

1 Table of Means

	Startup	Incumbent	All Firms
Panel A: Firm-level			
Growth	0.20 (0.31)	0.06 (0.16)	0.09 (0.22)
Leave	0.26 (0.31)	0.21 (0.28)	0.22 (0.29)
Join	0.35 (0.32)	0.17 (0.18)	0.22 (0.24)
Teleworkable Score (0–1)	0.67 (0.18)	0.54 (0.25)	0.57 (0.24)
Remote Score (0–1)	0.85 (0.30)	0.57 (0.41)	0.64 (0.40)
Employees (Count)	271 (1432)	2740 (9555)	2126 (8380)
Age	7 (2)	43 (34)	34 (33)
Rent (\$/sq ft)	49 (21)	37 (19)	40 (20)
Centrality Score	1419 (1830)	949 (1309)	1066 (1470)
Seniority Levels (Count)	3.62 (0.77)	3.86 (0.50)	3.80 (0.59)
Number of firms	878	2630	3508
Observations	10450	31530	41980
Panel B: User-level			
Total Contributions	362.95 (817.44)	192.73 (522.28)	225.70 (594.89)
Restricted Contributions	320.05 (746.65)	139.96 (359.56)	174.84 (466.14)
Number of firms	721	1503	2224
Number of users	8338	31993	37186
Observations	44801	186504	231305

Notes: Panel A uses firm–half–year observations. Panel B relies on worker–half–year observations. “Number of firms” counts distinct firm IDs that ever appear in each category over the full sample window, so Startup and Incumbent counts need not sum to the “All” column. *Growth*, *Leave*, and *Join* rates are fractions between 0 and 1. *Teleworkable* and *Remote* scores are index values between 0 and 1. The sample period spans 2016 H2–2022 H1 at the firm level and 2017 H1–2022 H1 at the user level.

2 Figures

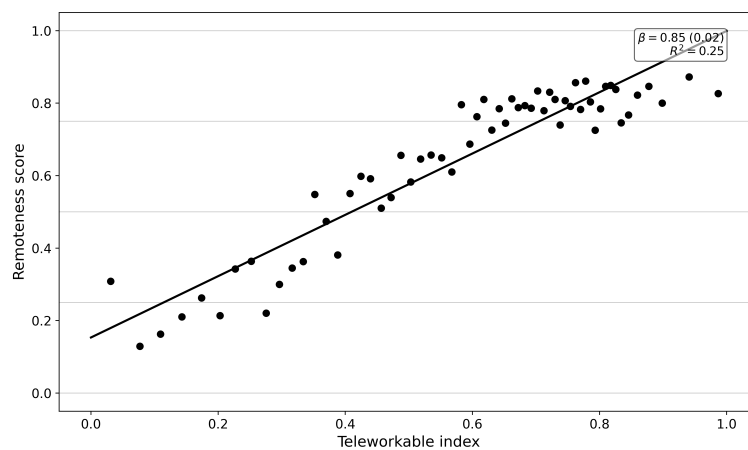


Figure 1: Remote vs. Teleworkable Scores

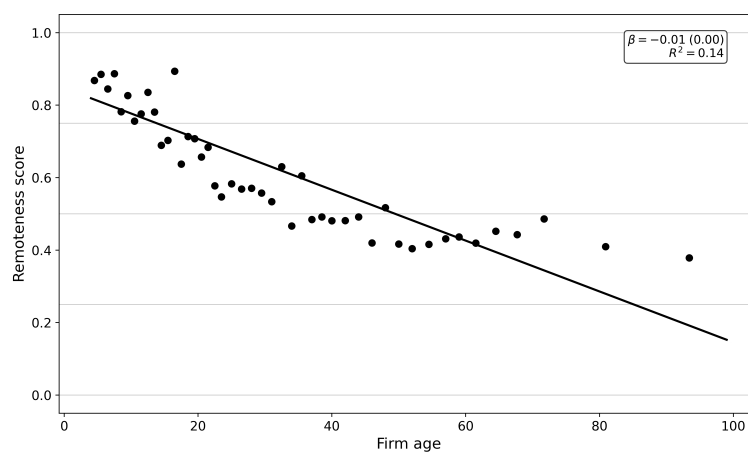


Figure 2: Remote vs. Firm Age

3 Event Studies

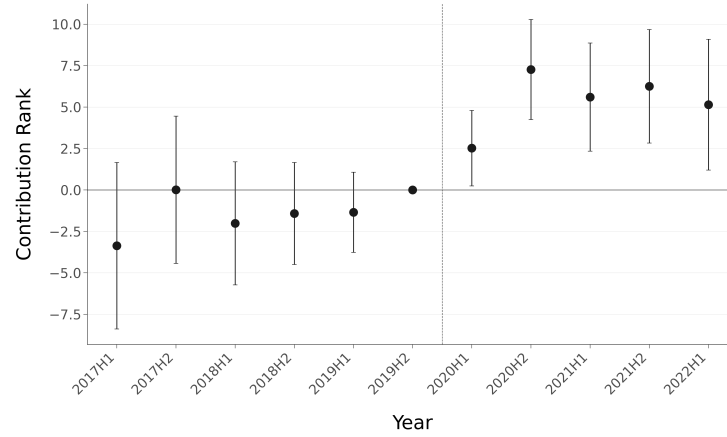


Figure 3: Event study: user rank for contributions (OLS)

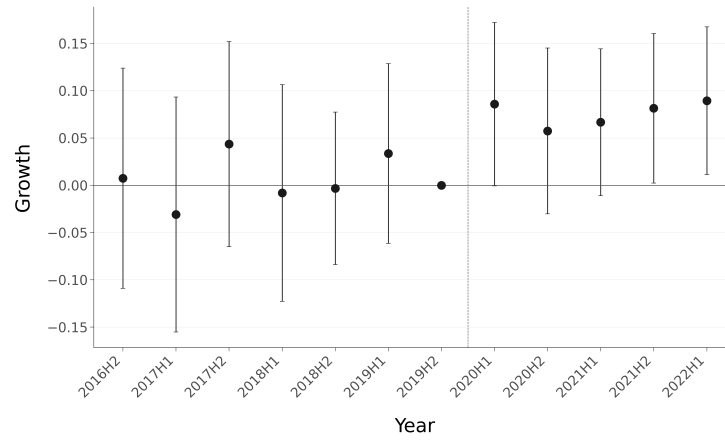


Figure 4: Event study: firm growth rate (OLS)

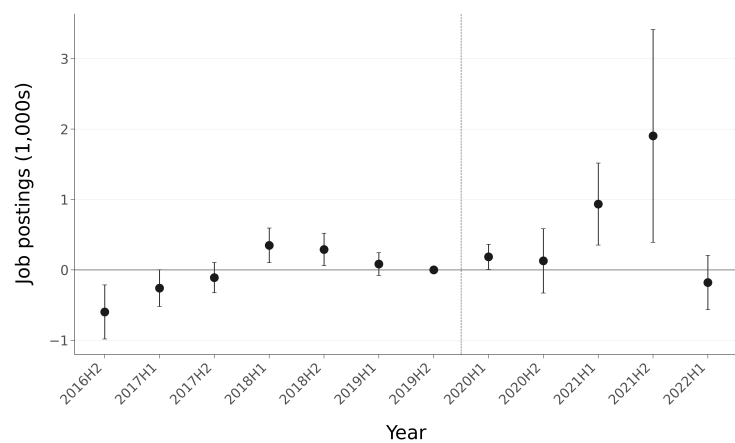


Figure 5: Event study: job postings (OLS)

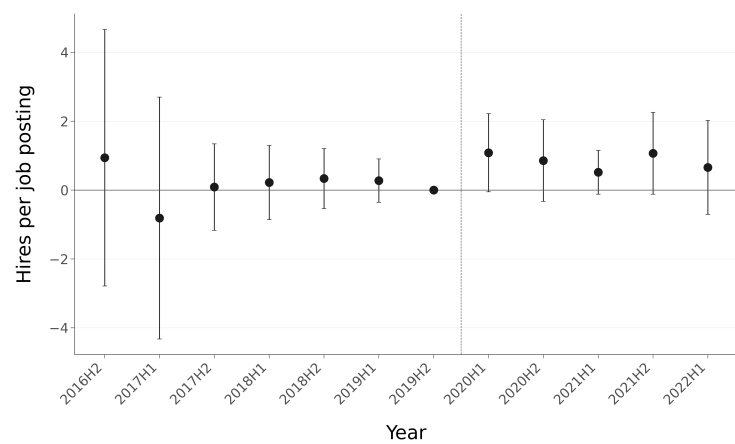


Figure 6: Event study: hires per job posting (OLS)

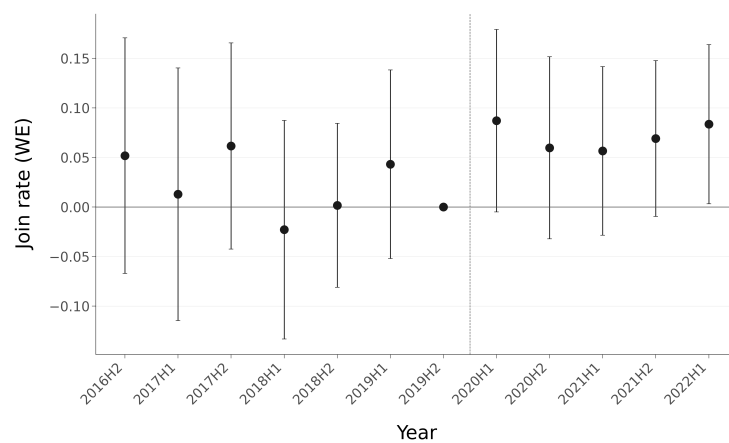


Figure 7: Event study: join rate (OLS)

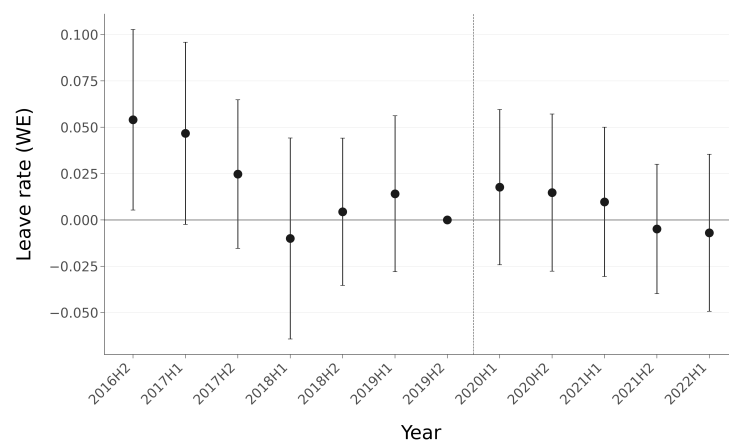


Figure 8: Event study: leave rate (OLS)

4 User Productivity

	Rank			Total
	(1)	(2)	(3)	(4)
Panel A: OLS				
Remote \times $\mathbb{1}(\text{Post})$	-0.28 (0.44)	-1.03** (0.48)	-1.23** (0.50)	-19.74*** (4.66)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$		5.18*** (1.24)	6.21*** (1.27)	59.23*** (14.22)
Pre-Covid Mean	49.92	49.92	49.92	184.71
N	229,862	229,862	224,708	224,708
Panel B: IV				
Remote \times $\mathbb{1}(\text{Post})$	-3.61 (2.82)	-7.15* (3.90)	-9.26** (4.01)	-124.39*** (33.82)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$		9.94* (5.37)	12.45** (5.39)	130.92** (55.14)
KP rk Wald F	543.26	140.60	123.43	123.43
N	229,862	229,862	224,708	224,708
Fixed Effects				
Time FE	✓	✓	✓	✓
Firm FE	✓	✓		
User FE	✓	✓		
Firm \times User FE			✓	✓

5 Remote Modalities

	(1)	(2)
Panel A: OLS		
Fully Remote.	-0.97*** (0.32)	-0.86*** (0.31)
Fully Remote \times Startup	2.97*** (0.72)	3.39*** (0.71)
Pre-Covid Mean	50.04	49.92
N	210,721	224,708
Panel B: IV		
Fully Remote.	-3.72** (1.74)	-4.11** (1.77)
Fully Remote \times Startup	4.37* (2.50)	5.61** (2.45)
Comparison group	Hybrid	Hybrid/In-Person
KP rk Wald F	292.85	311.51
N	210,721	224,708
Fixed Effects		
Time FE	✓	✓
Firm \times User FE	✓	✓

6 First Stage Summary

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	Remote × 1(Post)		Remote × 1(Post) × Startup	
User-level				
Teleworkable × 1(Post)	0.23*** (0.01)	0.24*** (0.02)	-0.00* (0.00)	-0.00*** (0.00)
Teleworkable × 1(Post) × Startup	0.16*** (0.02)	0.16*** (0.03)	0.39*** (0.02)	0.40*** (0.02)
1(Post) × Startup	0.09*** (0.02)	0.09*** (0.02)	0.60*** (0.01)	0.59*** (0.01)
Fixed Effects				
Time FE	✓	✓	✓	✓
Firm FE	✓		✓	
User FE	✓		✓	
Firm × User FE		✓		✓
Partial F	325.46	295.11	186.55	175.46
KP rk Wald F	140.60	123.43	140.60	123.43
N	229,862	224,708	229,862	224,708
Firm-level				
Teleworkable × 1(Post)	0.77*** (0.02)	—	-0.00 (0.00)	—
Teleworkable × 1(Post) × Startup	-0.35*** (0.07)	—	0.42*** (0.07)	—
1(Post) × Startup	0.45*** (0.07)	—	0.50*** (0.06)	—
Fixed Effects				
Time FE	✓		✓	
Firm FE	✓		✓	
Partial F	525.42	—	18.34	—
KP rk Wald F	18.30	—	18.30	—
N	41,742	—	41,742	—

7 User Mechanisms

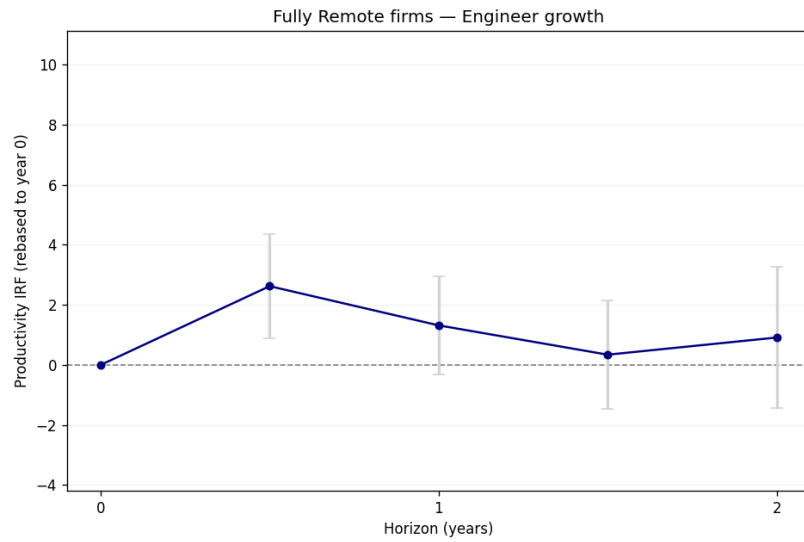
	Contributions					
	(1)	(2)	(3)	(4)	(5)	(6)
Remote \times 1(Post)	-9.26** (4.01)	-9.23* (4.87)	-9.72** (3.93)	-9.28** (4.12)	-10.13** (5.14)	-3.68 (3.88)
Remote \times 1(Post) \times Startup	12.45** (5.39)	11.76* (6.15)	14.94*** (5.62)	12.30** (5.52)	14.97** (6.91)	6.88 (5.65)
Fixed Effects						
Time FE	✓	✓	✓	✓	✓	✓
Firm \times User FE	✓	✓	✓	✓	✓	✓
Controls						
Rent		✓			✓	
HHI			✓		✓	
Seniority				✓	✓	
Post-COVID Growth						✓
N	224,708	218,112	224,596	224,708	218,032	224,708
KP rk Wald F	123.43	81.62	130.14	117.48	74.32	134.89

8 Firm Scaling

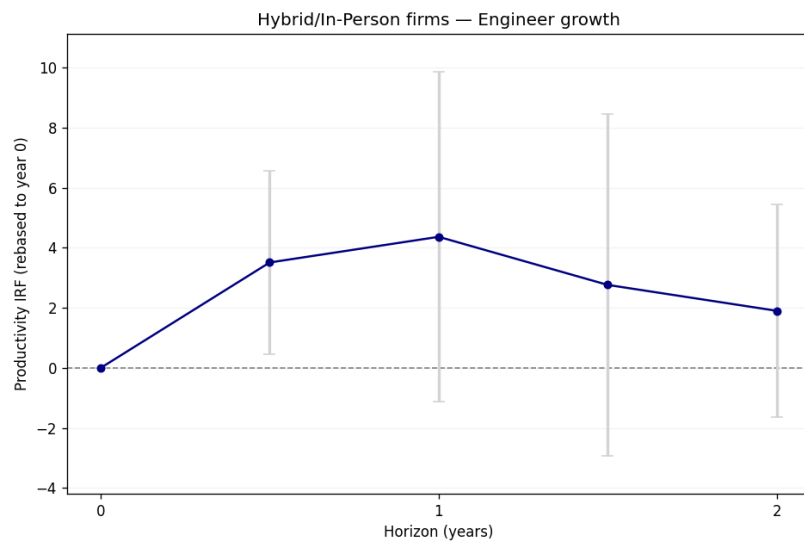
	(1)	(2)	(3)	(4)	(5)	(6)
	Growth	Growth	Join	Leave	Job Postings (1,000s)	Hires/Job Postings
Panel A: OLS						
Remote \times 1(Post)	0.01** (0.01)	0.00 (0.00)	0.01** (0.00)	0.02*** (0.00)	-0.91*** (0.23)	0.09 (0.08)
Remote \times 1(Post) \times Startup		0.07*** (0.02)	0.05* (0.03)	-0.01 (0.01)	0.63** (0.27)	0.37* (0.22)
Pre-Covid Mean	0.11	0.11	0.25	0.14	0.50	2.15
N	41,742	41,742	41,742	41,742	37,681	27,790
Panel B: IV						
Remote \times 1(Post)	0.02 (0.01)	-0.00 (0.01)	0.03*** (0.01)	0.04*** (0.00)	-3.58*** (0.61)	0.38** (0.17)
Remote \times 1(Post) \times Startup		0.22** (0.09)	0.23** (0.10)	0.06 (0.05)	1.60* (0.96)	2.16** (1.09)
KP rk Wald F	982.73	18.30	18.30	18.30	10.66	9.04
N	41,742	41,742	41,742	41,742	37,681	27,790
Fixed Effects						
Time FE	✓	✓	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓	✓	✓

9 Role-Type Growth Rates

	Ops/Admin	Marketing/Sales	Finance	Technical
Panel A: OLS				
Remote \times 1(Post)	-0.0066 (0.0066)	-0.0023 (0.0056)	-0.0015 (0.0067)	-0.0135** (0.0059)
Remote \times 1(Post) \times Startup	0.0602 (0.0414)	0.0471* (0.0250)	0.0107 (0.0399)	0.0738** (0.0287)
Post \times Startup	-0.1366*** (0.0360)	-0.1034*** (0.0217)	-0.0965*** (0.0328)	-0.1102*** (0.0252)
Pre-period mean	0.0996	0.1043	0.0800	0.1067
N (OLS)	20,631	24,532	18,334	23,428
Panel B: IV				
Remote \times 1(Post)	-0.0225** (0.0114)	-0.0094 (0.0105)	-0.0235* (0.0123)	-0.0326*** (0.0106)
Remote \times 1(Post) \times Startup	0.2302* (0.1393)	0.0807 (0.1079)	0.0302 (0.1592)	0.0873 (0.0954)
Post \times Startup	-0.2677** (0.1108)	-0.1300 (0.0926)	-0.1058 (0.1243)	-0.1160 (0.0794)
KP rk Wald F	11.50	12.32	5.81	15.31
N (IV)	20,631	24,532	18,334	23,428
Fixed Effects				
Firm FE	✓	✓	✓	✓
Half-year FE	✓	✓	✓	✓



(a) Fully Remote firms



(b) Hybrid/In-Person firms

Figure 9: Engineer productivity impulse response functions by firm remote status.

A Restricted Contributions

	Rank			Total
	(1)	(2)	(3)	(4)
Panel A: OLS				
Remote \times $\mathbb{1}(\text{Post})$	-0.51 (0.46)	-1.44*** (0.50)	-1.48*** (0.52)	-17.33*** (3.91)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$		6.37*** (1.24)	7.31*** (1.27)	55.41*** (12.74)
Pre-Covid Mean	48.48	48.48	48.48	138.15
N	229,862	229,862	224,708	224,708
Panel B: IV				
Remote \times $\mathbb{1}(\text{Post})$	-3.36 (2.91)	-6.60 (4.08)	-6.75 (4.19)	-105.59*** (28.11)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$		9.07* (5.43)	10.52* (5.42)	108.20** (48.92)
KP rk Wald F	543.26	140.60	123.43	123.43
N	229,862	229,862	224,708	224,708
Fixed Effects				
Time FE	✓	✓	✓	✓
Firm FE	✓	✓		
User FE	✓	✓		
Firm \times User FE			✓	✓