1 Figures

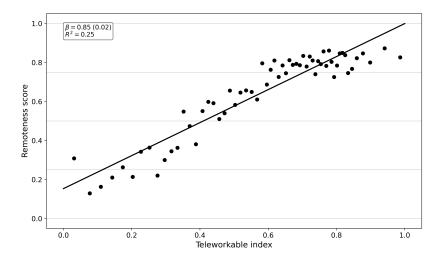


Figure 1: Remote v. Teleworkabe Scores

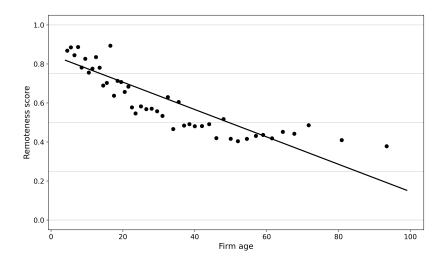


Figure 2: Remote v. Firm Age

2 Table of Means

Table 1: Table of Means

Panel A: Firm-level Growth 0.20 0.06 0.09 Leave 0.26 0.21 0.22 Leave 0.35 0.17 0.22 Join 0.67 0.54 0.57 Teleworkable Score (0-1) 0.67 0.54 0.57 Teleworkable Score (0-1) 0.85 0.57 0.64 Remote Score (0-1) 0.85 0.57 0.64 Remote Score (0-1) 0.85 0.57 0.64 Employees (Count) 271 2740 2126 Employees (Count) 1432 9555 8380 Age (2) (34) (33) Rent (\$/sq ft) 49 37 40 Centrality Score 1419 949 1066 Centrality Score 1419 949 1066 Seniority Levels (Count) (0,77) (0,50) (55) N firms 878.00000 2630.00000 3508.00000 N employees 526.52 311.88 3		Startup	Incumbent	All Firms
Growth (0.31) (0.16) (0.22) Leave 0.26 0.21 0.22 Join 0.35 0.17 0.22 Teleworkable Score (0-1) 0.67 0.54 0.57 Teleworkable Score (0-1) 0.85 0.57 0.64 Remote Score (0-1) 0.85 0.57 0.64 Remote Score (0-1) 0.30) (0.41) (0.40) Employees (Count) 271 2740 2126 Age 7 43 34 Rent (\$/sq ft) (2) (34) (33) Rent (\$/sq ft) (21) (19) (20) Centrality Score (1830) (1309) (1470) Seniority Levels (Count) (0.77) (0.50) (0.59) N firms 878.000000 2630.000000 3508.000000 N employees 696574.00000 35948619.00000 3508.000000 Panel B: User-level 231.83 280.56 Restricted Contributions (887.00) (407.75) (550.40)	Panel A: Firm-level			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	C 41	0.20	0.06	0.09
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Growth	(0.31)	(0.16)	(0.22)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	т	$0.26^{'}$	$0.21^{'}$	$0.22^{'}$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Leave	(0.31)	(0.28)	(0.29)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	T :	0.35	0.17	0.22
Teleworkable Score (0-1) (0.18) (0.25) (0.24) Remote Score (0-1) 0.85 0.57 0.64 Remote Score (0-1) (0.30) (0.41) (0.40) Employees (Count) 271 2740 2126 Employees (Count) (1432) (9555) (8380) Age (2) (34) (33) Rent (\$/sq ft) (21) (19) (20) Centrality Score 1419 949 1066 Centrality Score (1830) (1309) (1470) Seniority Levels (Count) 3.62 3.86 3.80 N firms 878.000000 2630.00000 3508.000000 N employees 696574.000000 35948619.00000 36645193.000000 Panel B: User-level 526.52 311.88 355.99 Total Contributions (932.95) (470.01) (601.57) Restricted Contributions (887.00) (407.75) (550.40) N 10896 42124 53020	Join	(0.32)	(0.18)	(0.24)
Remote Score (0-1) (0.18) (0.25) (0.24) Employees (Count) (0.30) (0.41) (0.40) Employees (Count) 271 2740 2126 Age (1432) (9555) (8380) Age (2) (34) (33) Rent (\$/sq ft) 49 37 40 Centrality Score 1419 949 1066 Centrality Levels (Count) 3.62 3.86 3.80 Seniority Levels (Count) (0.77) (0.50) (0.59) N firms 878.000000 2630.000000 3508.000000 N employees 696574.00000 35948619.00000 36645193.000000 Panel B: User-level (932.95) (470.01) (601.57) Restricted Contributions (887.00) (407.75) (550.40) N 10896 42124 53020	T-1	$0.67^{'}$	0.54	0.57
Remote Score (0-1) (0.30) (0.41) (0.40) Employees (Count) 271 2740 2126 Employees (Count) (1432) (9555) (8380) Age 7 43 34 Rent (\$/sq ft) 49 37 40 Centrality Score 1419 949 1066 Centrality Levels (Count) 3.62 3.86 3.80 Seniority Levels (Count) (0.77) (0.50) (0.59) N firms 878.000000 2630.00000 3508.00000 N employees 696574.00000 35948619.00000 36645193.000000 Panel B: User-level (932.95) (470.01) (601.57) Restricted Contributions (887.00) (407.75) (550.40) N 10896 42124 53020	Teleworkable Score (0-1)	(0.18)	(0.25)	(0.24)
Employees (Count) 271 (0.30) (0.41) (0.40) 271 (1432) 2740 (2126) Age 7 (33) (34) (33) Rent (\$/sq ft) 49 (21) (19) (20) Centrality Score 1419 (199) (200) Centrality Levels (Count) 1419 (199) (1470) Seniority Levels (Count) 3.62 (3.86) (3.80) N firms 878.000000 (0.77) (0.50) (0.59) N firms 878.000000 (2630.00000) (3508.000000) N employees 696574.000000 (35948619.00000) (36645193.000000) Panel B: User-level 526.52 (311.88) (355.99) Total Contributions (932.95) (470.01) (601.57) Restricted Contributions (887.00) (407.75) (550.40) N 10896 42124 53020	Demote Come (0.1)	0.85	0.57	0.64
Employees (Count) (1432) (9555) (8380) Age 7 43 34 Rent (\$/sq ft) 49 37 40 Centrality Score 1419 949 1066 Centrality Levels (Count) 3.62 3.86 3.80 Seniority Levels (Count) (0.77) (0.50) (0.59) N firms 878.000000 2630.00000 3508.000000 N employees 696574.000000 35948619.000000 36645193.000000 Panel B: User-level 526.52 311.88 355.99 Total Contributions (932.95) (470.01) (601.57) Restricted Contributions (887.00) (407.75) (550.40) N 10896 42124 53020	Remote Score (0-1)	(0.30)	(0.41)	(0.40)
Age 7 43 34 Rent (\$/sq ft) 49 37 40 Centrality Score 1419 949 1066 Seniority Levels (Count) (0.77) (0.50) (0.59) N firms 878.000000 2630.000000 3508.000000 N employees 696574.00000 35948619.00000 36645193.000000 Panel B: User-level Total Contributions (932.95) (470.01) (601.57) Restricted Contributions (887.00) (407.75) (550.40) N 10896 42124 53020	Employees (Count)	271	2740	2126
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Employees (Count)	(1432)	(9555)	(8380)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	A mo	7	43	34
Rent (\$/\$q ft) (21) (19) (20) Centrality Score 1419 949 1066 Seniority Levels (Count) 3.62 3.86 3.80 Seniority Levels (Count) (0.77) (0.50) (0.59) N firms 878.000000 2630.000000 3508.000000 N employees 696574.000000 35948619.000000 36645193.000000 Panel B: User-level 526.52 311.88 355.99 Total Contributions (932.95) (470.01) (601.57) Restricted Contributions (887.00) (407.75) (550.40) N 10896 42124 53020	Age	(2)	$(2) \qquad (34)$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Pont (\$/ga ft)	49	37	40
$\begin{array}{c} \text{Centrality Score} & (1830) & (1309) & (1470) \\ \text{Seniority Levels (Count)} & 3.62 & 3.86 & 3.80 \\ (0.77) & (0.50) & (0.59) \\ \text{N firms} & 878.000000 & 2630.000000 & 3508.000000 \\ \text{N employees} & 696574.000000 & 35948619.000000 & 36645193.000000 \\ \hline \\ \textbf{Panel B: User-level} & & & & & & \\ \hline \text{Total Contributions} & 526.52 & 311.88 & 355.99 \\ \text{Restricted Contributions} & (932.95) & (470.01) & (601.57) \\ \text{Restricted Contributions} & (887.00) & (407.75) & (550.40) \\ \hline \\ \text{N} & & 10896 & 42124 & 53020 \\ \hline \end{array}$	Tent (#/sq 1t)	(21)	(19)	(20)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Controlity Score	1419	949	1066
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Centrality Score	(1830) (1309)		(1470)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Sonjority Loyals (Count)	0.0_		3.80
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Semonty Levels (Count)	\ /	` /	` /
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	N firms			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	N employees	696574.000000	35948619.000000	36645193.000000
Total Contributions (932.95) (470.01) (601.57) Restricted Contributions (887.00) (407.75) (550.40) N 10896 42124 53020	Panel B: User-level			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	T + 1 C + 13 + 11	526.52	311.88	355.99
Restricted Contributions 468.96 (887.00) 231.83 (407.75) 280.56 (550.40) N 10896 42124 53020	Total Contributions	(932.95)	(470.01)	(601.57)
N 10896 42124 53020	D 4 : 4 1 C 4 :1 4:	,	,	\ /
	Restricted Contributions	(887.00)	(407.75)	(550.40)
N companies 379 759 1138	N	10896	42124	53020
	N companies	379	759	1138

Notes: Each cell shows the mean on the first line and the standard deviation (SD) beneath it in parentheses. Decimal precision reflects each variable's scale. 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; N denotes the number of observations in each subgroup.

3 Mechanisms

We begin with the "base" specification:

```
y_{it} = \alpha + \beta_1 \left( remote_i \times covid_t \right) + \beta_2 \left( remote_i \times covid_t \times startup_i \right) + \delta \left( covid_t \times startup_i \right) + \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:

```
\begin{aligned} y_{it} &= \alpha + \beta_1 \left( remote_i \times covid_t \right) + \beta_2 \left( remote_i \times covid_t \times startup_i \right) \\ &+ \delta \left( covid_t \times startup_i \right) + \gamma_1 \left( covid_t \times rent_i \right) + \gamma_2 \left( remote_i \times covid_t \times rent_i \right) \\ &+ \mathrm{FE}_{it} + \varepsilon_{it}, \end{aligned}
```

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:

```
\begin{aligned} y_{it} &= \alpha + \beta_1 \left( remote_i \times covid_t \right) + \beta_2 \left( remote_i \times covid_t \times startup_i \right) \\ &+ \delta \left( covid_t \times startup_i \right) + \gamma_1 \left( covid_t \times hhi_i \right) + \gamma_2 \left( remote_i \times covid_t \times hhi_i \right) \\ &+ \mathrm{FE}_{it} + \varepsilon_{it}. \end{aligned}
```

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.

$3.1\quad User\ Productivity\ Mechanisms$

Table 2: User Productivity Mechanisms

				Total Co	ntributions			
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Baseline	✓	✓	✓	√	√	✓	✓	√
Rent		\checkmark		\checkmark		\checkmark		\checkmark
HHI			\checkmark	\checkmark			\checkmark	\checkmark
Seniority					✓	✓	✓	✓
Panel A: OLS								
Remote $\times 1$ (Post)	-2.66***	0.18	-2.52*	1.14	12.69	14.73	16.23	19.07
,	(0.99)	(2.33)	(1.30)	(2.45)	(11.42)	(11.41)	(11.83)	(11.83)
Remote $\times 1$ (Post) \times Startup	9.18***	8.50***	8.33***	8.47***	8.09***	7.93***	7.60***	7.75***
	(2.69)	(2.74)	(2.92)	(2.92)	(2.76)	(2.79)	(2.95)	(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**	-662.28	123.22	-312.49	-21312.51	160.32	957.68	-267.63
,	(8.72)	(1258.52)	(577.60)	(1438.40)	(66029.30)	(922.16)	(3030.76)	(3882.03)
Remote $\times 1$ (Post) \times Startup	31.85***	117.04	211.08	238.68	-47.81	70.47	-107.21	227.12
` , , , _ -	(12.28)	(170.78)	(709.68)	(398.71)	(427.16)	(66.79)	(379.62)	(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

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3.2 Firm Mechanisms

Table 3: Firm Scaling Mechanisms

			rin Scanng	Grov				
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Baseline	✓	✓	✓	√	✓	✓	✓	✓
Rent		\checkmark		\checkmark		\checkmark		\checkmark
HHI			\checkmark	\checkmark			\checkmark	\checkmark
Seniority					\checkmark	\checkmark	\checkmark	\checkmark
Panel A: OLS								
Remote $\times 1$ (Post)	0.00	0.01	-0.02***	-0.02	0.03	0.03	-0.02	-0.02
	(0.00)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.03)	(0.03)
Remote $\times 1(Post) \times Startup$	0.07***	0.07***	0.06**	0.06**	0.07***	0.07***	0.06***	0.06**
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
N	41,980	38,760	38,760	38,760	38,760	38,760	38,760	38,760
Panel B: IV								
Remote $\times 1$ (Post)	0.01	-0.13***	-0.05*	-0.17***	-0.01	-0.14*	-0.15**	-0.27***
` '	(0.01)	(0.05)	(0.03)	(0.05)	(0.07)	(0.08)	(0.07)	(0.08)
Remote $\times 1$ (Post) \times Startup	0.21**	0.20*	0.08	0.07	0.17°	0.16	0.09	0.09
	(0.10)	(0.11)	(0.11)	(0.11)	(0.10)	(0.10)	(0.11)	(0.11)
N	41,980	38,760	38,760	38,760	38,760	38,760	38,760	38,760
KP rk Wald F	16.53	10.68	10.28	8.00	9.25	8.00	7.75	6.33

4 Firm Scaling

4.1 OLS

Table 4: Firm Scaling OLS

	de 4. Film 5	canng OLD					
Panel A: All Outcomes							
		Outcome					
	Grow	th	Join	Leave			
D (D ()	0.00		0.01**	0.02***			
Remote $\times 1$ (Post)	(0.00))	(0.00)	(0.00)			
Demote v 1 (Deat) v Stantun	0.07*	**	0.05*	-0.01			
Remote $\times 1(Post) \times Startup$	(0.02)	2)	(0.03)	(0.01)			
N	41,980		41,980	41,980			
Panel B: FE Variants							
		G	rowth				
	(1)	(2)	(3)	(4)			
Pomoto v 1 (Post)	0.00	0.00	0.00	0.00			
Remote $\times 1$ (Post)	(0.00)	(0.00)	(0.00)	(0.00)			
Pamete v 1 (Post) v Startun	0.07***	0.07***	0.07***	0.07***			
Remote $\times 1(Post) \times Startup$	(0.02)	(0.02)	(0.02)	(0.02)			
Time FE			✓	✓			
Firm FE		\checkmark		\checkmark			
N	41,980	41,980	41,980	41,980			

4.2 Instrumental Variables

Table 5: Firm Scaling IV

Panel A: All Outcomes			
		Outcome	
	Growth	Join	Leave
D (1/D)	0.01	0.04***	0.05***
Remote $\times 1$ (Post)	(0.01)	(0.01)	(0.01)
D 1 (D) Ct	0.21**	0.23**	0.09
Remote $\times 1(Post) \times Startup$	(0.10)	(0.11)	(0.06)
N	41,980	41,980	41,980
KP rk Wald F	16.53	16.53	16.53

Panel B: FE Variants

	Growth					
	(1)	(2)	(3)	(4)		
$\overline{\text{Remote} \times \mathbb{1}(\text{Post})}$	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)		
$\operatorname{Remote} \times \mathbb{1}(\operatorname{Post}) \times \operatorname{Startup}$	0.20 (0.10)	0.21** (0.10)	0.20** (0.10)	0.21** (0.10)		
Time FE Firm FE		√	✓	√ ✓		
N KP rk Wald F	41,980 8.26	41,980 16.53	41,980 8.26	41,980 16.53		

4.3 First Stage

Table 6: First-Stage Estimates – Firm Scaling

	Dependent variable					
Instrument	$\overline{\text{Remote} \times \mathbb{1}(\text{Post})}$	$\overline{\text{Remote} \times \mathbb{1}(\text{Post}) \times \text{Startup}}$				
Teleworkable $\times 1$ (Post)	0.826***	-0.000				
Teleworkable × II (1 ost)	(0.028)	(0.000)				
$\text{Teleworkable} \times \mathbb{1}(\text{Post}) \times \text{Startup}$	-0.412***	0.414***				
	(0.077)	(0.072)				
$\mathbb{1}(\text{Post}) \times \text{Startup}$	0.455***	0.575***				
	(0.055)	(0.052)				
Time FE	\checkmark	\checkmark				
Firm FE	✓	✓				
Partial F	437.86	16.54				
N	41,980	41,980				

5 User Productivity

5.1 OLS

Table 7: User Productivity – OLS

Table 7	: User Pi	coauctivity	– OLS			
Panel A: All Outcomes						
		Outcome				
		Total			Restricted	
$\overline{\text{Remote} \times \mathbb{1}(\text{Post})}$		-2.66***			-1.96**	_
, ,		(0.99)			(0.99)	
Remote $\times 1(Post) \times Startup$		9.18***			8.30***	
		(2.69)			(2.62)	
N		52,995			52,995	
Panel B: FE Variants						
		Γ	otal Con	tributions		
	(1)	(2)	(3)	(4)	(5)	(6)
$\overline{\text{Remote} \times \mathbb{1}(\text{Post})}$	-1.29		-1.29			
	(1.05)	-2.38**	(1.05)	-2.38**	-2.66***	-2.79***
	, ,	(1.01)	,	(1.01)	(0.99)	(0.99)
Remote \times 1(Post) \times Startup	2.74	6.19**	2.75	6.20**		
, , ,	(2.92)	(2.82)	(2.92)	(2.82)	9.18***	9.77***
	, ,	, ,	, ,	` '	(2.69)	(2.68)
Time FE			√		√	√
Firm FE		\checkmark		✓	✓	
User FE					✓	
$\mathrm{Firm}\times\mathrm{User}\mathrm{FE}$						\checkmark
N	53,020	52,995	53,020	52,995	52,995	52,718

5.2 Instrumental Variables

Table 8: User Productivity – IV

Table	8: User Pr	coductivity	- 1V			
Panel A: All Outcomes						
		Outcome				
		Total			Restricted	
Dometa v 1 (Dost)		-17.36**			-19.25**	
Remote $\times 1$ (Post)		(8.72)			(8.88)	
$\operatorname{Remote} \times \mathbb{1}(\operatorname{Post}) \times \operatorname{Startup}$		31.85*** (12.28)			34.94*** (12.13)	
N		52,995			52,995	
KP rk Wald F		26.05			26.05	
Panel B: FE Variants						
			Total Con	tributions		
	(1)	(2)	(3)	(4)	(5)	(6)
${\text{Remote} \times 1(\text{Post})}$	-306.40	-18.75**	-306.96	-18.76**		
Telliote // I(I ost)	(246.93)	(9.01)	(247.32)		(8.72)	
$\operatorname{Remote} \times \mathbb{1}(\operatorname{Post}) \times \operatorname{Startup}$		38.28***			31.85***	
	2265.39	(13.01)	2264.90	(13.02)	(12.28)	(12.32)
	(4881.21)		(4882.69)			
Time FE			√	√	√	√
Firm FE		\checkmark		\checkmark	\checkmark	
User FE					\checkmark	
$Firm \times User FE$						✓
N	49,287	52,995	49,287	52,995	52,995	52,718
KP rk Wald F	0.04	27.41	0.04	27.41	26.05	25.60

5.3 First Stage

Table 9: First-Stage Estimates – User Productivity

	Dependent variable					
Instrument	$\overline{\text{Remote} \times \mathbb{1}(\text{Post})}$	$\overline{\text{Remote} \times \mathbb{1}(\text{Post}) \times \text{Startup}}$				
${\it Teleworkable} \times \mathbb{1}({\it Post})$	0.25***	0.00***				
	(0.03)	(0.00)				
$\label{eq:loss_loss} \mbox{Teleworkable} \times \mathbb{1}(\mbox{Post}) \times \mbox{Startup}$	0.09	0.34***				
	(0.05)	(0.04)				
1/D () C	0.14***	0.65***				
$\mathbb{1}(\text{Post}) \times \text{Startup}$	(0.04)	(0.03)				
Time FE	✓	✓				
Firm FE	\checkmark	✓				
User FE	\checkmark	\checkmark				
Partial F	60.08	36.85				
N	52,995	52,995				

6 Dynamic Event-Study Evidence

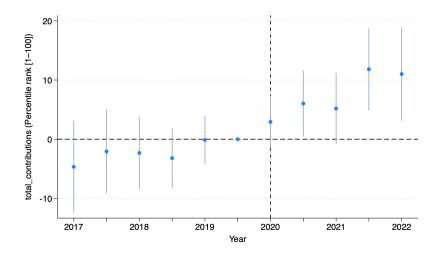


Figure 3: *
OLS – Total Contributions

100

50

2017

2018

2019

2020

2021

2022

Figure 4: *
IV – Total Contributions

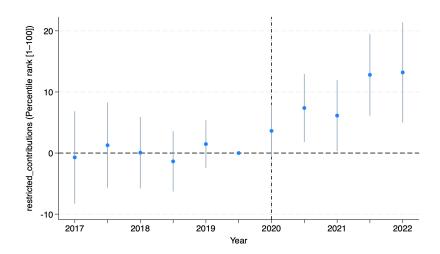
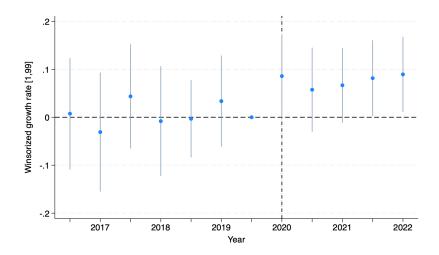


Figure 5: *
OLS – Restricted Contributions

Figure 6: *
IV – Restricted Contributions



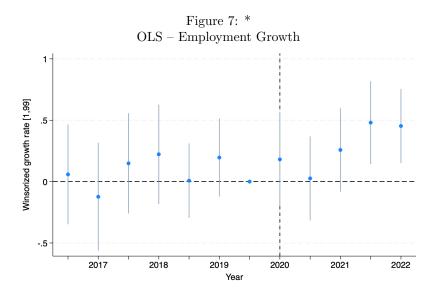
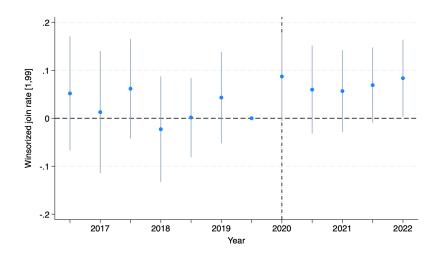


Figure 8: * IV – Employment Growth



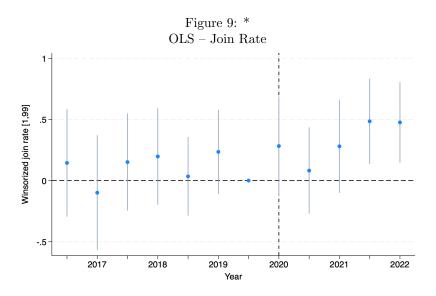
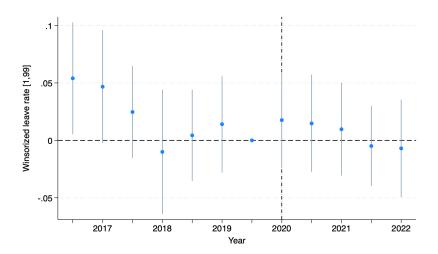


Figure 10: *
IV – Join Rate



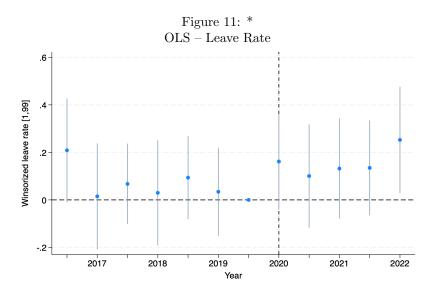


Figure 12: *
IV – Leave Rate