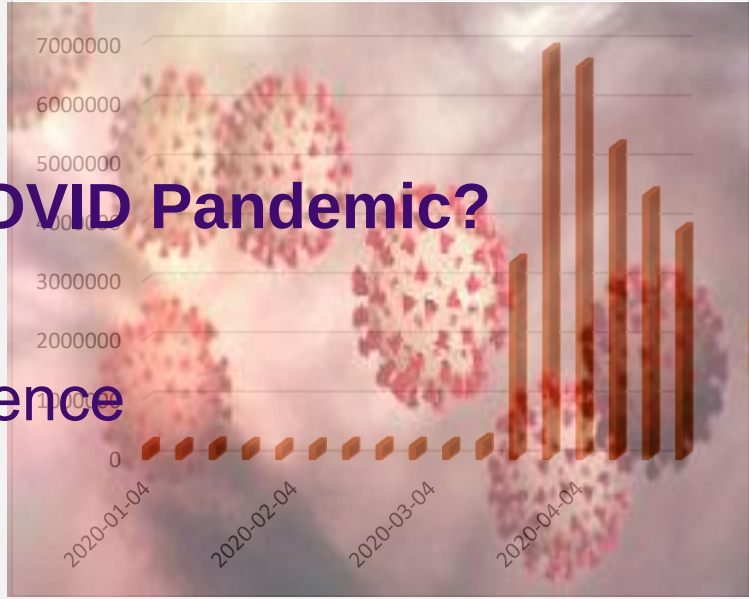
Why has GDP fallen so little in the COVID Pandemic?

“Potential Capital” and Economic Resilience

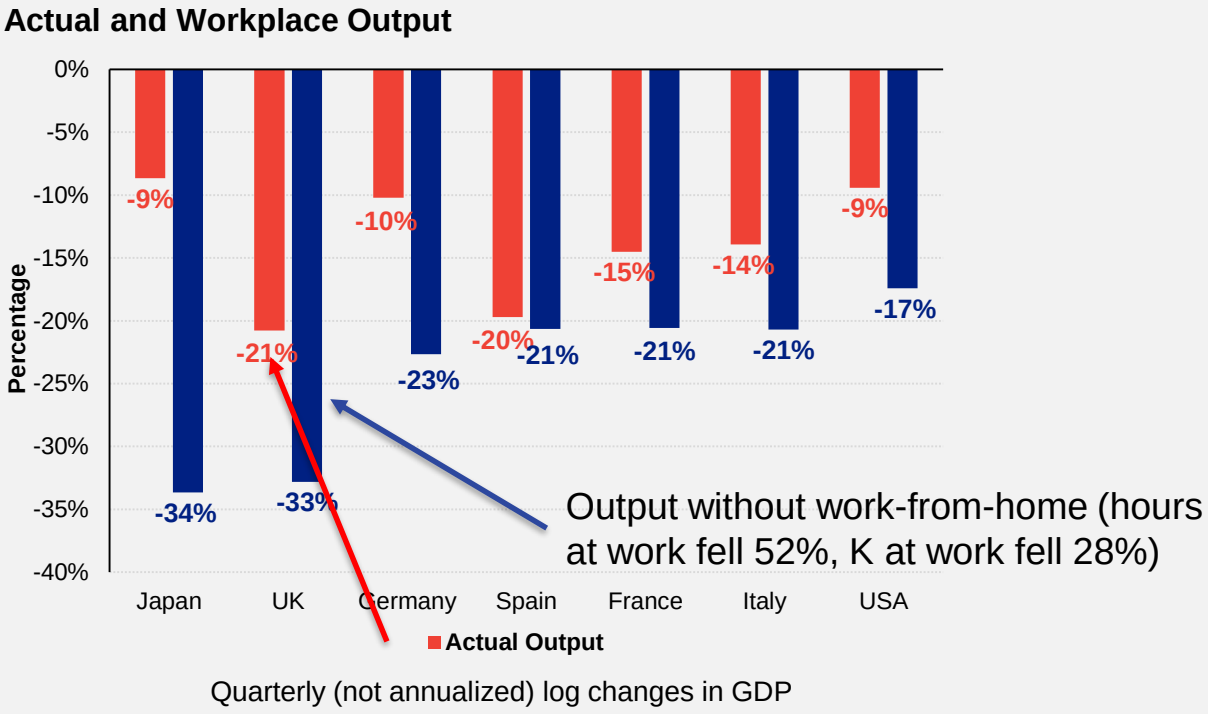


Janice Eberly, Kellogg School of Management, Northwestern University and NBER
Jonathan Haskel, Imperial College Business School, Bank of England; CEPR
Paul Mizen, University of Nottingham

Northwestern | Kellogg

Resilience during the COVID-19 pandemic

The Q2 decline in Output during COVID, in large Developed economies



Quarterly (not annualized) log changes in GDP

Eberly, Haskel, and Mizen 2021

Potential Capital and the COVID output decline

- As large as it has been, the collapse in output would have been worse, were it not for "*potential capital*"
  - capital not utilized but made available by technology
- Work from home has been much-reported
  - In the UK, the number of employees reporting working from home rose from 14% (Q4 2019 and steady previously) to 35% in Q2.
  - Some estimates are even higher in the US and elsewhere.
- How was this possible? What capital did they use?

Potential capital and growth accounting

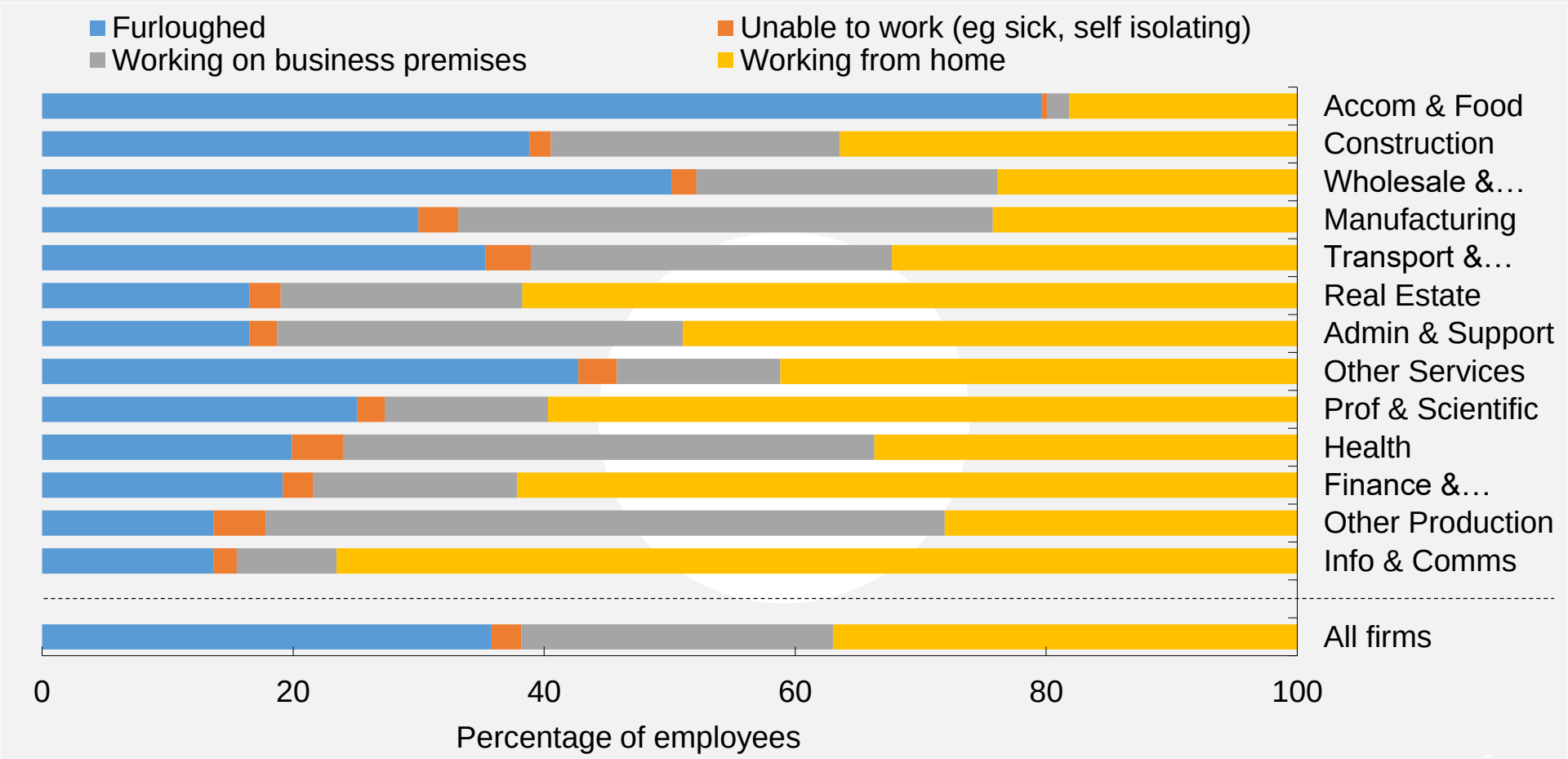
- COVID shock required that employees isolate from each other and from customers
  - Distribute labor *back out* of factory, store, and office
  - Labor is also remote from *capital.*
- The ability to work depended on the (immediate) availability of capital: a new “workplace”

Potential capital, Eberly, Haskel, and Mizen 2020.

Growth accounting

- UK data on …
  - Total hours worked
  - Working from home data allows separation of hours at work (on premises) and hours at home
    - Account for furlough program (adjust Eurostat data)
    - Alternative measures of WFH (DMP versus ONS)
  - Capital: no direct data on capital utilization
    - At home: proxy parallel to labor allocations; dwellings capital used in proportion to workers at home
    - At work: proxy with commercial energy use
- For later: Counterfactuals across industries => distributional impact

Labor: Impact of Covid-19 on employees, May 2020



Source: Economics Observatory, https://www.coronavirusandtheeconomy.com/question/which-firms-and-industries-have-been-most-affected-covid-19

UK 2020	1	2	3	4	5	6	Contribution		8
Qtr Dlog	dY	dLabor at work	dLabor at home	dK at work	dK at home	dTFP work	Home K	Home L	dTFP
Q1	-3.1	-11.4%	27.7%	-0.7%	32.7%	**3.4%**	0.9%	3.0%	-0.4%
Q2	-20.8	-51.5%	31.4%	-27.6%	60.8%	**11.7%**	3.0%	5.7%	3.3%
Q3	14.8	23.1%	6.7%	14.4%	-10.9%	**0.8%**	-0.7%	1.5%	-0.1%
Q4	0.9	-2.7%	9.1%	2.9%	7.9%	**1.3%**	0.4%	2.0%	-1.1%

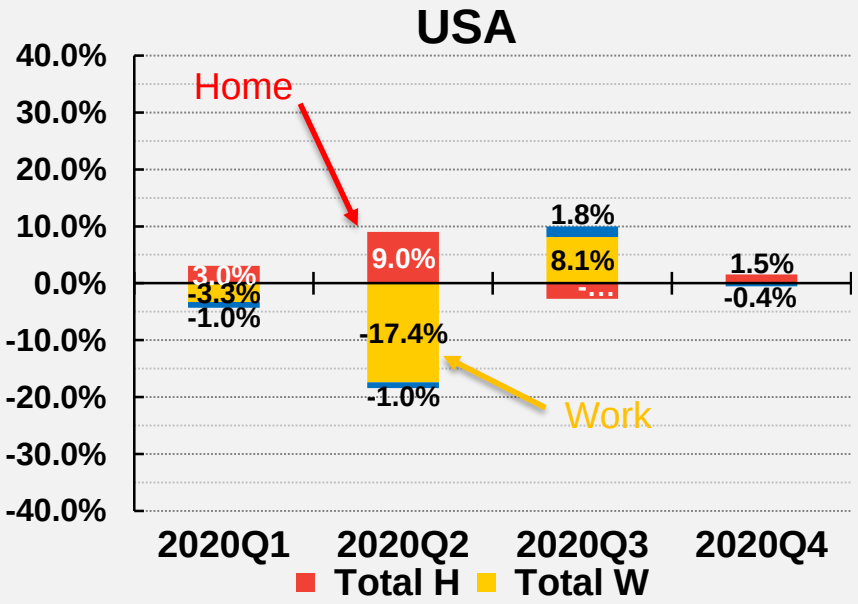
Potential Capital made available 3% of GDP in Q2 directly, 8.7% when L added.

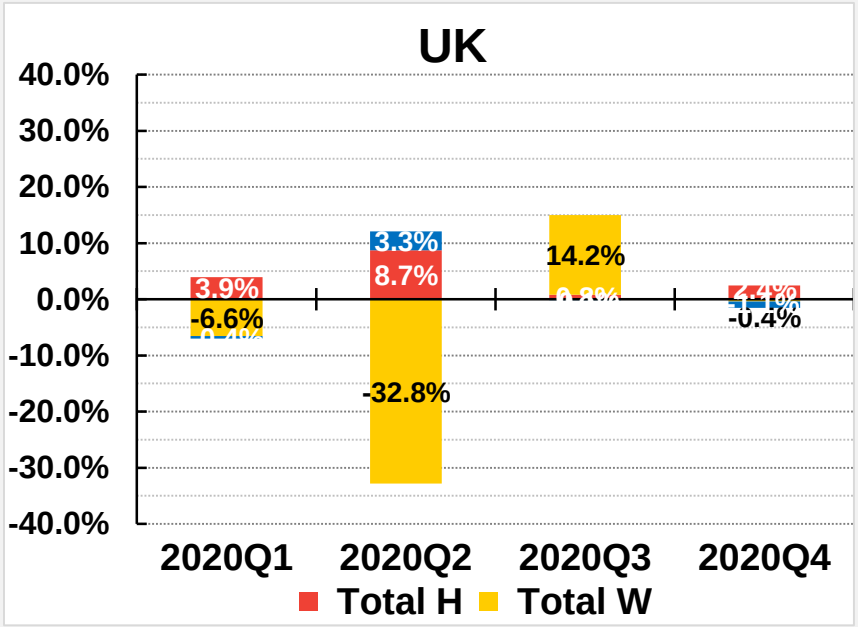
Ignoring home inputs implies productivity of 11.7% in Q2. Accounting for home inputs reduces this to 3.3% Q2, and negligible in Q1.

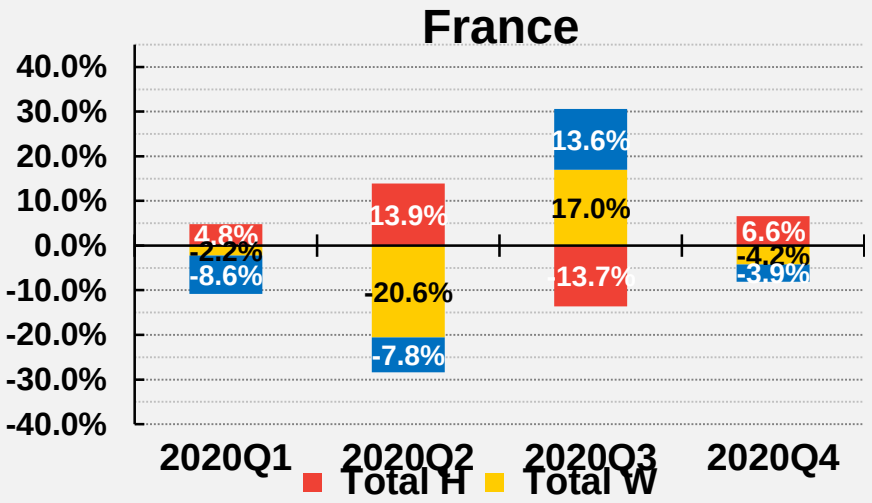
- Macro impact of WFH and Potential Capital for UK:
  - Potential Capital contributed 3% to GDP in Q2 2020 directly, 8.7% when home labor added.
  - Ignoring home inputs instead implies productivity rose 11.7% in Q2.
- Similar values across other advanced economies: US, France, Germany, Spain, Italy and Japan
  - Roughly 10 percent of GDP from production at home.

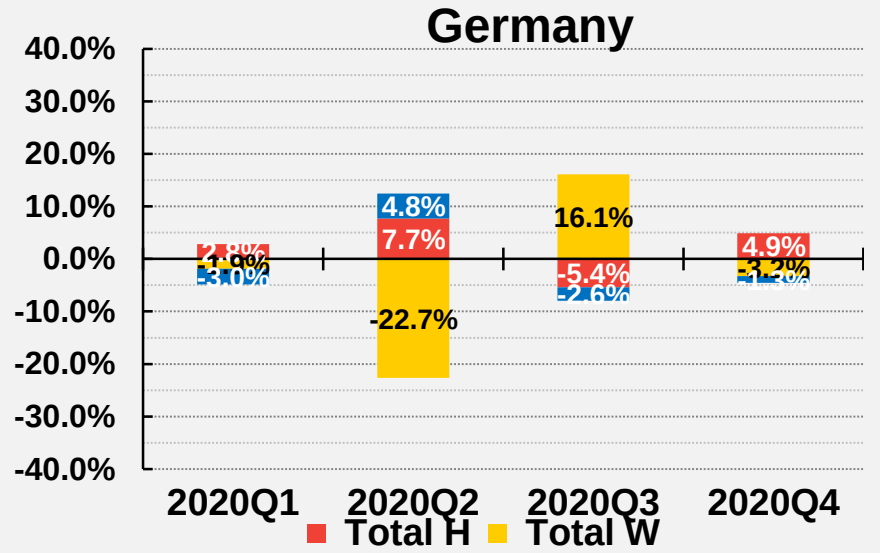
Across countries, there are similar patterns:

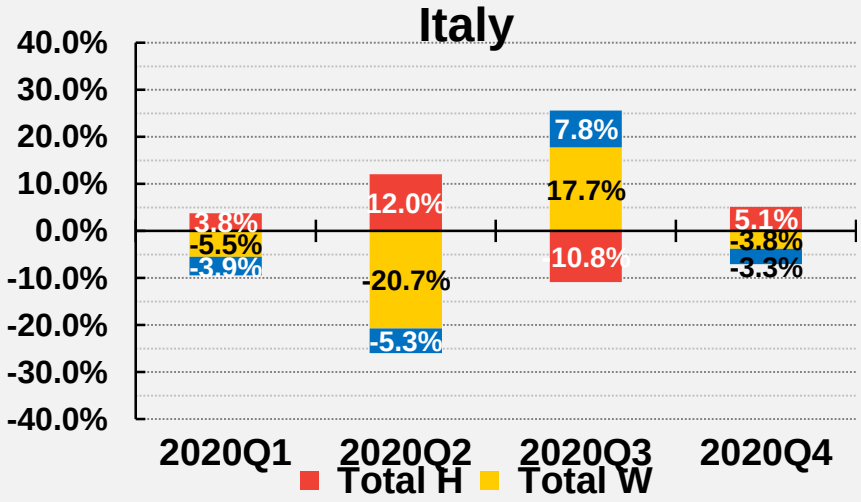
- Work output fell sharply in Q2, and was partially replaced by Home output, often reinforced by declining TFP
- This pattern is mirrored in Q3 and flattens in Q4

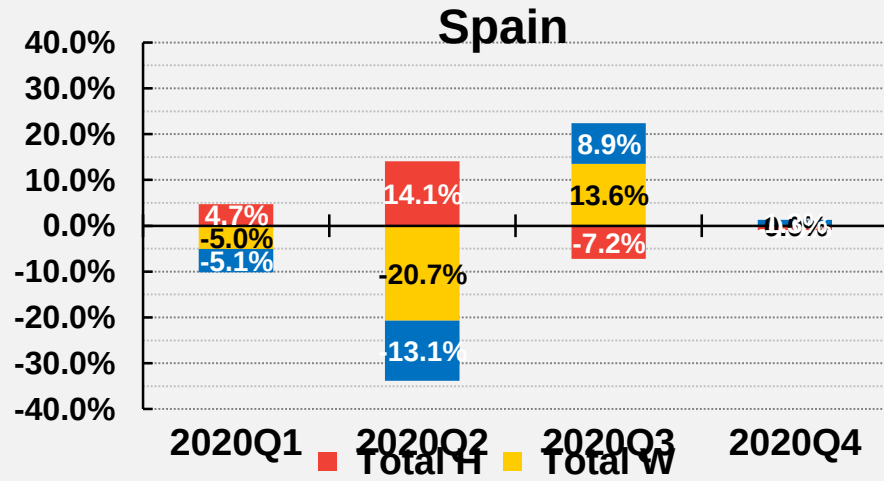






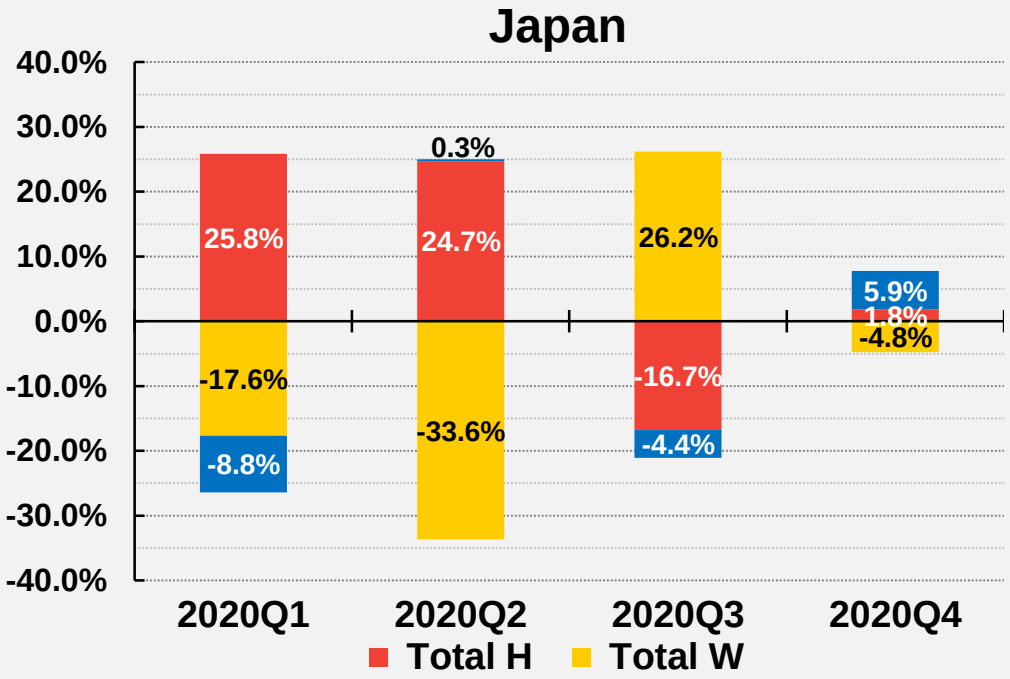






Interestingly, the pattern begins earlier in Japan

- The shift to home is more sustained across Q1 and Q2, beginning from a much lower base level of WFH.
- Again, the pattern is mirrored in Q3 and flattens in Q4



What is potential capital?

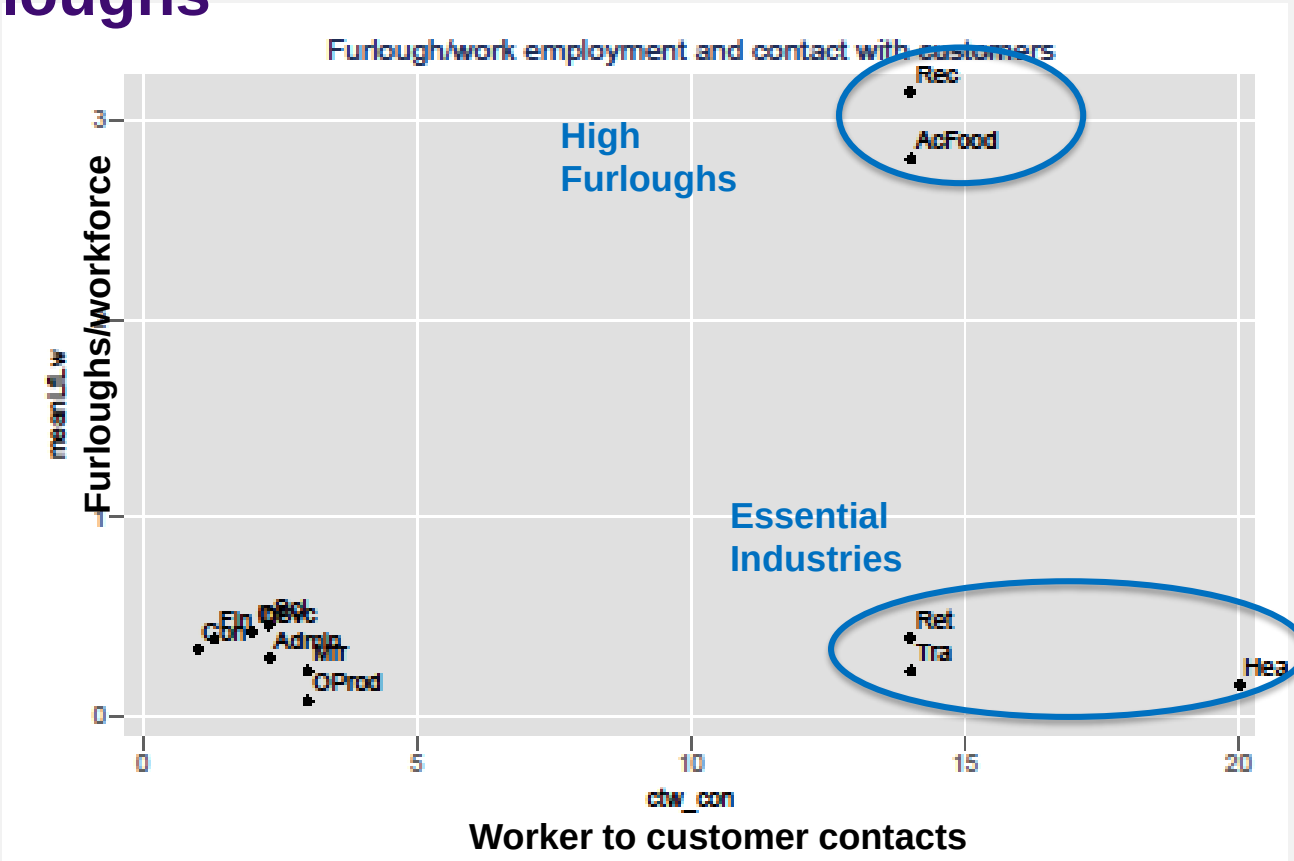
- Residential/dwellings repurposed for work use
  - Similar to Uber and Airbnb putting “excess” personal capital to business use
- But connectivity is also necessary
  - The internet, digital complements, conferencing recreate the “workplace”

WFH post-COVID? … persist or reverse?

- First ask why WFH grew in 2020
  - Relative prices: work on premises was expensive
    - PPE, health protections => will at least partially reverse
  - Work from home was not accommodated pre-Covid
    - Large shock forced, large scale WFH => solved the collective action problem and will persist
  - Work from home was not understood
    - Learning over the pandemic => will persist
- Distinguish price effects from collective action and learning?

Comment on Furloughs

- Might expect customer contacts to predict WFH due to health risk: go home when work is risky.
- Instead, customer contacts imply *face to face services* which cannot be offered remotely: predict furlough instead
- Model fixed costs of operating in a pandemic, depend on virus exposure.



$$F(K,L,A) - w_H L_H - w_W c L_W - uK_W - CC(A|L>0) \quad > 0$$

Estimate determinants of Furloughs, 2020-Q12021

	(1)	(2)	(3) 2020	(4) 2020
	dLn(Lf/Lw)	dLn(Lf/Lw)	dLn(Lf/Lw)	dLn(Lf/Lw)
Customer contacts* deaths	0.41 (2.27)	0.42 (2.34)	0.47 (2.09)	0.47 (2.15)
ICT share	1.18 (0.11)		-0.59 (-0.04)	
K share	0.40 (0.17)		-0.56 (-0.16)	
Worker contacts* Deaths	0.00 (0.00)	0.00 (0.01)	0.06 (0.09)	0.06 (0.08)
Obs	52	52	39	39
Industries	13	13	13	13
Quarter FE	yes	Yes	Yes	yes

Estimate determinants of WFH

$$\Delta \ln(L_H/L_W)_{i,t} = \sigma \Delta \ln(C_W)_{i,t} + \gamma_1 (ICT/K)_i + \gamma_2 (K\_\tan/K)_i + \delta_2 (WtoWContact_i * \Delta ExDeath_t) + v_t + \varepsilon_{i,t}$$

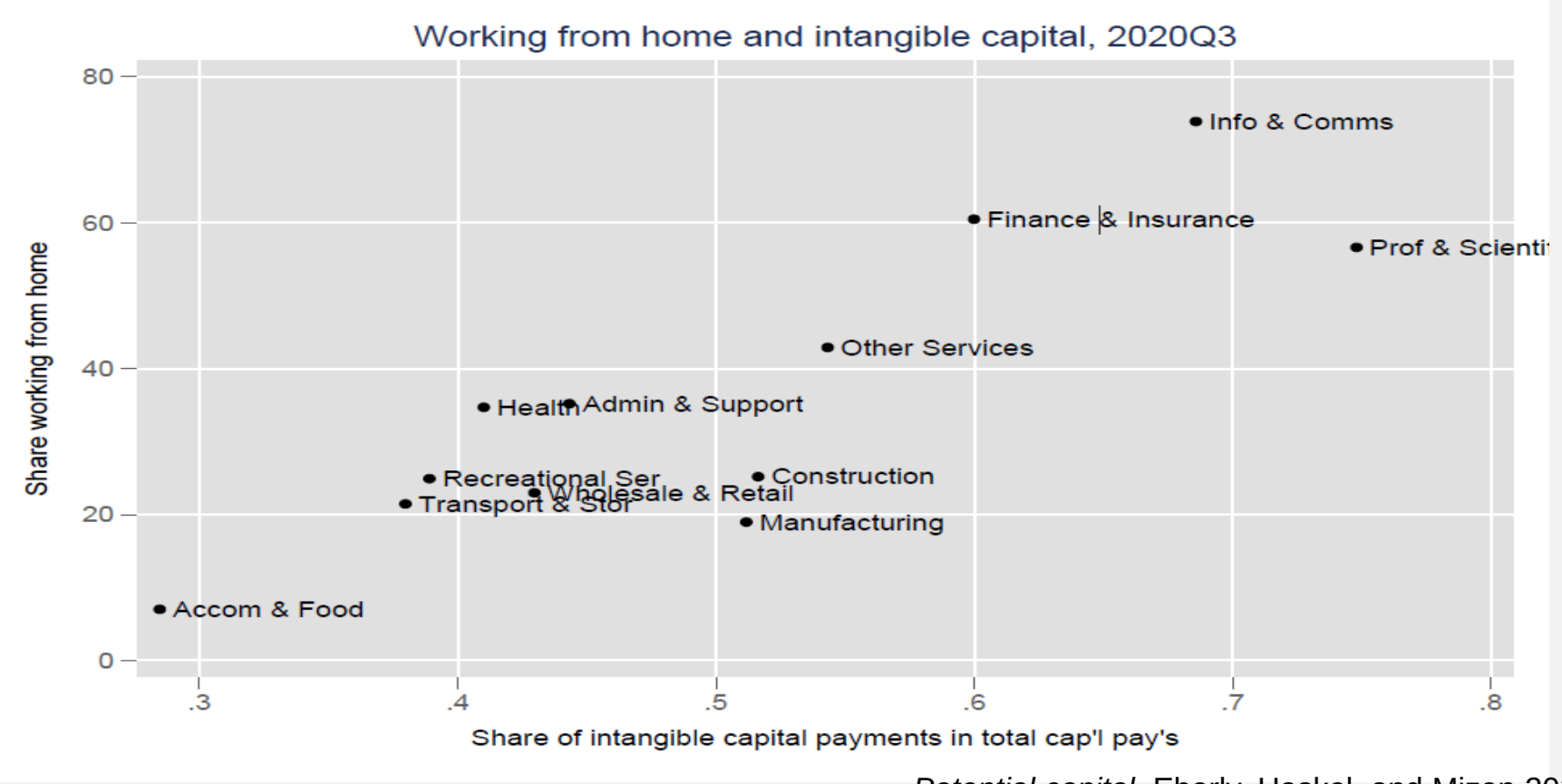
UK data across industries from DMP

- Elasticity of substitution estimated from relative cost, C_W, of working on premises (from DMP survey of firms, quarterly, by industry)
- Technology effects:
  - Information and communications (ICT) intensity (initial, by industry)
  - Physical capital intensity (initial, by industry)
  - Exposure: worker to worker contacts x excess deaths (as for customer contacts)

Estimate determinants of WFH

	(1) all	(2)x-food	(3) 2020	(4) x-info	(5) Omit Q2
	dLn(Lh/Lw)	dLn(Lh/Lw)	dLn(Lh/Lw)	dLn(Lh/Lw)	dLn(Lh/Lw)
Chg worker costs: DC	1.14 (1.58)	1.95 (2.53)	3.06 (2.50)	3.27 (2.66)	2.18 (1.99)
ICT share	0.93 (0.83)	1.02 (1.20)	4.42 (2.62)	7.09 (1.30)	2.69 (1.87)
K share	-0.02 (-0.08)				
Worker contacts* Deaths	-0.04 (-0.68)	-0.01 (-0.24)	0.05 (0.59)	0.05 (0.58)	0.03 (0.38)
Obs	52	48	39	36	26 – Q3 & Q4
Industries	13	12- omit food	13	12 – omit info	13
Quarter FE	yes	yes	yes	yes	yes

Greater working from home is positively associated with firms' intangible capital (ICT, Software, etc.)



Potential capital, Eberly, Haskel, and Mizen 2020.

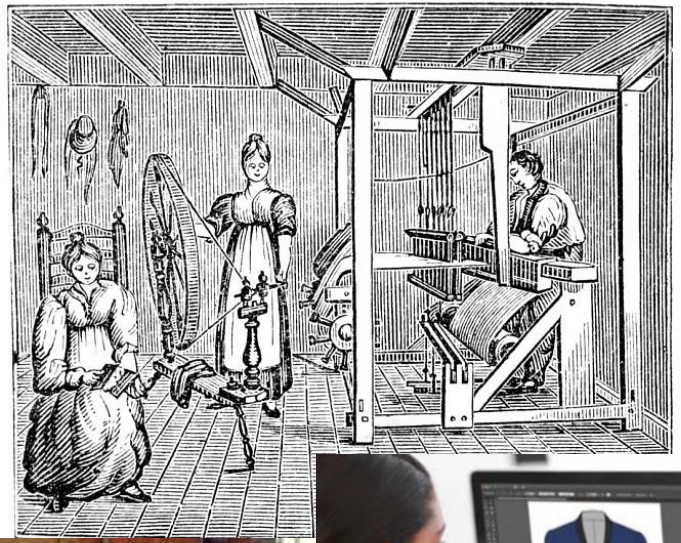
What drives Labor at home vs premises?

- Price and ICT effects, especially early in the pandemic
- Price effects suggest there is room to reverse WFH as relative cost of home and premises locations revert.
- However, the role of initial ICT suggests that the capacity for WFH was there all along – obstacle may have been collective action.
  - Large shock solved the collection action problem and forced learning.
  - Surveys show preference for 2-3 days/week of WFH by employees (fewer by employers)

Potential Capital and policy implications

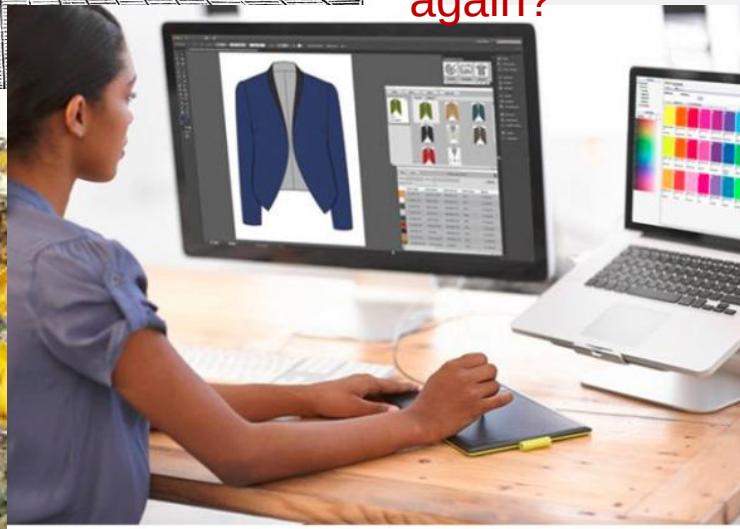
- Productivity: perhaps the internet is not a disappointment after all – resilience rather than ready growth
  - Greater benefit to intangible capital
  - Investments in business resilience prepared for the pandemic
  - A form of self-insurance (and reverse insurance) from WFH labor
- Resilience for the future
  - Distributional implications – not resilient for everyone
  - Also distribution across geographies (WFH need not be at home)
  - Policy as a buffer: resilience of last resort
    - Business resilience was both a regulatory *and* risk management requirement => specifics were individual and local
    - Policy suited to insurance and collective action/public goods, like public health and broadband

Artisanal production



And reverses again?

Centralized workplace



The Fabric of Civilization: How Textiles Made the World by Virgina Postrel, Basic Books, 2020

Potential Capital implications

- Reversal of the industrial revolution and return to “artisanal” production – Mokyr

> *In half a century’s time, it may well seem extraordinary that millions of people once trooped from one building (their home) to another (their office) each morning, only to reverse the procedure each evening.. . Commuting wastes time and building capacity. One building - the home - often stands empty all day; another - the office - usually stands empty all night. All this may strike our grandchildren as bizarre.*
>
> Frances Cairncross, 1997, as quoted in Mokyr 2001.