

Managing to Adapt: Structured Management Practices and Firm Resilience

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Why do some firms adapt and others not?

- ▶ Do **structured management practices** help firms adapt?
- ▶ Important question, but hard to measure.
- ▶ Adaptive pressures often gradual and endogenous.

Covid-19: a big, unexpected disruption to working practices



Figure 1: London during lockdown (Sky News, 2020).

Covid-19: a big, unexpected disruption to working practices

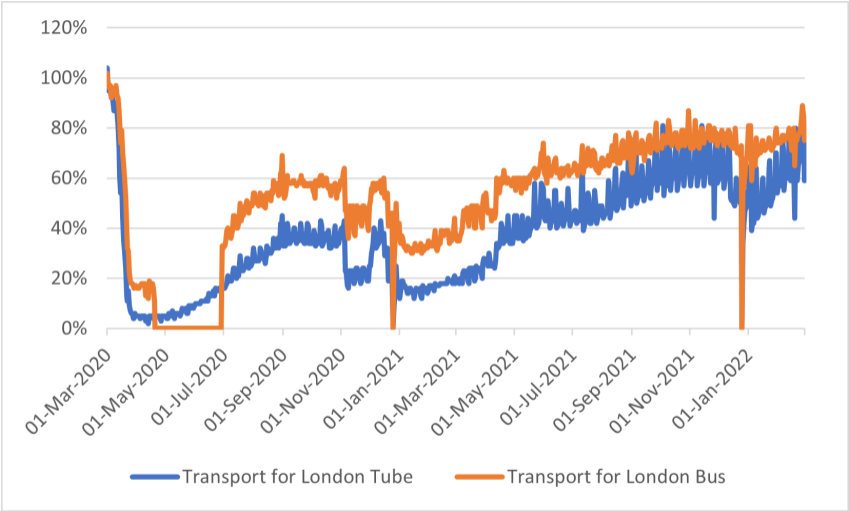


Figure 2: Commuter traffic relative to baseline levels (GOV.UK, 2023).

This paper

- ▶ **Purpose-built** rich novel data source, pre/post-pandemic on:
 - ▶ Management practices
 - ▶ Working practices
 - ▶ Firm outcomes
- ▶ Link at the firm level to **high-frequency** qualitative survey.
- ▶ Exploit **disruption** to working practices created by pandemic.
- ▶ Test if structured management practices help firms adapt to unexpected shock.

Does structured management help firms adapt to shocks?

- ▶ Yes.
- ▶ Smaller fall in turnover.
- ▶ Higher adoption of homeworking and online sales.
- ▶ Bigger effect in more exposed industries.
- ▶ Difference in homeworking opens up rapidly and persists.
- ▶ In the long run, better managed firms adopt hybrid model.
- ▶ Many ancillary innovations to make change stick.

The results in a nutshell



Figure 3: Turnover and working practices changes by management decile.

Outline

Data

Empirical strategy

Main results

Dynamics and mechanisms

Conclusions

The Management and Expectations Survey 2020

- ▶ Novel UK business survey, sample size roughly 12,000.
- ▶ Management practices, working practices, expectations and firm outcomes.
- ▶ Data for 2019 and 2020.

How do we measure management practices?

Based on World Management Survey and MOPS family of surveys:

- ▶ Employment practices
- ▶ Targets
- ▶ KPIs
- ▶ Continuous improvement

The distribution of management practices

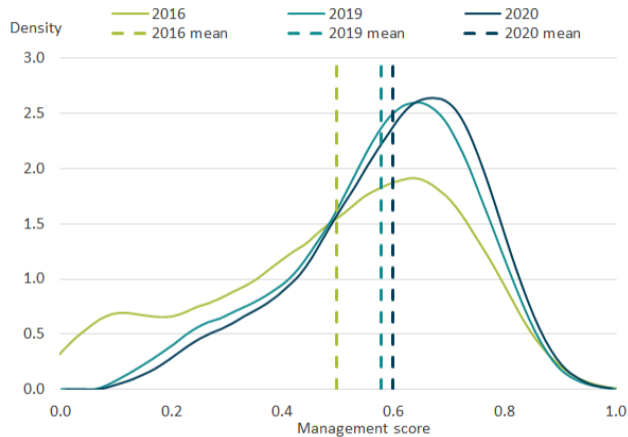


Figure 4: The distribution of management practices in the UK, 2016-2020 (ONS, 2021).

Additional data sources

- ▶ Business Insights and Conditions Survey (BICS).
- ▶ Annual Business Survey (ABS).
- ▶ Annual Survey of Hours and Earnings (ASHE).

Empirical strategy

- ▶ Baseline estimating equation:

$$y_{it} = \beta_1 Y2020_t + \beta_2 Y2020_t MPS2019_i + \theta X_{it} + \alpha_i + u_{it} \quad (1)$$

- ▶ Heterogeneous effects:

$$y_{it} = \sum_j \beta_{1j} Y2020_t IND_{ji} + \sum_j \beta_{2j} Y2020_t MPS2019_i IND_{ji} + \theta X_{it} + \alpha_i + u_{it} \quad (2)$$

A simple Diff-in-Diff to fix ideas

Table 1: The impact of MPS on firm outcomes

	(1)	(2)	(3)
	ln(turnover)	online sales	homeworking
Y2020	-0.205*** (0.007)	1.052*** (0.062)	18.032*** (0.331)
Y2020*HighMPS	0.044*** (0.014)	0.226* (0.127)	7.557*** (0.717)
Observations	23,872	23,872	23,872
Clusters	11,965	11,965	11,965
Adjusted R ²	0.082	0.034	0.283

Turnover falls by less for firms with structured management

Table 2: TWFE: MPS and turnover

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Y2020*MPS2019	0.259*** (0.045)	0.240*** (0.045)	0.241*** (0.045)	0.191*** (0.045)	0.132*** (0.050)	0.172*** (0.054)	0.259*** (0.057)
ln(employment)				Y	Y	Y	Y
ln(CAPEX)					Y	Y	Y
ln(IC)					Y	Y	Y
MPS							Y
Industry*Y2020		Y	Y	Y	Y	Y	Y
Region*Y2020			Y	Y	Y	Y	Y
Sizeband*Y2020						Y	Y
Pre*Y2020						Y	Y
Observations	23,872	23,872	23,872	23,858	20,190	20,183	20,183
Clusters	11,965	11,965	11,965	11,965	10,486	10,479	10,479
Adjusted R ²	0.084	0.124	0.126	0.150	0.182	0.188	0.192

Homeworking also increases differentially

Table 3: TWFE: MPS and homeworking

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Y2020*MPS2019	37.856*** (1.845)	33.734*** (1.700)	33.266*** (1.689)	32.982*** (1.698)	34.440*** (1.908)	27.194*** (2.045)	29.279*** (2.102)
ln(employment)				Y	Y	Y	Y
ln(CAPEX)					Y	Y	Y
ln(IC)					Y	Y	Y
MPS							Y
Industry*Y2020		Y	Y	Y	Y	Y	Y
Region*Y2020			Y	Y	Y	Y	Y
Sizeband*Y2020						Y	Y
Pre*Y2020						Y	Y
Observations	23,872	23,872	23,872	23,858	20,190	20,183	20,183
Clusters	11,965	11,965	11,965	11,965	10,486	10,479	10,479
Adjusted R ²	0.296	0.457	0.465	0.465	0.482	0.493	0.494

Online sales also increase differentially

Table 4: TWFE: MPS and online sales

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Y2020*MPS2019	0.854** (0.367)	1.110*** (0.367)	1.095*** (0.366)	1.055*** (0.368)	0.929** (0.398)	1.223*** (0.449)	1.427*** (0.464)
ln(employment)				Y	Y	Y	Y
ln(CAPEX)					Y	Y	Y
ln(IC)					Y	Y	Y
MPS							Y
Industry*Y2020		Y	Y	Y	Y	Y	Y
Region*Y2020			Y	Y	Y	Y	Y
Sizeband*Y2020						Y	Y
Pre*Y2020						Y	Y
Observations	23,872	23,872	23,872	23,858	20,190	20,183	20,183
Clusters	11,965	11,965	11,965	11,965	10,486	10,479	10,479
Adjusted R ²	0.034	0.064	0.064	0.065	0.069	0.070	0.070

Homeworking: effect largest in most affected industries

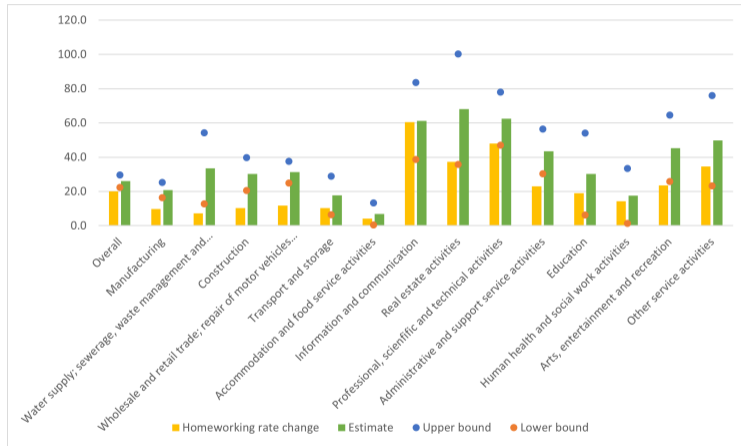


Figure 5: Effect largest in most affected industries.

Online sales: effect largest in most affected industries

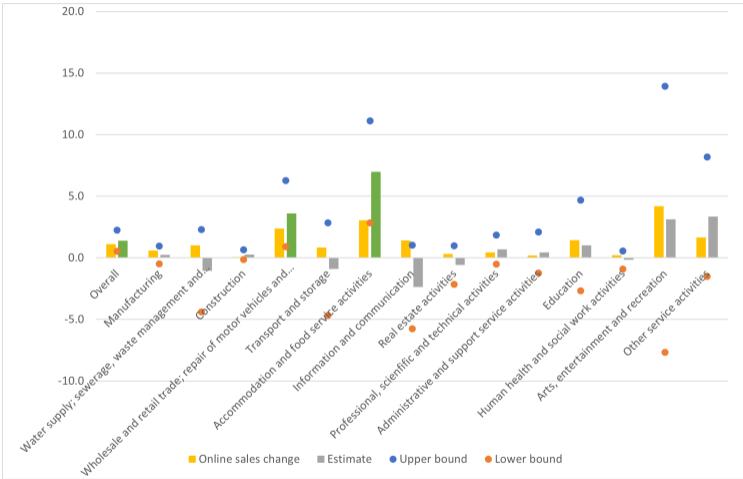


Figure 6: Effect largest in most affected industries.

Robustness checks: sources of variation

- ▶ WFH exposure level? **Lots at section level, little beyond SIC2.**
- ▶ Correlation in pre-pandemic period? **Essentially zero.**
- ▶ SIC2 WFH suitability index with section FE? **Same.**
- ▶ More granular industry FE? **Same.**
- ▶ Triple interaction with pre-pandemic suitability? **Same.**
- ▶ Control for essential industries index? **Same.**

Robustness checks: alternative hypotheses

- ▶ Control for forecasting ability? **Same.**
- ▶ Control for labour productivity? **Same.**
- ▶ Control for ICT investment? **Same.**
- ▶ Labour productivity as outcome? **Same.**

Dynamics: gap opens early and persists

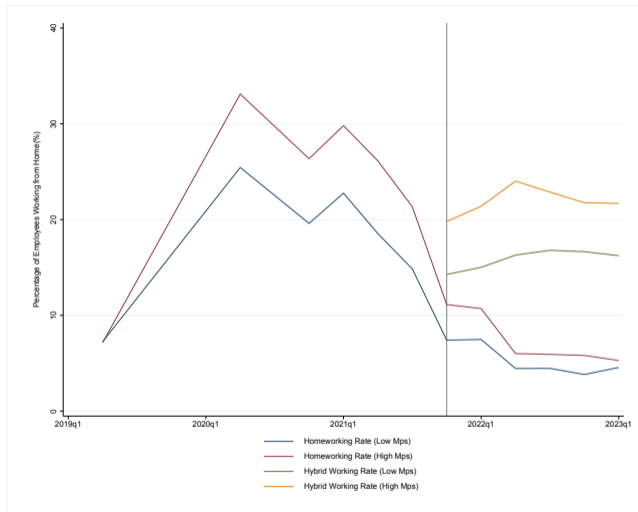


Figure 7: Homeworking and hybrid working rates for above/below median MPS firms.

Industry dynamics: level differences but story the same

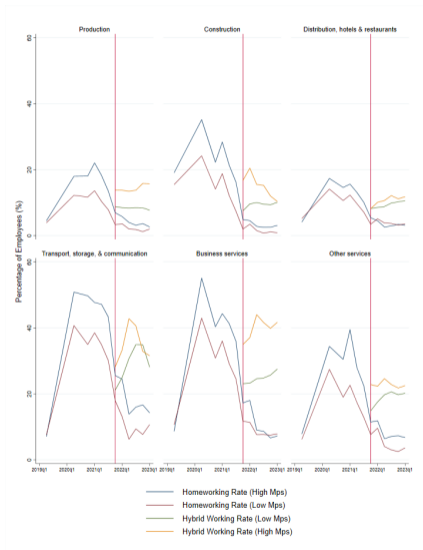


Figure 8: Homeworking and hybrid working rates for above/below median MPS firms by sector.

Dynamics: gap opens early and persists

Table 5: Percentage of employees working hybrid in 2022

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MPS2019	27.49*** (3.217)	28.11*** (3.450)	25.70*** (3.442)	24.84*** (3.431)	15.47*** (3.305)	16.35*** (3.283)	10.17*** (3.048)
Employment		Y	Y	Y	Y	Y	Y
Ownership controls			Y	Y	Y	Y	Y
Industry WFH suitability index				Y	Y	Y	Y
Education controls					Y	Y	Y
Pre-pandemic homeworking rate						Y	
Pandemic homeworking rate							Y
Industry FE	Y	Y	Y	Y	Y	Y	Y
Region FE	Y	Y	Y	Y	Y	Y	Y
Observations	3,408	3,387	3,387	3,387	3,387	3,369	3,369
Adjusted R ²	0.249	0.250	0.262	0.291	0.344	0.347	0.454

Better managed firms adapt in many ways...

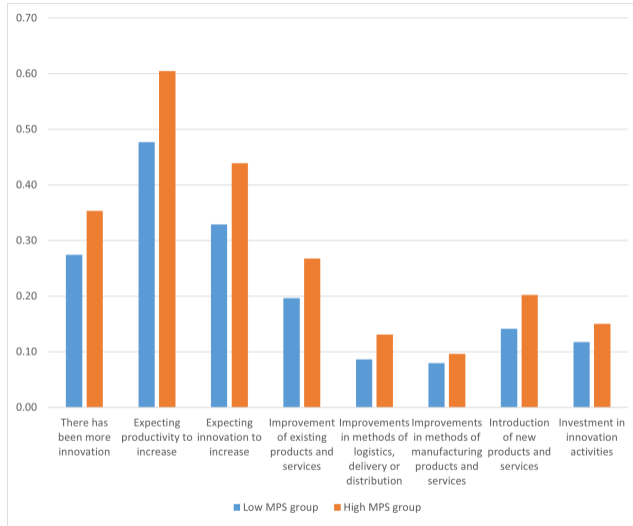


Figure 9: Innovation types by management practice score.

Better managed firms adapt in many ways...

Table 6: Management and innovation types

	(1) Existing	(2) New	(3) Logistics	(4) Production	(5) Investment
MPS2019	0.437*** (0.080)	0.303*** (0.071)	0.227*** (0.056)	0.093* (0.055)	0.189*** (0.066)
Industry FE	Y	Y	Y	Y	Y
Sizeband FE	Y	Y	Y	Y	Y
Observations	1,389	1,389	1,389	1,389	1,389
Adjusted R ²	0.041	0.028	0.016	0.128	0.055

...and expect these adaptations to pay off into the future

Table 7: Management and innovation expectation

	(1) More innovation	(2) Future productivity	(3) Future innovation
MPS2019	0.390*** (0.115)	0.541*** (0.146)	0.647*** (0.110)
Industry FE	Y	Y	Y
Sizeband FE	Y	Y	Y
Observations	989	884	1,077
Adjusted R ²	0.107	0.019	0.030

In progress

- ▶ Differential firm survival.
- ▶ Understanding what management practices matter.
- ▶ External validity: other shocks.

Structured management helps firms adapt to shocks

- ▶ Use rich purpose-built data to investigate how **management practices** help firms adapt their working practices.
- ▶ **Covid-19** provides large, unforeseen pressure to adapt.
- ▶ Structured management helps firms **adopt homeworking and online sales, leading to a smaller fall in turnover.**
- ▶ Effect is significant, robust, stronger in more exposed industries, persistent and accompanied by other innovation.

MES descriptive statistics

Table 8: Summary statistics of MES2020

	Mean	SD	Median	Count
Overall management score 2019	0.61	0.15	0.63	12,291
Overall management score 2020	0.62	0.15	0.65	12,291
Overall management score change	0.02	0.06	0.00	12,291
Ln(turnover) 2019	8.38	1.70	8.34	12,076
Ln(turnover) 2020	8.18	1.81	8.21	12,100
ln(turnover) change	-0.19	0.66	-0.08	12,032
Online sales % 2019	5.69	18.42	0.00	12,292
Online sales % 2020	6.80	20.12	0.00	12,292
Online sales change	1.11	6.26	0.00	12,292
Homeworking rate 2019	7.22	19.53	0.00	12,070
Homeworking rate 2020	27.38	36.12	6.00	12,070
Homeworking rate change	20.16	32.53	1.33	12,070

Turnover change by industry

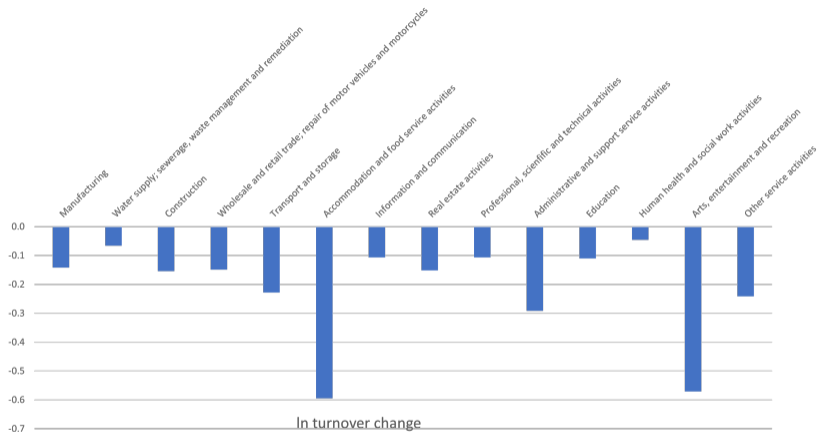


Figure 10: Ln(turnover) change by industry.

Online sales as a percentage of turnover by industry

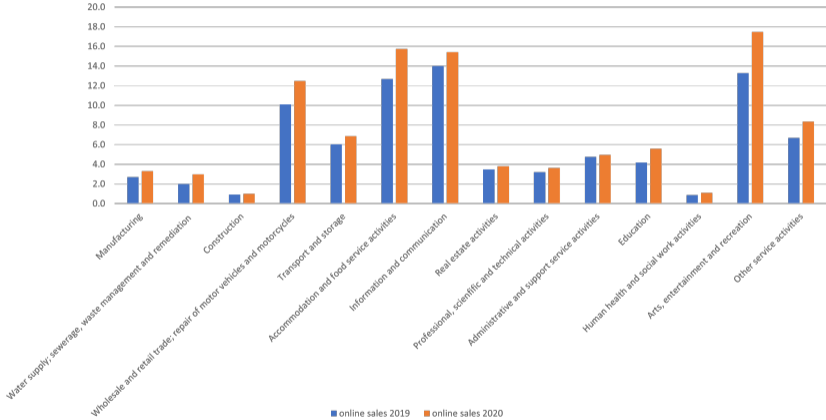


Figure 11: Online sales in percentages of turnover by industry.

Homeworking rates by industry

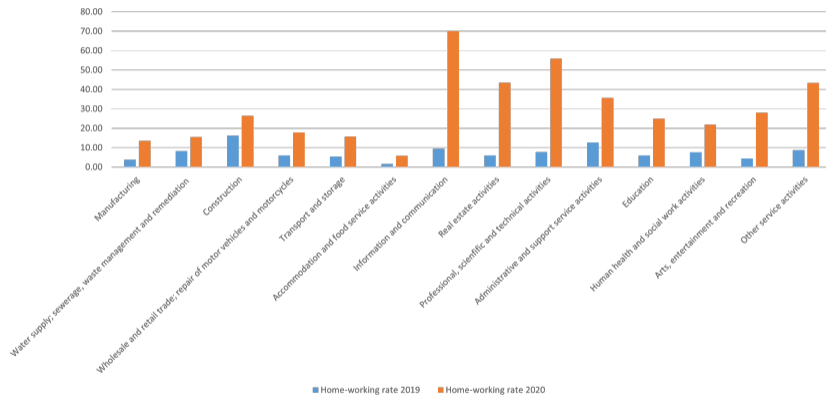


Figure 12: Homeworking rate in percentages by industry.

Pre-pandemic correlation of MPS and outcomes

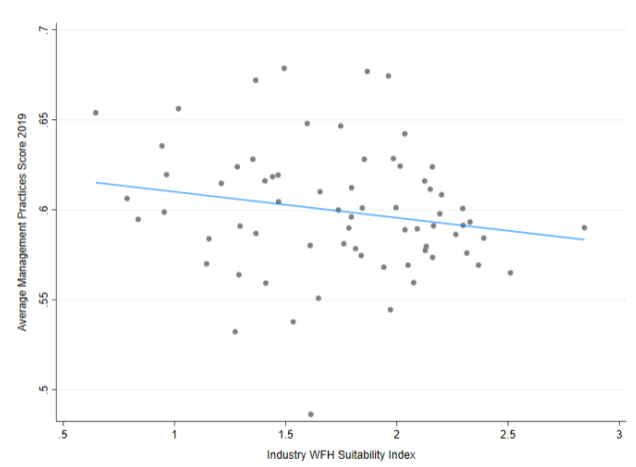


Figure 13: Correlation between homeworking suitability and MPS at the industry level.

Pre-pandemic correlation of MPS and outcomes

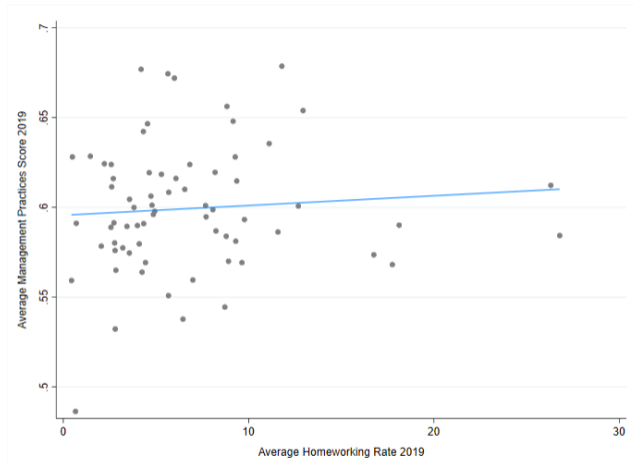


Figure 14: Correlation between pre-pandemic homeworking rates and MPS at the industry level.

Pre-pandemic correlation of MPS and outcomes

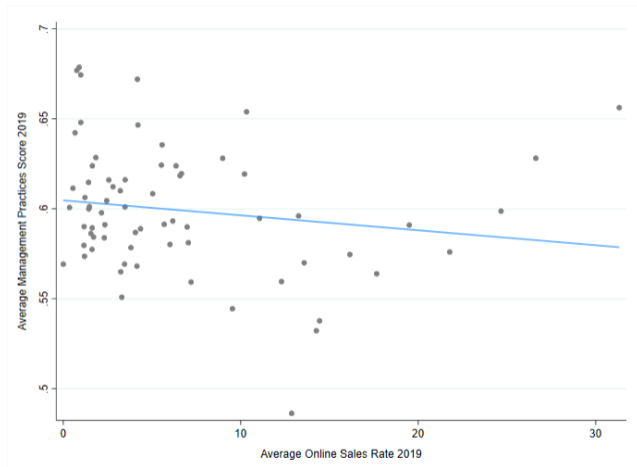


Figure 15: Correlation between pre-pandemic online sales rates and MPS at the industry level.

Management practices, individual categories

Table 9: TWFE by management practices category

	(1) ln(turnover)	(2)	(3) Online sales	(4)	(5) Home-working	(6)
Y2020*MPS2019	0.238*** (0.049)		1.396*** (0.437)		26.030*** (1.839)	
Y2020*mpsImprove		0.060* (0.033)		-0.251 (0.254)		6.712*** (1.151)
Y2020*mpsKPI		0.047 (0.031)		0.421 (0.276)		7.788*** (1.308)
Y2020*mpsTarget		0.025 (0.039)		-0.638* (0.374)		13.085*** (1.887)
Y2020*mpsEmploy		0.090*** (0.027)		1.015*** (0.258)		5.494*** (1.129)
ln(employment)	Y	Y	Y	Y	Y	Y
Industry*Y2020	Y	Y	Y	Y	Y	Y
Region*Y2020	Y	Y	Y	Y	Y	Y
Sizeband*Y2020	Y	Y	Y	Y	Y	Y
Pre*Y2020	Y	Y	Y	Y	Y	Y
Observations	23,889	23,887	23,929	23,927	23,882	23,880
Clusters	11,996	11,995	11,996	11,995	11,949	11,948
Adjusted R ²	0.154	0.154	0.062	0.063	0.478	0.480

Variation in firm-level heterogeneity in WFH suitability

Table 10: ASHE firm-level WFH suitability regressions on FEs

R^2	Observations	Industry FEs	Specification
0.198	35,752	Section	1
0.254	35,752	Sic 2-Digit	1
0.274	35,752	Sic 3-Digit	1
0.293	35,752	Sic 4-Digit	1
0.198	35,752	Section	2
0.254	35,752	Sic 2-Digit	2
0.274	35,752	Sic 3-Digit	2
0.293	35,752	Sic 4-Digit	2
0.217	11,473	Section	3
0.277	11,473	Sic 2-Digit	3
0.321	11,473	Sic 3-Digit	3
0.360	11,473	Sic 4-Digit	3

Robustness checks, sources of variation, turnover

Table 11: Coefficient of interest, comparison to baseline

Robustness check	Coefficient	s.e.	p-value	Adj. R ²	Clusters	Observations	Model
Baseline	0.26	0.04	0.000	0.08	11,965	23,872	1
Baseline	0.24	0.05	0.000	0.12	11,965	23,872	2
Baseline	0.24	0.05	0.000	0.13	11,965	23,872	3
Baseline	0.19	0.04	0.000	0.15	11,965	23,858	4
Baseline	0.13	0.05	0.008	0.18	10,486	20,190	5
Baseline	0.17	0.05	0.001	0.19	10,479	20,183	6
Baseline	0.26	0.06	0.000	0.19	10,479	20,183	7
WFH suitability index	0.26	0.05	0.000	0.08	11,965	23,872	1
WFH suitability index	0.24	0.05	0.000	0.12	11,965	23,872	2
WFH suitability index	0.24	0.05	0.000	0.13	11,965	23,872	3
WFH suitability index	0.19	0.04	0.000	0.15	11,965	23,858	4
WFH suitability index	0.13	0.05	0.007	0.18	10,486	20,190	5
WFH suitability index	0.17	0.05	0.001	0.19	10,479	20,183	6
WFH suitability index	0.26	0.06	0.000	0.19	10,479	20,183	7
Essential industry index	0.21	0.05	0.000	0.10	10,603	21,151	1
Essential industry index	0.23	0.05	0.000	0.13	10,603	21,151	2
Essential industry index	0.23	0.05	0.000	0.13	10,603	21,151	3
Essential industry index	0.18	0.05	0.000	0.16	10,603	21,141	4
Essential industry index	0.12	0.05	0.018	0.19	9,261	17,816	5
Essential industry index	0.16	0.06	0.003	0.20	9,255	17,810	6
Essential industry index	0.25	0.06	0.000	0.20	9,255	17,810	7

Robustness checks, sources of variation, homeworking

Table 12: Coefficient of interest, comparison to baseline

Robustness check	Coefficient	s.e.	p-value	Adj. R ²	Clusters	Observations	Model
Baseline	37.86	1.85	0.000	0.30	11,965	23,872	1
Baseline	33.73	1.70	0.000	0.46	11,965	23,872	2
Baseline	33.27	1.69	0.000	0.46	11,965	23,872	3
Baseline	32.98	1.70	0.000	0.47	11,965	23,858	4
Baseline	34.44	1.91	0.000	0.48	10,486	20,190	5
Baseline	27.19	2.04	0.000	0.49	10,479	20,183	6
Baseline	29.28	2.10	0.000	0.49	10,479	20,183	7
WFH suitability index	30.35	1.69	0.000	0.44	11,965	23,872	1
WFH suitability index	32.88	1.66	0.000	0.49	11,965	23,872	2
WFH suitability index	32.46	1.65	0.000	0.49	11,965	23,872	3
WFH suitability index	32.08	1.66	0.000	0.49	11,965	23,858	4
WFH suitability index	33.05	1.86	0.000	0.51	10,486	20,190	5
WFH suitability index	25.49	2.00	0.000	0.52	10,479	20,183	6
WFH suitability index	27.40	2.06	0.000	0.52	10,479	20,183	7
Essential industry index	37.46	2.00	0.000	0.31	10,603	21,151	1
Essential industry index	35.09	1.84	0.000	0.47	10,603	21,151	2
Essential industry index	34.53	1.83	0.000	0.47	10,603	21,151	3
Essential industry index	34.13	1.84	0.000	0.48	10,603	21,141	4
Essential industry index	35.94	2.08	0.000	0.49	9,261	17,816	5
Essential industry index	28.96	2.22	0.000	0.51	9,255	17,810	6
Essential industry index	30.96	2.29	0.000	0.51	9,255	17,810	7

Robustness checks, sources of variation, online sales

Table 13: Coefficient of interest, comparison to baseline

Robustness check	Coefficient	s.e.	p-value	Adj. R ²	Clusters	Observations	Model
Baseline	0.85	0.37	0.020	0.03	11,965	23,872	1
Baseline	1.11	0.37	0.003	0.06	11,965	23,872	2
Baseline	1.09	0.37	0.003	0.06	11,965	23,872	3
Baseline	1.05	0.37	0.004	0.06	11,965	23,858	4
Baseline	0.93	0.40	0.020	0.07	10,486	20,190	5
Baseline	1.22	0.45	0.006	0.07	10,479	20,183	6
Baseline	1.43	0.46	0.002	0.07	10,479	20,183	7
WFH suitability index	0.81	0.37	0.028	0.03	11,965	23,872	1
WFH suitability index	1.10	0.37	0.003	0.06	11,965	23,872	2
WFH suitability index	1.09	0.37	0.003	0.06	11,965	23,872	3
WFH suitability index	1.05	0.37	0.004	0.06	11,965	23,858	4
WFH suitability index	0.92	0.40	0.020	0.07	10,486	20,190	5
WFH suitability index	1.22	0.45	0.007	0.07	10,479	20,183	6
WFH suitability index	1.42	0.46	0.002	0.07	10,479	20,183	7
Essential industry index	1.17	0.40	0.004	0.04	10,603	21,151	1
Essential industry index	1.24	0.40	0.002	0.07	10,603	21,151	2
Essential industry index	1.23	0.40	0.002	0.07	10,603	21,151	3
Essential industry index	1.18	0.40	0.004	0.07	10,603	21,141	4
Essential industry index	1.04	0.43	0.016	0.07	9,261	17,816	5
Essential industry index	1.24	0.49	0.011	0.07	9,255	17,810	6
Essential industry index	1.37	0.51	0.007	0.07	9,255	17,810	7

Robustness checks, alternative hypotheses, turnover

Table 14: Coefficient of interest, comparison to baseline

Robustness check	Coefficient	s.e.	p-value	Adj. R ²	Clusters	Observations	Model
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Baseline	0.17	0.05	0.001	0.19	10,479	20,183	6
Baseline	0.26	0.06	0.000	0.19	10,479	20,183	7
Forecasting error	0.25	0.04	0.000	0.08	11,965	23,872	1
Forecasting error	0.23	0.05	0.000	0.12	11,965	23,872	2
Forecasting error	0.24	0.05	0.000	0.13	11,965	23,872	3
Forecasting error	0.19	0.04	0.000	0.15	11,965	23,858	4
Forecasting error	0.13	0.05	0.009	0.18	10,486	20,190	5
Forecasting error	0.17	0.05	0.001	0.19	10,479	20,183	6
Forecasting error	0.26	0.06	0.000	0.19	10,479	20,183	7
ICT intensity	0.24	0.05	0.000	0.08	7,692	15,350	1
ICT intensity	0.24	0.05	0.000	0.11	7,692	15,350	2
ICT intensity	0.24	0.05	0.000	0.11	7,692	15,350	3
ICT intensity	0.19	0.05	0.000	0.14	7,692	15,340	4
ICT intensity	0.16	0.06	0.008	0.16	6,865	13,274	5
ICT intensity	0.19	0.07	0.004	0.16	6,862	13,271	6
ICT intensity	0.25	0.07	0.000	0.17	6,862	13,271	7
Labour productivity	0.26	0.05	0.000	0.10	11,075	22,118	1
Labour productivity	0.25	0.05	0.000	0.15	11,075	22,118	2
Labour productivity	0.25	0.05	0.000	0.15	11,075	22,118	3
Labour productivity	0.21	0.05	0.000	0.17	11,075	22,107	4
Labour productivity	0.15	0.05	0.002	0.21	9,737	18,772	5
Labour productivity	0.12	0.05	0.033	0.21	9,737	18,772	6
Labour productivity	0.19	0.06	0.001	0.21	9,737	18,772	7

Robustness checks, alternative hypotheses, homeworking

Table 15: Coefficient of interest, comparison to baseline

Robustness check	Coefficient	s.e.	p-value	Adj. R ²	Clusters	Observations	Model
Baseline	37.86	1.85	0.000	0.30	11,965	23,872	1
Baseline	33.73	1.70	0.000	0.46	11,965	23,872	2
Baseline	33.27	1.69	0.000	0.46	11,965	23,872	3
Baseline	32.98	1.70	0.000	0.47	11,965	23,858	4
Baseline	34.44	1.91	0.000	0.48	10,486	20,190	5
Baseline	27.19	2.04	0.000	0.49	10,479	20,183	6
Baseline	29.28	2.10	0.000	0.49	10,479	20,183	7
Forecasting error	37.71	1.85	0.000	0.30	11,965	23,872	1
Forecasting error	33.57	1.70	0.000	0.46	11,965	23,872	2
Forecasting error	33.11	1.69	0.000	0.46	11,965	23,872	3
Forecasting error	32.83	1.70	0.000	0.47	11,965	23,858	4
Forecasting error	34.20	1.91	0.000	0.48	10,486	20,190	5
Forecasting error	27.10	2.04	0.000	0.49	10,479	20,183	6
Forecasting error	29.18	2.10	0.000	0.49	10,479	20,183	7
ICT intensity	30.09	2.19	0.000	0.34	7,692	15,350	1
ICT intensity	30.35	2.07	0.000	0.47	7,692	15,350	2
ICT intensity	30.17	2.06	0.000	0.48	7,692	15,350	3
ICT intensity	29.89	2.07	0.000	0.48	7,692	15,340	4
ICT intensity	31.56	2.28	0.000	0.49	6,865	13,274	5
ICT intensity	24.45	2.47	0.000	0.50	6,862	13,271	6
ICT intensity	26.23	2.51	0.000	0.50	6,862	13,271	7
Labour productivity	37.05	1.85	0.000	0.31	11,075	22,118	1
Labour productivity	32.52	1.71	0.000	0.46	11,075	22,118	2
Labour productivity	32.13	1.70	0.000	0.47	11,075	22,118	3
Labour productivity	31.92	1.71	0.000	0.47	11,075	22,107	4
Labour productivity	33.66	1.91	0.000	0.48	9,737	18,772	5
Labour productivity	25.93	2.07	0.000	0.49	9,737	18,772	6
Labour productivity	27.32	2.13	0.000	0.49	9,737	18,772	7

Robustness checks, alternative hypotheses, online sales

Table 16: Coefficient of interest, comparison to baseline

Robustness check	Coefficient	s.e.	p-value	Adj. R ²	Clusters	Observations	Model
Baseline	0.85	0.37	0.020	0.03	11,965	23,872	1
Baseline	1.11	0.37	0.003	0.06	11,965	23,872	2
Baseline	1.09	0.37	0.003	0.06	11,965	23,872	3
Baseline	1.05	0.37	0.004	0.06	11,965	23,858	4
Baseline	0.93	0.40	0.020	0.07	10,486	20,190	5
Baseline	1.22	0.45	0.006	0.07	10,479	20,183	6
Baseline	1.43	0.46	0.002	0.07	10,479	20,183	7
Forecasting error	0.88	0.37	0.017	0.03	11,965	23,872	1
Forecasting error	1.13	0.37	0.002	0.06	11,965	23,872	2
Forecasting error	1.12	0.37	0.002	0.06	11,965	23,872	3
Forecasting error	1.08	0.37	0.004	0.06	11,965	23,858	4
Forecasting error	0.94	0.40	0.020	0.07	10,486	20,190	5
Forecasting error	1.23	0.45	0.006	0.07	10,479	20,183	6
Forecasting error	1.43	0.46	0.002	0.07	10,479	20,183	7
ICT intensity	0.41	0.49	0.402	0.04	7,692	15,350	1
ICT intensity	0.57	0.48	0.237	0.08	7,692	15,350	2
ICT intensity	0.54	0.48	0.257	0.08	7,692	15,350	3
ICT intensity	0.49	0.48	0.306	0.08	7,692	15,340	4
ICT intensity	0.65	0.50	0.195	0.08	6,865	13,274	5
ICT intensity	0.99	0.58	0.086	0.08	6,862	13,271	6
ICT intensity	1.24	0.59	0.035	0.09	6,862	13,271	7
Labour productivity	0.83	0.38	0.028	0.03	11,075	22,118	1
Labour productivity	1.11	0.38	0.003	0.07	11,075	22,118	2
Labour productivity	1.09	0.38	0.004	0.07	11,075	22,118	3
Labour productivity	1.05	0.38	0.005	0.07	11,075	22,107	4
Labour productivity	0.94	0.41	0.024	0.07	9,737	18,772	5
Labour productivity	1.25	0.47	0.008	0.07	9,737	18,772	6
Labour productivity	1.48	0.49	0.002	0.08	9,737	18,772	7

Quarterly post-pandemic hybrid working regressions

Table 17: Percentage of employees working hybrid

	(1)	(2)	(3)	(4)	(5)
	2021Q4	2022Q1	2022Q2	2022Q3	2022Q3
MPS2019	10.14***	15.32***	17.52***	14.75***	7.912*
	(3.652)	(3.651)	(4.342)	(4.437)	(4.516)
Employment	Y	Y	Y	Y	Y
Ownership controls	Y	Y	Y	Y	Y
Education controls	Y	Y	Y	Y	Y
Pandemic homeworking rate	Y	Y	Y	Y	Y
Industry WFH suitability index	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y
Region FE	Y	Y	Y	Y	Y
Observations	2,472	2,472	2,018	1,861	1,815
Adjusted R ²	0.356	0.382	0.458	0.452	0.464