

1 Table of Means

Table 1: Summary Statistics

	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: Individual-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 individuals	8338	31993	37186
Observations	44801	186504	231305

2 User Productivity

	Contribution 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
Fixed Effects				
Time	✓	✓	✓	✓
Firm	✓	✓		
Individual	✓	✓		
Firm \times Individual			✓	✓
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)
Pre-Covid Mean	49.92	49.92	49.92	184.71
KP rk Wald F	543.26	140.60	123.43	123.43
N	229,862	229,862	224,708	224,708
Fixed Effects				
Time	✓	✓	✓	✓
Firm	✓	✓		
Individual	✓	✓		
Firm \times Individual			✓	✓

3 Firm Scaling

Table 2: Firm Scaling

	Growth		Join	Leave
	(1)	(2)	(3)	(4)
Panel A: OLS				
Remote $\times \mathbb{1}(\text{Post})$	0.01** (0.01)	0.00 (0.00)	0.01** (0.00)	0.02*** (0.00)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	—	0.07*** (0.02)	0.05* (0.03)	-0.01 (0.01)
Pre-Covid Mean	0.11	0.11	0.24	0.14
N	41,980	41,980	41,980	41,980
Panel B: IV				
Remote $\times \mathbb{1}(\text{Post})$	0.02* (0.01)	0.01 (0.01)	0.04*** (0.01)	0.05*** (0.01)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	—	0.21** (0.10)	0.23** (0.11)	0.09 (0.06)
KP rk Wald F	839.65	16.53	16.53	16.53
N	41,980	41,980	41,980	41,980
Fixed Effects				
Time	✓	✓	✓	✓
Firm	✓	✓	✓	✓

Table 3: Firm Scaling (Continued)

	Job Postings	Job Posting Rank	Log Job Postings	Hires/ Job Posting	Any Job Postings
	(1)	(2)	(3)	(4)	(5)
Panel A: OLS					
Remote $\times \mathbb{1}(\text{Post})$	-0.91*** (0.23)	7.19*** (0.64)	-0.40*** (0.06)	0.09 (0.08)	0.06*** (0.01)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	0.63** (0.27)	-0.13 (1.99)	0.15 (0.18)	0.37* (0.22)	-0.02 (0.04)
Pre-Covid Mean	0.50	46.10	4.20	2.15	0.76
N	37,681	37,681	30,313	27,790	37,681
Panel B: IV					
Remote $\times \mathbb{1}(\text{Post})$	-3.58*** (0.61)	15.81*** (1.28)	-0.92*** (0.11)	0.38** (0.17)	0.06** (0.02)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	1.60* (0.96)	15.92* (9.11)	-1.16 (0.76)	2.16** (1.09)	0.23 (0.18)
KP rk Wald F	10.66	10.66	10.03	9.04	10.66
N	37,681	37,681	30,313	27,790	37,681
Fixed Effects					
Time	✓	✓	✓	✓	✓
Firm	✓	✓	✓	✓	✓

4 User Mechanisms

Table 4: User Mechanisms

	Contribution Rank					
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: OLS						
Remote $\times \mathbb{1}(\text{Post})$	-1.23** (0.50)	-0.95* (0.51)	-1.22** (0.50)	-1.19** (0.50)	-0.91* (0.52)	-1.21** (0.50)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	6.21*** (1.27)	4.03*** (1.26)	6.39*** (1.28)	6.15*** (1.28)	4.21*** (1.29)	6.24*** (1.29)
N	224,708	218,112	224,596	224,708	218,032	224,708
Panel B: IV						
Remote $\times \mathbb{1}(\text{Post})$	-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 $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	12.45** (5.39)	11.76* (6.15)	14.94*** (5.62)	12.30** (5.52)	14.97** (6.91)	6.88 (5.65)
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
Fixed Effects						
Time	✓	✓	✓	✓	✓	✓
Firm \times Individual	✓	✓	✓	✓	✓	✓
Controls						
Rent		✓			✓	
HHI			✓		✓	
Seniority				✓	✓	
Post-COVID Growth						✓

5 User Wages

	Log salary				
	(1)	(2)	(3)	(4)	(5)
Panel A: OLS					
Remote \times $\mathbb{1}(\text{Post})$	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$	-0.00 (0.01)	-0.02** (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
Pre-Covid Mean	11.49	11.49	11.49	11.49	11.49
N	229,862	224,708	222,531	222,531	222,528
Panel B: IV					
Remote \times $\mathbb{1}(\text{Post})$	-0.01 (0.02)	0.03 (0.02)	0.08*** (0.01)	0.08*** (0.01)	0.08*** (0.01)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$	-0.04 (0.03)	-0.05* (0.03)	-0.08*** (0.02)	-0.08*** (0.02)	-0.08*** (0.02)
KP rk Wald F	140.60	123.43	127.26	126.96	126.03
N	229,862	224,708	222,531	222,531	222,528
Fixed Effects					
Time	✓	✓	✓	✓	✓
Firm	✓				
Individual	✓				
Firm \times Individual		✓	✓	✓	✓
Title			✓	✓	✓
Location (Job)				✓	
Location (MSA)					✓

6 Remote Modalities

	Contribution Rank			
	(1)	(2)	(3)	(4)
Panel A: OLS				
Fully Remote \times $\mathbb{1}(\text{Post})$	-0.97*** (0.32)	-0.76** (0.31)	-0.86*** (0.31)	-0.67** (0.30)
Fully Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$	2.97*** (0.72)	2.44*** (0.71)	3.39*** (0.71)	2.81*** (0.69)
Pre-Covid Mean	50.04	50.04	49.92	49.92
N	210,721	215,332	224,708	229,862
Panel B: IV				
Fully Remote \times $\mathbb{1}(\text{Post})$	-3.72** (1.74)	-2.71* (1.64)	-4.11** (1.77)	-3.09* (1.68)
Fully Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$	4.37* (2.50)	3.39 (2.45)	5.61** (2.45)	4.38* (2.41)
KP rk Wald F	292.85	351.60	311.51	371.38
N	210,721	215,332	224,708	229,862
Fixed Effects				
Time	✓	✓	✓	✓
Firm		✓		✓
Individual		✓		✓
Firm \times Individual	✓		✓	
Comparison Group				
Hybrid	✓	✓		
Hybrid/In-Person			✓	✓

7 User Productivity Heterogeneity

	<u>Female</u>		<u>Age 20–45</u>	
	(1)	(2)	(3)	(4)
Panel A. OLS				
Remote \times 1(Post)	-1.03** (0.48)	-1.23** (0.50)	-1.03** (0.48)	-1.23** (0.50)
Remote \times 1(Post) \times Trait	-2.54*** (0.62)	-2.18*** (0.66)	-1.79*** (0.58)	-2.09*** (0.64)
Remote \times 1(Post) \times Startup	5.18*** (1.24)	6.21*** (1.27)	5.18*** (1.24)	6.21*** (1.27)
Remote \times 1(Post) \times Trait \times Startup	3.49 (3.41)	6.42* (3.85)	-4.39 (3.66)	1.03 (4.42)
Panel B. IV				
Remote \times 1(Post)	-7.15* (3.90)	-9.26** (4.01)	-7.15* (3.90)	-9.26** (4.01)
Remote \times 1(Post) \times Trait	-2.75*** (0.72)	-2.37*** (0.77)	-1.37* (0.74)	-1.58* (0.82)
Remote \times 1(Post) \times Startup	9.94* (5.37)	12.45** (5.39)	9.94* (5.37)	12.45** (5.39)
Remote \times 1(Post) \times Trait \times Startup	5.67 (10.98)	21.98* (11.66)	14.04 (17.39)	26.94 (18.51)
Fixed Effects				
Time	✓	✓	✓	✓
Firm	✓		✓	
Individual	✓		✓	
Firm \times Individual		✓		✓

8 User Productivity Robustness

	Contribution Rank			
	(1)	(2)	(3)	(4)
Panel A: OLS				
Remote $\times \mathbb{1}(\text{Post})$	-0.79 (0.81)	-0.65 (0.83)	-0.66 (0.69)	-0.58 (0.70)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	6.67*** (1.83)	7.19*** (1.85)	5.76*** (1.84)	6.47*** (1.89)
Pre-Covid Mean	47.76	47.76	48.47	48.47
N	80,226	79,210	125,642	123,122
Panel B: IV				
Remote $\times \mathbb{1}(\text{Post})$	-1.25 (4.46)	-0.29 (4.43)	-3.84 (5.14)	-2.58 (5.17)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	-1.50 (6.93)	-2.80 (6.91)	7.66 (7.41)	7.78 (7.45)
KP rk Wald F	92.51	91.69	75.88	70.48
N	80,226	79,210	125,642	123,122
Fixed Effects				
Time	✓	✓	✓	✓
Firm	✓		✓	
Individual	✓		✓	
Firm \times Individual		✓		✓
Sample Filters				
Drop Tech Industry	✓	✓		
Drop SOC Core			✓	✓
Only CA/NY				
Exclude CA/NY				

	Contribution Rank			
	(1)	(2)	(3)	(4)
Panel A: OLS				
Remote \times $\mathbb{1}(\text{Post})$	-1.66* (0.95)	-1.89** (0.96)	-0.45 (0.68)	-0.85 (0.69)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$	6.54*** (2.13)	7.23*** (2.15)	5.45*** (2.02)	6.47*** (2.08)
Pre-Covid Mean	51.18	51.18	49.01	49.01
N	71,161	69,931	111,374	109,314
Panel B: IV				
Remote \times $\mathbb{1}(\text{Post})$	1.45 (8.04)	-3.86 (8.27)	-10.94** (5.18)	-12.70** (5.18)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$	-2.72 (9.89)	2.55 (10.03)	23.61** (10.77)	30.95*** (10.98)
KP rk Wald F	35.29	31.87	75.59	72.09
N	71,161	69,931	111,374	109,314
Fixed Effects				
Time	✓	✓	✓	✓
Firm	✓		✓	
Individual	✓		✓	
Firm \times Individual		✓		✓
Sample Filters				
Drop Tech Industry				
Drop SOC Core				
Only CA/NY	✓	✓		
Exclude CA/NY			✓	✓

9 Figures

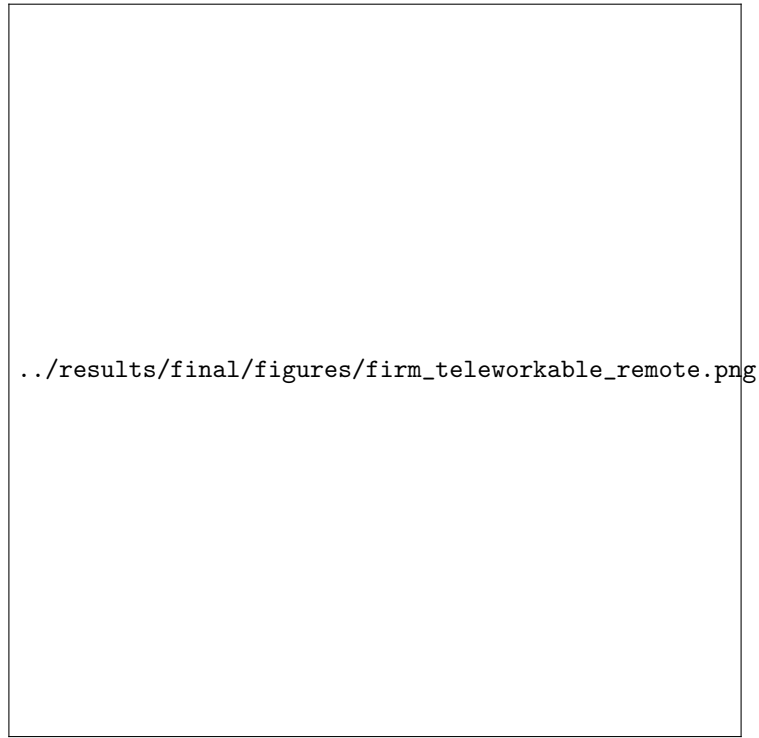
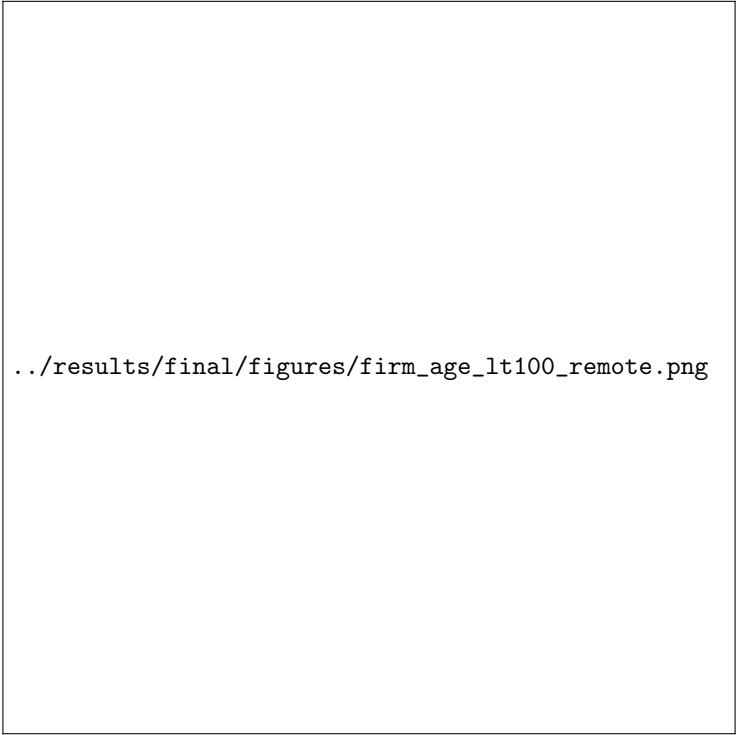


Figure 1: Remote vs. Teleworkable Scores



`../results/final/figures/firm_age_lt100_remote.png`

Figure 2: Remote vs. Firm Age

10 Event Studies



Figure 3: Event Study: User Rank for Contributions (OLS)



Figure 4: Event Study: Firm Growth (OLS)



Figure 5: Event Study: Join (OLS)



Figure 6: Event Study: Leave (OLS)

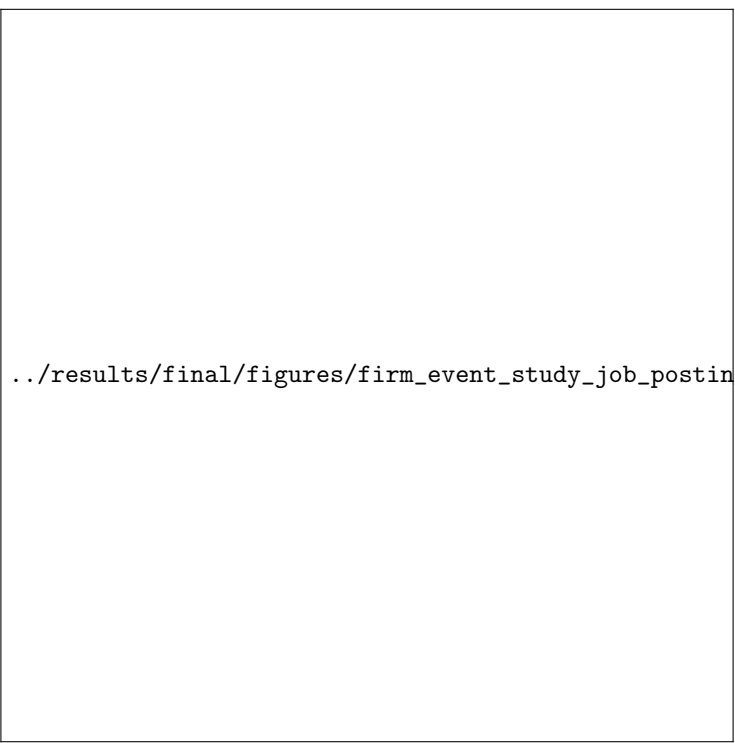


Figure 7: Event Study: Job Postings (OLS)



Figure 8: Event Study: Hires per Job Posting (OLS)

11 Impulse Response Functions



Figure 9: Change in contribution rank following role-specific hiring growth; each panel shares a common scale.

Appendix

A First Stage Summary

Table 5: First Stage Summary

	Remote \times $\mathbb{1}(\text{Post})$		Remote \times $\mathbb{1}(\text{Post})$ \times Startup	
Panel A: Individual-level				
Teleworkable \times $\mathbb{1}(\text{Post})$	0.23*** (0.01)	0.24*** (0.02)	-0.00* (0.00)	-0.00*** (0.00)
Teleworkable \times $\mathbb{1}(\text{Post}) \times$ Startup	0.16*** (0.02)	0.16*** (0.03)	0.39*** (0.02)	0.40*** (0.02)
$\mathbb{1}(\text{Post}) \times$ Startup	0.09*** (0.02)	0.09*** (0.02)	0.60*** (0.01)	0.59*** (0.01)
Fixed Effects				
Time	✓	✓	✓	✓
Firm	✓		✓	
Individual	✓		✓	
Firm \times Individual		✓		✓
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
Panel B: Firm-level				
Teleworkable \times $\mathbb{1}(\text{Post})$	0.83*** (0.03)	—	-0.00 (0.00)	—
Teleworkable \times $\mathbb{1}(\text{Post}) \times$ Startup	-0.41*** (0.08)	—	0.41*** (0.07)	—
$\mathbb{1}(\text{Post}) \times$ Startup	0.46*** (0.06)	—	0.58*** (0.05)	—
Fixed Effects				
Time	✓		✓	
Firm	✓		✓	
Partial F	437.86	—	16.54	—
KP rk Wald F	16.53	—	16.53	—
N	41,980	—	41,980	—

B Restricted Contributions

	Contribution 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	✓	✓	✓	✓
Firm	✓	✓		
Individual	✓	✓		
Firm \times Individual			✓	✓

C Startup Age Cutoff Robustness: Total Contribution Rank

Total Contribution Rank	Startup Age Cutoff			
	≤ 5	≤ 7	≤ 10	≤ 12
Panel A: OLS				
Remote $\times \mathbb{1}(\text{Post})$	-0.84* (0.43)	-0.83* (0.45)	-1.03** (0.48)	-1.11** (0.51)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	13.83*** (4.55)	6.12*** (1.82)	5.18*** (1.24)	4.55*** (1.07)
Pre-Covid Mean	49.92	49.92	49.92	49.92
N	229,862	229,862	229,862	229,862
Panel B: IV				
Remote $\times \mathbb{1}(\text{Post})$	-3.33 (2.91)	-4.85 (3.31)	-7.15* (3.90)	-9.84 (6.35)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	-13.03 (18.72)	11.77* (6.32)	9.94* (5.37)	9.84 (6.84)
Pre-Covid Mean	49.92	49.92	49.92	49.92
KP rk Wald F	249.96	201.72	140.60	52.03
N	229,862	229,862	229,862	229,862

D Startup Age Cutoff Robustness: Restricted Contribution Rank

Restricted Contribution Rank	Startup Age Cutoff			
	≤ 5	≤ 7	≤ 10	≤ 12
Panel A: OLS				
Remote $\times \mathbb{1}(\text{Post})$	-1.21*** (0.45)	-1.13** (0.47)	-1.44*** (0.50)	-1.37** (0.54)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	15.61*** (4.71)	6.06*** (1.81)	6.37*** (1.24)	4.52*** (1.10)
Pre-Covid Mean	48.48	48.48	48.48	48.48
N	229,862	229,862	229,862	229,862
Panel B: IV				
Remote $\times \mathbb{1}(\text{Post})$	-3.07 (3.01)	-4.22 (3.43)	-6.60 (4.08)	-3.94 (6.60)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	-12.08 (18.82)	9.90 (6.16)	9.07* (5.43)	0.82 (7.06)
Pre-Covid Mean	48.48	48.48	48.48	48.48
KP rk Wald F	249.96	201.72	140.60	52.03
N	229,862	229,862	229,862	229,862

E Startup Age Cutoff Robustness: Firm Growth Rate

Firm Growth Rate	Startup Age Cutoff			
	≤ 5	≤ 7	≤ 10	≤ 12
Panel A: OLS				
Remote $\times \mathbb{1}(\text{Post})$	-0.01 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	0.22*** (0.07)	0.12*** (0.04)	0.07*** (0.02)	0.06*** (0.02)
Pre-Covid Mean	0.11	0.11	0.11	0.11
N	41,980	41,980	41,980	41,980
Panel B: IV				
Remote $\times \mathbb{1}(\text{Post})$	-0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.01 (0.01)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	0.03 (0.21)	0.19 (0.15)	0.21** (0.10)	0.16** (0.07)
Pre-Covid Mean	0.11	0.11	0.11	0.11
KP rk Wald F	5.04	6.46	16.53	25.89
N	41,980	41,980	41,980	41,980

F Startup Age Cutoff Robustness: Firm Join Rate

Firm Join Rate	Startup Age Cutoff			
	≤ 5	≤ 7	≤ 10	≤ 12
Panel A: OLS				
Remote $\times \mathbf{1}(\text{Post})$	-0.00 (0.00)	0.00 (0.00)	0.01** (0.00)	0.01** (0.00)
Remote $\times \mathbf{1}(\text{Post}) \times \text{Startup}$	0.21*** (0.08)	0.10*** (0.04)	0.05* (0.03)	0.04** (0.02)
Pre-Covid Mean	0.24	0.24	0.24	0.24
N	41,980	41,980	41,980	41,980
Panel B: IV				
Remote $\times \mathbf{1}(\text{Post})$	0.03*** (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.04*** (0.01)
Remote $\times \mathbf{1}(\text{Post}) \times \text{Startup}$	0.21 (0.21)	0.26 (0.17)	0.23** (0.11)	0.16** (0.08)
Pre-Covid Mean	0.24	0.24	0.24	0.24
KP rk Wald F	5.04	6.46	16.53	25.89
N	41,980	41,980	41,980	41,980

G Startup Age Cutoff Robustness: Firm Leave Rate

Firm Leave Rate	Startup Age Cutoff			
	≤ 5	≤ 7	≤ 10	≤ 12
Panel A: OLS				
Remote $\times \mathbb{1}(\text{Post})$	0.02*** (0.00)	0.02*** (0.00)	0.02*** (0.00)	0.02*** (0.00)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	0.01 (0.03)	-0.00 (0.02)	-0.01 (0.01)	-0.01 (0.01)
Pre-Covid Mean	0.14	0.14	0.14	0.14
N	41,980	41,980	41,980	41,980
Panel B: IV				
Remote $\times \mathbb{1}(\text{Post})$	0.05*** (0.01)	0.05*** (0.01)	0.05*** (0.01)	0.05*** (0.01)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	0.31* (0.17)	0.17 (0.11)	0.09 (0.06)	0.06 (0.04)
Pre-Covid Mean	0.14	0.14	0.14	0.14
KP rk Wald F	5.04	6.46	16.53	25.89
N	41,980	41,980	41,980	41,980