

1 Figures

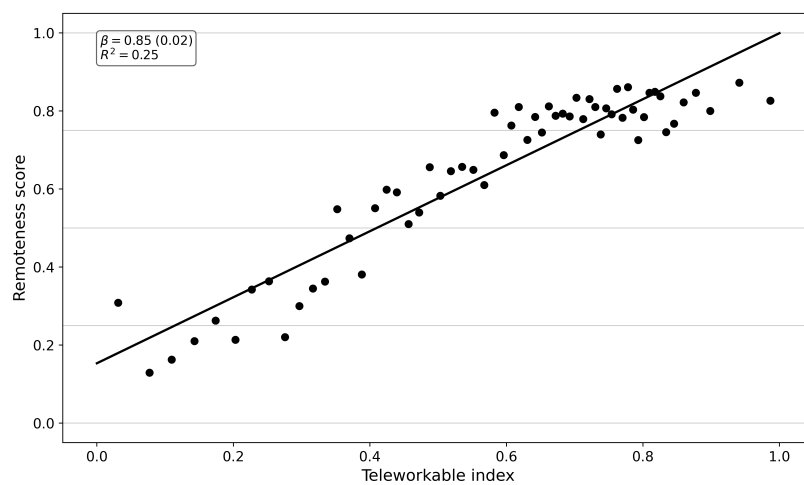


Figure 1: Remote v. Teleworkabe Scores

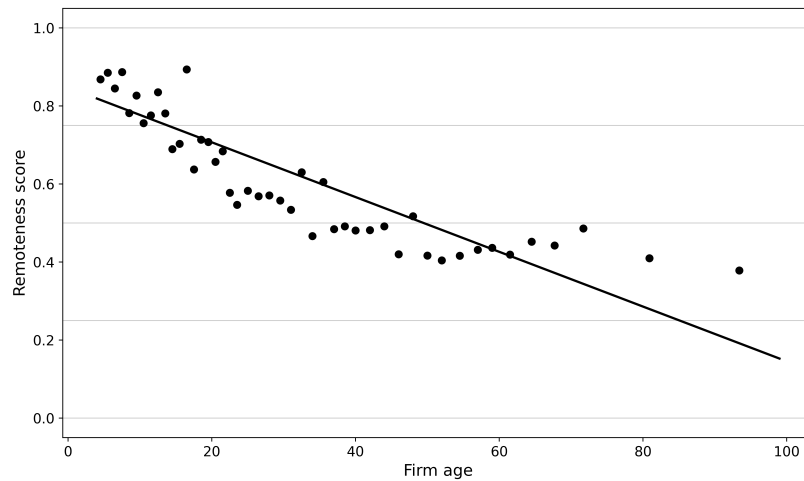


Figure 2: Remote v. Firm Age

2 Table of Means

Table 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	526.52 (932.95)	311.88 (470.01)	355.99 (601.57)
Restricted Contributions	468.96 (887.00)	231.83 (407.75)	280.56 (550.40)
Number of firms	379	759	1138
Number of users	1210	4051	4820
Observations	10896	42124	53020

Notes: Panel A uses firm-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. Panel B relies on worker-half-year observations and its bottom rows list (i) distinct firms, (ii) distinct users, and (iii) total worker-half-year observations. Startup/Incumbent user counts are likewise distinct ID counts aggregated across the whole period and therefore can overlap. *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.

3 Mechanisms

We begin with the “base” specification:

$$y_{it} = \alpha + \beta_1 (\text{remote}_i \times \text{covid}_t) + \beta_2 (\text{remote}_i \times \text{covid}_t \times \text{startup}_i) \\ + \delta (\text{covid}_t \times \text{startup}_i) + \text{FE}_{it} + \varepsilon_{it},$$

which captures how the outcome responds to remote work during COVID and whether that effect differs in young firms.

In the **rent** “mirror” model we add two additional channels:

$$y_{it} = \alpha + \beta_1 (\text{remote}_i \times \text{covid}_t) + \beta_2 (\text{remote}_i \times \text{covid}_t \times \text{startup}_i) \\ + \delta (\text{covid}_t \times \text{startup}_i) + \gamma_1 (\text{covid}_t \times \text{rent}_i) + \gamma_2 (\text{remote}_i \times \text{covid}_t \times \text{rent}_i) \\ + \text{FE}_{it} + \varepsilon_{it},$$

so that γ_1 and γ_2 capture how both the baseline COVID effect and the remote-work premium vary with local office rents.

Likewise, the **centrality** (HHI) model adds:

$$y_{it} = \alpha + \beta_1 (\text{remote}_i \times \text{covid}_t) + \beta_2 (\text{remote}_i \times \text{covid}_t \times \text{startup}_i) \\ + \delta (\text{covid}_t \times \text{startup}_i) + \gamma_1 (\text{covid}_t \times \text{hhi}_i) + \gamma_2 (\text{remote}_i \times \text{covid}_t \times \text{hhi}_i) \\ + \text{FE}_{it} + \varepsilon_{it}.$$

By turning on each check-mark (rent, centrality, seniority) one at a time—and then in combination—we “mirror” the base COVID×Remote specification through different mechanisms.

3.1 User Productivity Mechanisms

Table 2: User Productivity Mechanisms

Specification	Total Contrib. (pct. rk)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Baseline	✓	✓	✓	✓	✓	✓	✓	✓
Rent		✓		✓		✓		✓
HHI			✓	✓			✓	✓
Seniority					✓	✓	✓	✓
Panel A: OLS								
Remote \times 1(Post)	-2.66*** (0.99)	0.18 (2.33)	-2.52* (1.30)	1.14 (2.45)	12.69 (11.42)	14.73 (11.41)	16.23 (11.83)	19.07 (11.83)
Remote \times 1(Post) \times Startup	9.18*** (2.69)	8.50*** (2.74)	8.33*** (2.92)	8.47*** (2.92)	8.09*** (2.76)	7.93*** (2.79)	7.60*** (2.95)	7.75*** (2.95)
N	52,995	51,392	51,392	51,392	51,392	51,392	51,392	51,392
Panel B: IV								
Remote \times 1(Post)	-17.36** (8.72)	-662.28 (1258.52)	123.22 (577.60)	-312.49 (1438.40)	-21312.51 (66029.29)	160.32 (922.16)	957.68 (3030.76)	-267.63 (3882.03)
Remote \times 1(Post) \times Startup	31.85*** (12.28)	117.04 (170.78)	211.08 (709.68)	238.68 (398.71)	-47.81 (427.16)	70.47 (66.79)	-107.21 (379.62)	227.12 (1235.02)
N	52,995	47,771	47,771	47,771	47,771	47,771	47,771	47,771
KP rk Wald F	26.05	0.09	0.02	0.04	0.03	0.08	0.05	0.00

3.2 User Productivity – Wage Dispersion Mechanisms

Table 3: User Mechanisms – Wage Dispersion (Part 1)

Specification	Total Contrib. (pct. rk)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rent		✓				✓	✓	✓
Hhi			✓			✓		
Seniority				✓			✓	
Wage					✓			✓
Panel A: OLS								
Remote × 1(Post)	-2.75*** (1.00)	0.18 (2.33)	-2.52* (1.30)	12.69 (11.42)	2.89 (2.59)	1.14 (2.45)	14.73 (11.41)	6.08* (3.40)
Remote × 1(Post) × Startup	8.74*** (2.72)	8.50*** (2.74)	8.33*** (2.92)	8.09*** (2.76)	8.48*** (2.71)	8.47*** (2.92)	7.93*** (2.79)	8.37*** (2.73)
N	51,392	51,392	51,392	51,392	51,392	51,392	51,392	51,392
Panel B: IV								
Remote × 1(Post)	-18.51* (9.46)	-662.28 (1258.52)	123.22 (577.60)	-21312.51 (66029.29)	19.76 (48.56)	-312.49 (1438.40)	160.32 (922.16)	-573.59 (886.81)
Remote × 1(Post) × Startup	33.64** (13.17)	117.04 (170.78)	211.08 (709.68)	-47.81 (427.16)	22.42 (22.05)	238.68 (398.71)	70.47 (66.79)	101.32 (125.34)
N	51,392	47,771	47,771	47,771	47,771	47,771	47,771	47,771
KP rk Wald F	22.24	0.09	0.02	0.03	1.30	0.04	0.08	0.10

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Table 4: User Mechanisms – Wage Dispersion (Part 2)

Specification	Total Contrib. (pct. rk)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rent				✓	✓	✓		✓
Hhi	✓	✓		✓	✓		✓	✓
Seniority	✓		✓	✓		✓	✓	✓
Wage		✓	✓		✓	✓	✓	✓
Panel A: OLS								
Remote \times 1(Post)	16.23 (11.83)	3.06 (2.60)	18.01 (11.93)	19.07 (11.83)	6.97** (3.41)	20.31* (11.91)	20.99* (12.26)	24.06** (12.25)
Remote \times 1(Post) \times Startup	7.60*** (2.95)	7.70*** (2.90)	7.86*** (2.75)	7.75*** (2.95)	7.96*** (2.91)	7.81*** (2.77)	7.00** (2.93)	7.27** (2.93)
N	51,392	51,392	51,392	51,392	51,392	51,392	51,392	51,392
Panel B: IV								
Remote \times 1(Post)	957.68 (3030.76)	78.94 (334.52)	-1640.16 (3352.78)	-267.63 (3882.03)	-343.99 (1669.54)	177.25 (793.32)	1243.85 (8409.43)	-236.02 (6844.11)
Remote \times 1(Post) \times Startup	-107.21 (379.62)	104.81 (460.55)	-16.90 (89.07)	227.12 (1235.02)	202.35 (352.90)	65.50 (46.40)	-126.95 (522.86)	219.76 (2338.34)
N	47,771	47,771	47,771	47,771	47,771	47,771	47,771	47,771
KP rk Wald F	0.05	0.01	0.13	0.00	0.01	0.10	0.01	0.00

3.3 Firm Mechanisms

Table 5: Firm Scaling Mechanisms

Specification	Growth							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Baseline	✓	✓	✓	✓	✓	✓	✓	✓
Rent		✓		✓		✓		✓
HHI			✓	✓			✓	✓
Seniority					✓	✓	✓	✓
Panel A: OLS								
Remote $\times \mathbb{1}(\text{Post})$	0.003 (0.005)	0.007 (0.011)	-0.019*** (0.007)	-0.016 (0.013)	0.024 (0.024)	0.028 (0.026)	-0.022 (0.026)	-0.019 (0.029)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	0.070*** (0.024)	0.071*** (0.026)	0.063** (0.025)	0.063** (0.025)	0.068*** (0.025)	0.068*** (0.025)	0.064*** (0.025)	0.065** (0.025)
N	41,980	38,436	38,436	38,436	38,436	38,436	38,436	38,436
Panel B: IV								
Remote $\times \mathbb{1}(\text{Post})$	0.006 (0.009)	-0.113*** (0.043)	-0.039** (0.018)	-0.157*** (0.044)	-0.037 (0.067)	-0.150* (0.079)	-0.159** (0.072)	-0.270*** (0.083)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	0.209** (0.102)	0.139 (0.099)	0.037 (0.102)	0.026 (0.101)	0.122 (0.096)	0.109 (0.096)	0.056 (0.101)	0.045 (0.100)
N	41,980	38,436	38,436	38,436	38,436	38,436	38,436	38,436
KP rk Wald F	16.53	11.27	10.14	8.41	9.84	8.35	7.70	6.62

3.4 Firm Mechanisms – Wage Dispersion

Table 6: Firm Mechanisms – Wage Dispersion (Part 1)

Specification	Growth Rate							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rent		✓				✓	✓	✓
Hhi			✓			✓		
Seniority				✓			✓	
Wage					✓			✓
Panel A: OLS								
Remote \times 1(Post)	0.001 (0.005)	0.007 (0.011)	-0.019*** (0.007)	0.024 (0.024)	-0.041*** (0.012)	-0.016 (0.013)	0.028 (0.026)	-0.035** (0.015)
Remote \times 1(Post) \times Startup	0.070*** (0.025)	0.071*** (0.026)	0.063** (0.025)	0.068*** (0.025)	0.066*** (0.025)	0.063** (0.025)	0.068*** (0.025)	0.066*** (0.026)
N	38,436	38,436	38,436	38,436	38,436	38,436	38,436	38,436
Panel B: IV								
Remote \times 1(Post)	0.010 (0.009)	-0.113*** (0.043)	-0.039** (0.018)	-0.037 (0.067)	-0.042 (0.028)	-0.157*** (0.044)	-0.150* (0.079)	-0.153*** (0.048)
Remote \times 1(Post) \times Startup	0.157 (0.100)	0.139 (0.099)	0.037 (0.102)	0.122 (0.096)	0.149 (0.100)	0.026 (0.101)	0.109 (0.096)	0.133 (0.099)
N	38,436	38,436	38,436	38,436	38,436	38,436	38,436	38,436
KP rk Wald F	14.56	11.27	10.14	9.84	9.56	8.41	8.35	8.15

Table 7: Firm Mechanisms – Wage Dispersion (Part 2)

Specification	Growth Rate							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rent				✓	✓	✓		✓
Hhi	✓	✓		✓	✓		✓	✓
Seniority	✓		✓	✓		✓	✓	✓
Wage		✓	✓		✓	✓	✓	✓
Panel A: OLS								
Remote \times $\mathbb{1}(\text{Post})$	-0.022 (0.026)	-0.053*** (0.012)	-0.016 (0.026)	-0.019 (0.029)	-0.050*** (0.016)	-0.011 (0.027)	-0.055** (0.028)	-0.052* (0.030)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$	0.064*** (0.025)	0.059** (0.025)	0.064*** (0.025)	0.065** (0.025)	0.059** (0.025)	0.064** (0.025)	0.061** (0.025)	0.061** (0.025)
N	38,436	38,436	38,436	38,436	38,436	38,436	38,436	38,436
Panel B: IV								
Remote \times $\mathbb{1}(\text{Post})$	-0.159** (0.072)	-0.061* (0.033)	-0.083 (0.068)	-0.270*** (0.083)	-0.169*** (0.049)	-0.184** (0.078)	-0.174** (0.072)	-0.275*** (0.081)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$	0.056 (0.101)	0.038 (0.101)	0.116 (0.097)	0.045 (0.100)	0.028 (0.100)	0.104 (0.096)	0.058 (0.101)	0.048 (0.100)
N	38,436	38,436	38,436	38,436	38,436	38,436	38,436	38,436
KPrk Wald F	7.70	7.54	7.29	6.62	6.54	6.48	6.11	5.36

4 Firm Scaling

4.1 OLS

Table 8: Firm Scaling OLS

Panel A: Growth

	(1)	(2)	(3)	(4)	(5)
Remote \times $\mathbb{1}(\text{Post})$	0.013** (0.005)	0.003 (0.005)	-0.003 (0.006)	-0.000 (0.007)	-0.004 (0.011)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$		0.070*** (0.024)	0.077*** (0.024)	0.080*** (0.027)	0.090*** (0.035)
Time FE	✓	✓			
Firm FE	✓	✓	✓	✓	✓
Industry \times Time FE			✓		✓
HQ \times Time FE				✓	✓
N	41,980	41,980	41,644	33,710	24,003

Panel B: Additional Outcomes

	Outcome	
	Join	Leave
Remote \times $\mathbb{1}(\text{Post})$	0.012** (0.005)	0.016*** (0.002)
Remote \times $\mathbb{1}(\text{Post}) \times \text{Startup}$	0.050* (0.026)	-0.013 (0.011)
Pre-COVID mean	0.24	0.14
N	41,980	41,980

4.2 Instrumental Variables

Table 9: Firm Scaling IV

Panel A: Growth					
	(1)	(2)	(3)	(4)	(5)
Remote $\times \mathbb{1}(\text{Post})$	0.022* (0.012)	0.006 (0.009)	-0.010 (0.027)	0.010 (0.017)	0.134 (0.119)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$		0.209** (0.102)	0.211* (0.109)	0.318** (0.158)	0.933 (0.712)
Time FE	✓	✓			
Firm FE	✓	✓	✓	✓	✓
Industry \times Time FE			✓		✓
HQ \times Time FE				✓	✓
N	41,980	41,980	41,644	33,710	24,003
KP rk Wald F	839.65	16.53	18.36	8.83	1.22
Panel B: Additional Outcomes					
	Outcome				
	Join		Leave		
Remote $\times \mathbb{1}(\text{Post})$	0.042*** (0.010)		0.051*** (0.005)		
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	0.228** (0.112)		0.092 (0.058)		
Pre-COVID mean	0.24		0.14		
N	41,980		41,980		
KP rk Wald F	16.53		16.53		

4.3 First Stage

Table 10: First-Stage Estimates – Firm Scaling

	Remote \times $\mathbf{1}(\text{Post})$	Remote \times $\mathbf{1}(\text{Post}) \times \text{Startup}$
Teleworkable \times $\mathbf{1}(\text{Post})$	0.826*** (0.028)	-0.000 (0.000)
Teleworkable \times $\mathbf{1}(\text{Post}) \times \text{Startup}$	-0.412*** (0.077)	0.414*** (0.072)
$\mathbf{1}(\text{Post}) \times \text{Startup}$	0.455*** (0.055)	0.575*** (0.052)
Time FE	✓	✓
Firm FE	✓	✓
Partial F	437.86	16.54
N	41,980	41,980

4.4 Remote \rightarrow Teleworkable: First Stage

Table 11: First-Stage Estimate: Remote \rightarrow Teleworkable

	Remote
Teleworkable	0.846*** (0.025)
N	3,508

5 User Productivity

5.1 OLS

Table 12: User Productivity – OLS

Panel A: Total Contrib. (pct. rk)						
	(1)	(2)	(3)	(4)	(5)	(6)
Remote $\times \mathbb{1}(\text{Post})$	-1.52* (0.92)	-2.66*** (0.99)	-2.79*** (0.99)	-2.62*** (1.01)	-2.52** (1.06)	-2.62** (1.17)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$		9.18*** (2.69)	9.77*** (2.68)	8.41*** (2.91)	9.44*** (2.80)	8.20** (3.28)
Time FE	✓	✓	✓			
Firm FE	✓	✓		✓	✓	✓
User FE	✓	✓		✓	✓	✓
Firm \times User FE			✓			
Industry \times Time FE				✓		✓
MSA \times Time FE					✓	✓
N	52,995	52,995	52,718	52,386	52,176	49,470
Panel B: Additional Outcomes						
	Outcome					
	Restricted (pct. rk)	Total (wins.)	Restr. (wins.)			
Remote $\times \mathbb{1}(\text{Post})$	-1.96** (0.99)	-37.96*** (12.27)	-37.47*** (10.33)			
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	8.30*** (2.62)	140.79*** (40.44)	129.57*** (36.07)			
Pre-COVID mean	49.79	325.41	251.75			
N	52,995	52,995	52,995			

5.2 Instrumental Variables

Table 13: User Productivity – IV

Panel A: Total Contrib. (pct. rk)						
	(1)	(2)	(3)	(4)	(5)	(6)
Remote $\times \mathbb{1}(\text{Post})$	-5.76 (6.24)	-17.36** (8.72)	-19.30** (8.79)	-33.79** (13.70)	-19.43* (10.16)	-69.25** (32.95)
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$		31.85*** (12.28)	33.67*** (12.32)	31.16** (12.23)	38.26*** (14.58)	56.17*** (21.61)
Time FE	✓	✓	✓			
Firm FE	✓	✓		✓	✓	✓
User FE	✓	✓		✓	✓	✓
Firm \times User FE			✓			
Industry \times Time FE				✓		✓
MSA \times Time FE					✓	✓
N	52,995	52,995	52,718	52,386	52,176	49,470
KP rk Wald F	102.60	26.05	25.60	16.94	21.18	4.81
Panel B: Additional Outcomes						
	Outcome					
	Restricted (pct. rk)	Total (wins.)	Restr. (wins.)			
Remote $\times \mathbb{1}(\text{Post})$	-19.25** (8.88)	-233.51** (101.49)	-202.67** (86.12)			
Remote $\times \mathbb{1}(\text{Post}) \times \text{Startup}$	34.94*** (12.13)	403.89** (161.19)	394.36*** (145.44)			
Pre-COVID mean	49.79	325.41	251.75			
N	52,995	52,995	52,995			
KP rk Wald F	26.05	26.05	26.05			

5.3 First Stage

Table 14: First-Stage Estimates – User Productivity

	Remote \times 1(Post)	Remote \times 1(Post) \times Startup
Teleworkable \times 1(Post)	0.25*** (0.03)	0.00*** (0.00)
Teleworkable \times 1(Post) \times Startup	0.09 (0.05)	0.34*** (0.04)
1(Post) \times Startup	0.14*** (0.04)	0.65*** (0.03)
Time FE	✓	✓
Firm FE	✓	✓
User FE	✓	✓
Partial F	60.08	36.85
N	52,995	52,995

6 Dynamic Event-Study Evidence

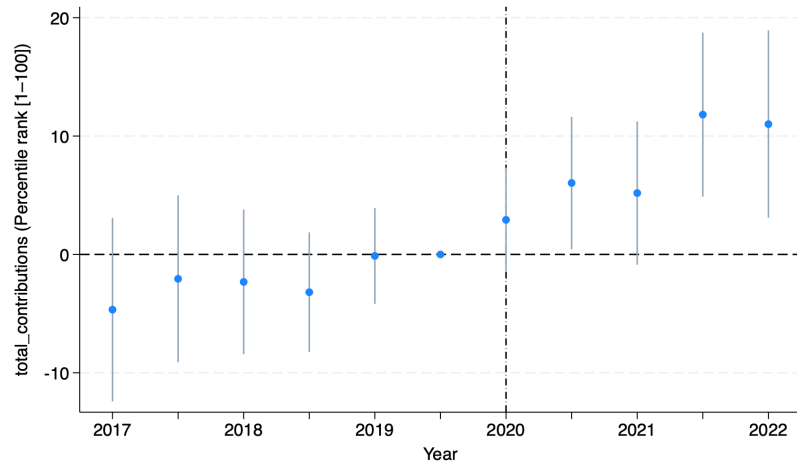


Figure 3: *
OLS – Total Contributions

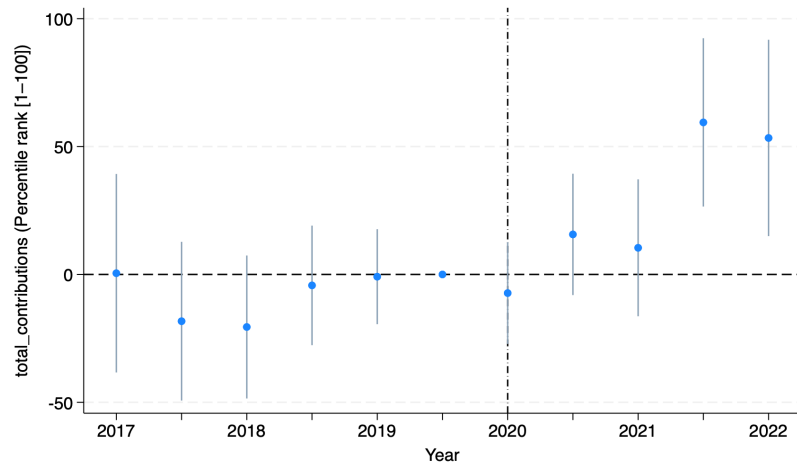


Figure 4: *
IV – Total Contributions

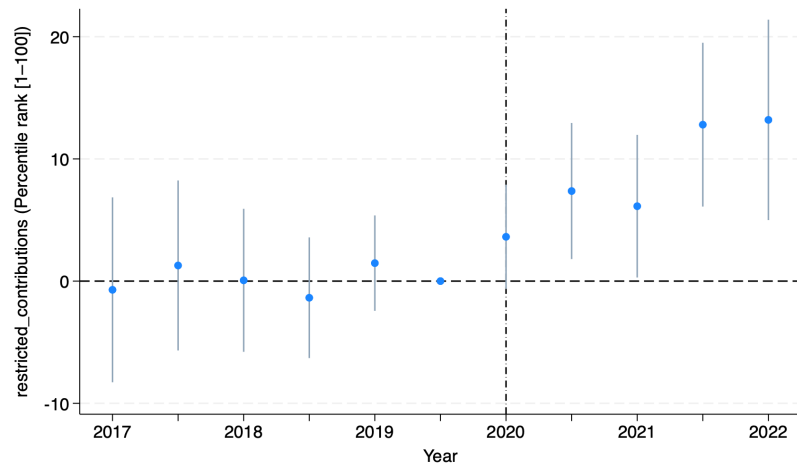


Figure 5: *
OLS – Restricted Contributions

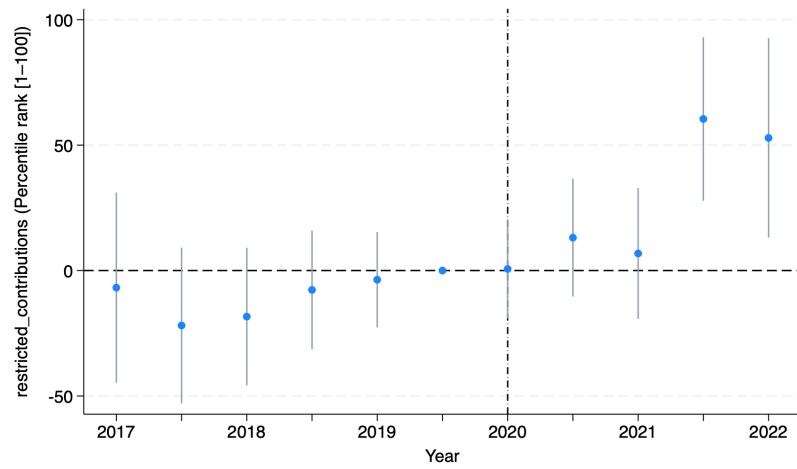


Figure 6: *
IV – Restricted Contributions

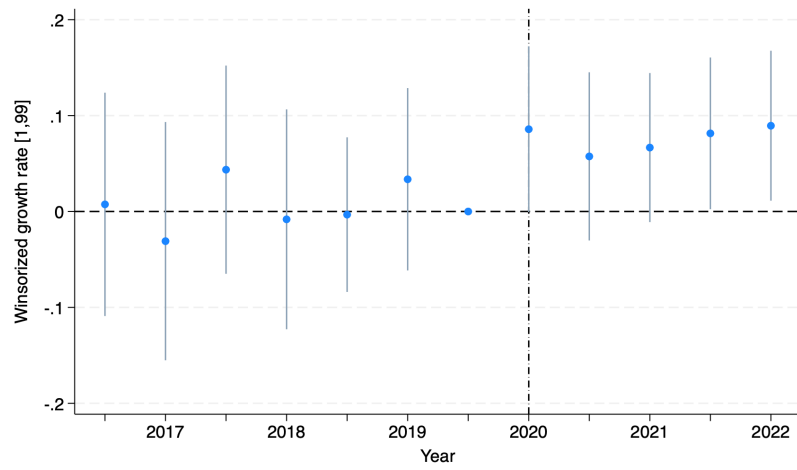


Figure 7: *
OLS – Employment Growth

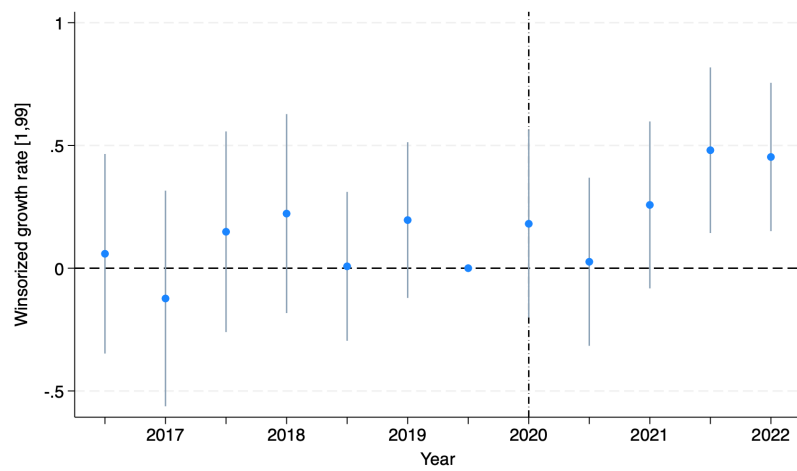


Figure 8: *
IV – Employment Growth

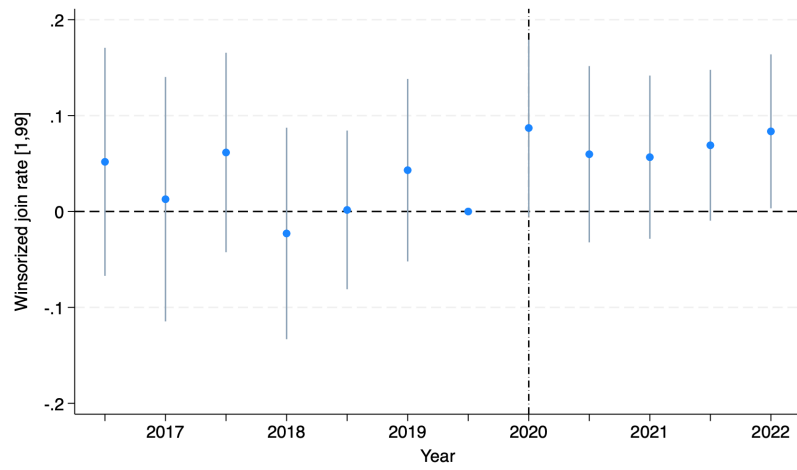


Figure 9: *
OLS - Join Rate

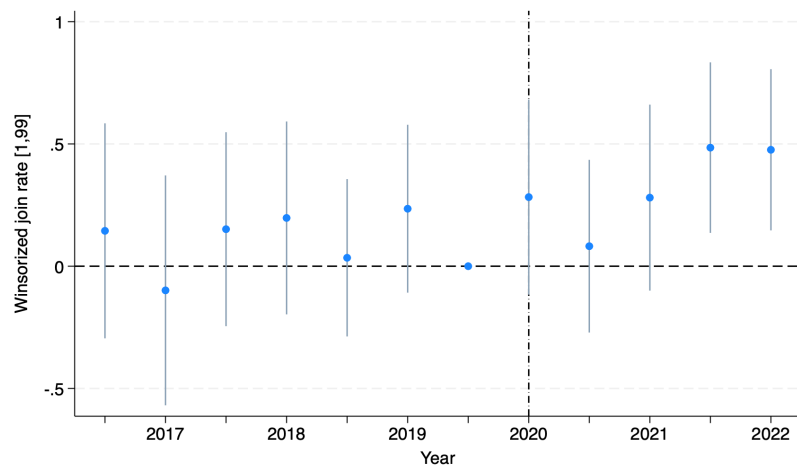


Figure 10: *
IV - Join Rate

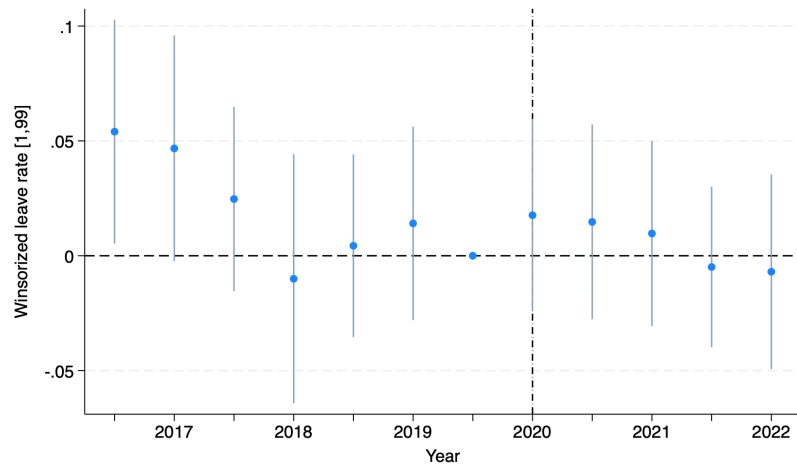


Figure 11: *
OLS – Leave Rate

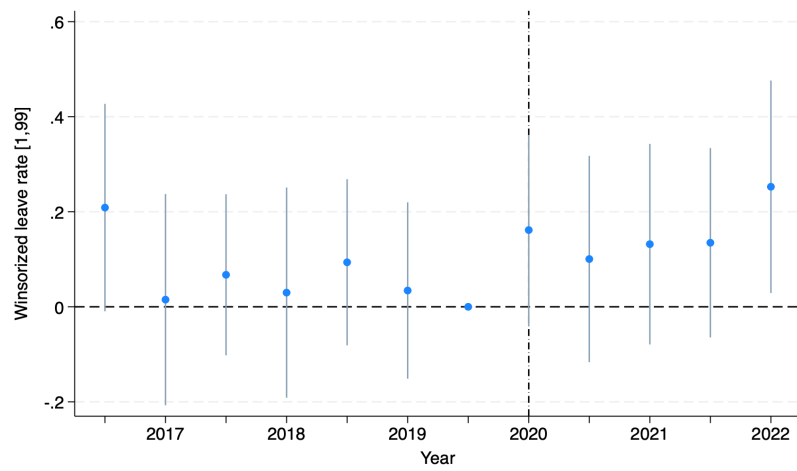


Figure 12: *
IV – Leave Rate