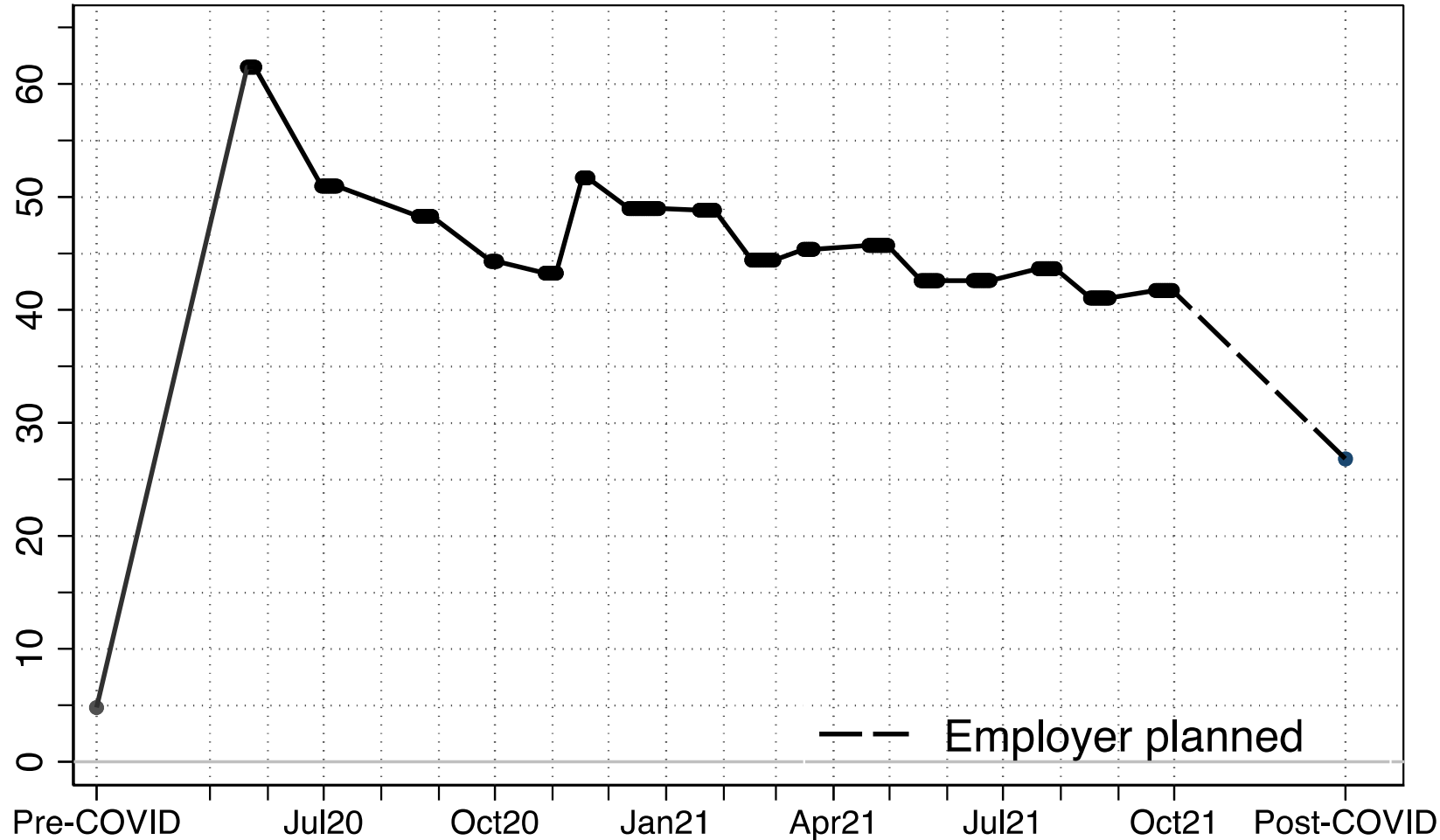
....maybe, but productivity growth still flat after PCs, internet, smart-phones etc, and supply constraints now making it hard to obtain new equipment, so not too optimistic



Back-Up Slides

WFH days rose from 5% (pre-COVID) to ≈25% (post-COVID)

Percentage of paid full days worked from home



Notes: Data are from the survey waves carried out by QuestionPro and IncQuery with 2,500 to 5000 responses per month. We re-weight raw responses to match the share of working age respondents in the 2010-2019 CPS in each {industry x state x earnings} cell.

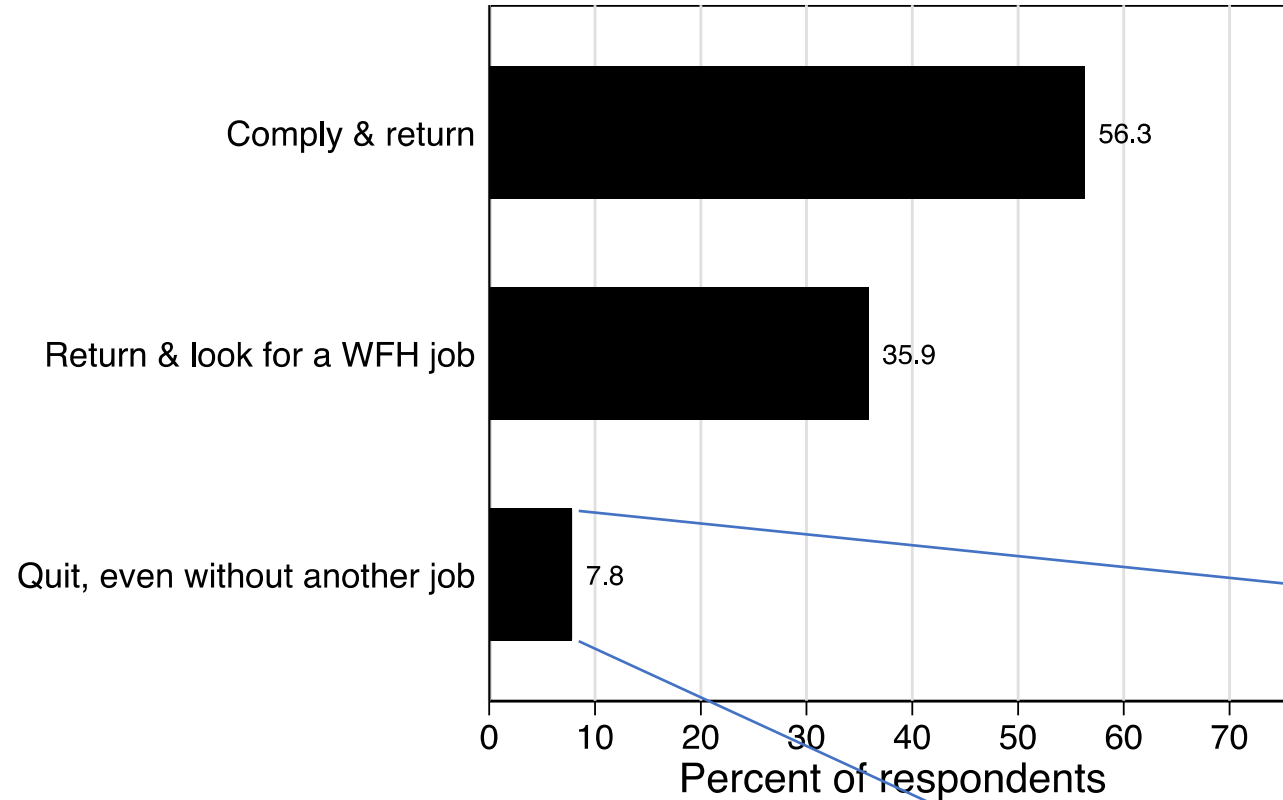
Source: www.wfhresearch.com and “Why working from home will stick”, Jose Barrero, Nick Bloom and Steve Davis (2021, NBER WP)

*Pre-COVID estimate taken from the 2017-2018 American Time Use Survey

**Post-COVID estimate based on the latest survey wave

One reason hybrid WFH is sticking – employees really want this

If my employer announced that all employees must return to the worksite 5+ days a week on November 1, 2021, I would:



Notes: Data are from 2,045 responses to the September 2021 wave of the Survey of Working Arrangements and Attitudes. We re-weight raw responses to match the share of persons in a given {age x sex x education x earnings} cell in the 2010 – 2019 CPS. The sample includes employed respondents who worked at least one full day from home during the survey week.

Source: www.wfhresearch.com “Why working from home will stick”, Jose Barrero, Nick Bloom and Steve Davis (2021, NBER WP)

Quit, even without another job

This quit share is rising over time

Percent of respondents who would quit if asked to return full-time in-person

