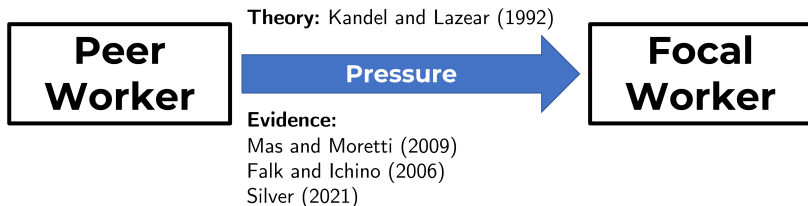# Peer Pressure and Manager Pressure in Organisations

Diego Battiston (University of Edinburgh)
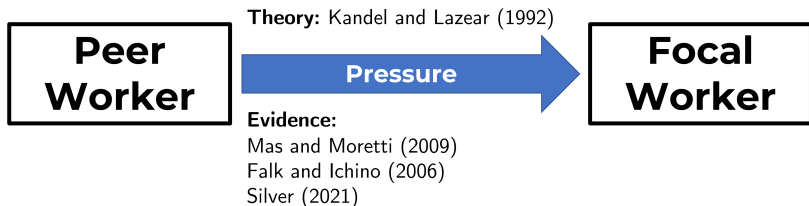
Jordi Blanes i Vidal (LSE)

Tom Kirchmaier (CBS and LSE-CEP)

Katalin Szemeredi (Corvinus, Budapest)

May, 2024

Peer Worker → **Pressure** → **Focal Worker**

Theory: Kandel and Lazear (1992)

Evidence:
Mas and Moretti (2009)
Falk and Ichino (2006)
Silver (2021)

Peer Worker

Theory: Kandel and Lazear (1992)

Pressure

Focal Worker

Evidence:
Mas and Moretti (2009)
Falk and Ichino (2006)
Silver (2021)

Mechanism?

- Kandel and Lazear (1992): guilt, shame, norms...
- Mas and Moretti (2009): *"If a worker is slow, other workers may impose a cost on her, for example, by reporting her to management(...)."*

Managers Matter
Lazear et al. (2015), Hoffman and Tadelis (2020), Frederiksen et al. (2020),
Adhvaryu et al. (2022), Fenizia (2022)
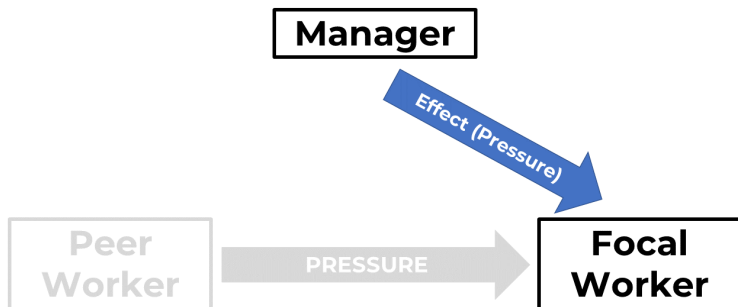
How do Peer Pressure and Manager Pressure Interact?
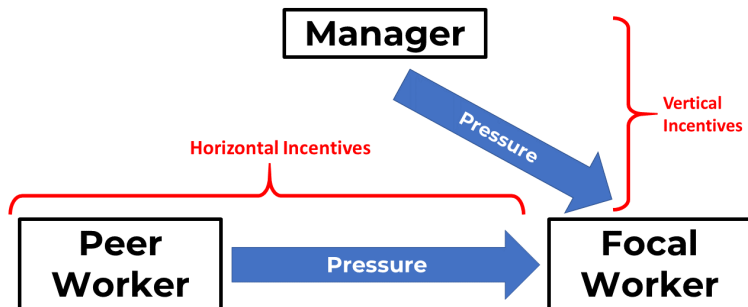
- Unlikely to be independent mechanisms
- Substitutes, Complements?... not obvious

This Paper:

- Effect of presence of nearby peers on worker's productivity

- Mechanism: peer matters because it provides/improves manager's signal about worker's productivity

- Message: managers shape horizontal incentives

Why do we care?

- Optimal design of working spaces, shifts, teams
    - e.g: large productivity gains by just rearranging desks or shifts

- Missing pressure in WFH-hybrid working
    - effect may depend on existing vertical incentives
    - important for office based jobs and public sector

- Understanding why does peer pressure arise

999 Call Handling Room - Manchester Police

Team Production Technology

- handlers take calls from common queue
  - free-riding with all contemporaneous handlers
  - handler sets 'ready status' for taking calls
- managers imperfectly observe effort
- peers on adjacent desks observe effort

Team Production Technology

- handlers take calls from common queue
    - free-riding with all contemporaneous handlers
    - handler sets 'ready status' for taking calls
- managers imperfectly observe effort
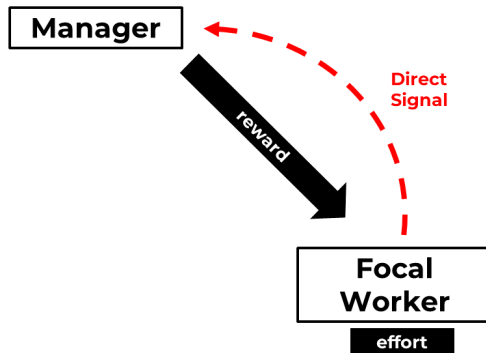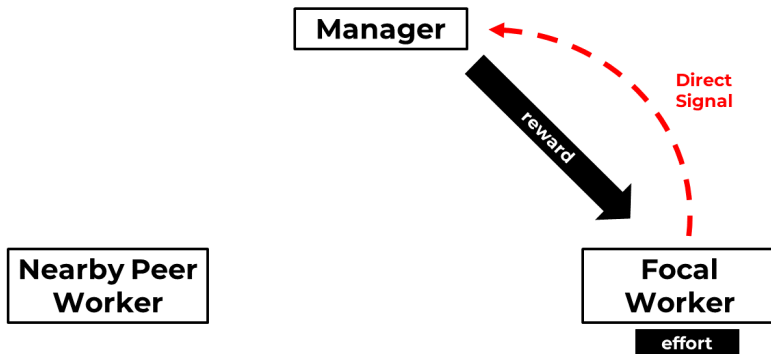- peers on adjacent desks observe effort

Measures of Performance

- number of calls answered
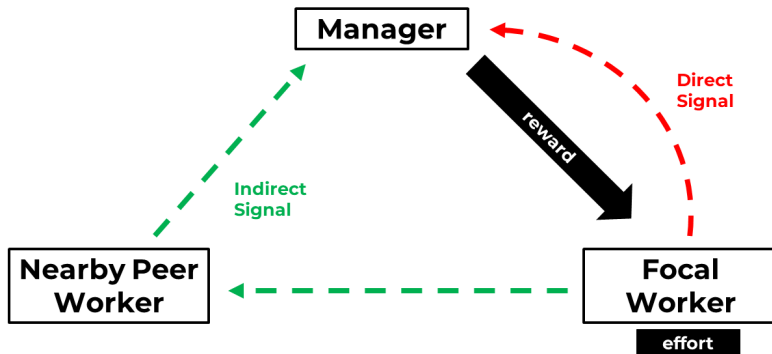- also: time on phone; call 'quality'

Conceptual Framework (math details in paper)

Conceptual Framework (math details in paper)

Conceptual Framework (math details in paper)

Conceptual Framework (math details in paper)

Predictions:

1. peer presence increases productivity
2. peer effect stronger when manager's direct signal is weaker
3. peer effect stronger when peer/manager information link is stronger

Plan

1. identify peer effects (i.e. having peers closeby)
   - properly
   - robustness/heterogeneity
2. mechanism/relation with manager pressure (predictions 2 and 3)
3. simulations and discussion

Empirical Strategy:

Occupation of Adjacent Seats $\longrightarrow$ Productivity of Worker

Identification:

- Seating is:
    - endogenous (hot-desk)
    - but fixed within a shift

Empirical Strategy:

Occupation of Adjacent Seats $\longrightarrow$ Productivity of Worker

Identification:

- Seating is:
    - endogenous (hot-desk)
    - but fixed within a shift
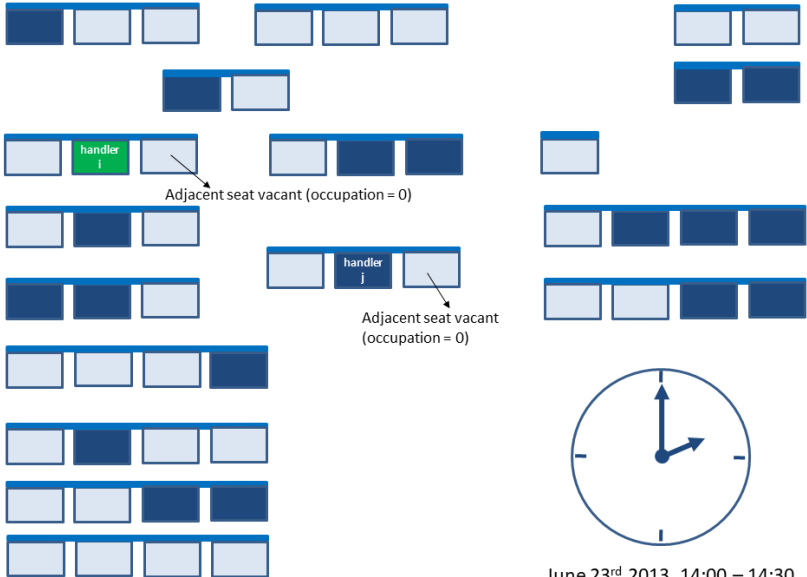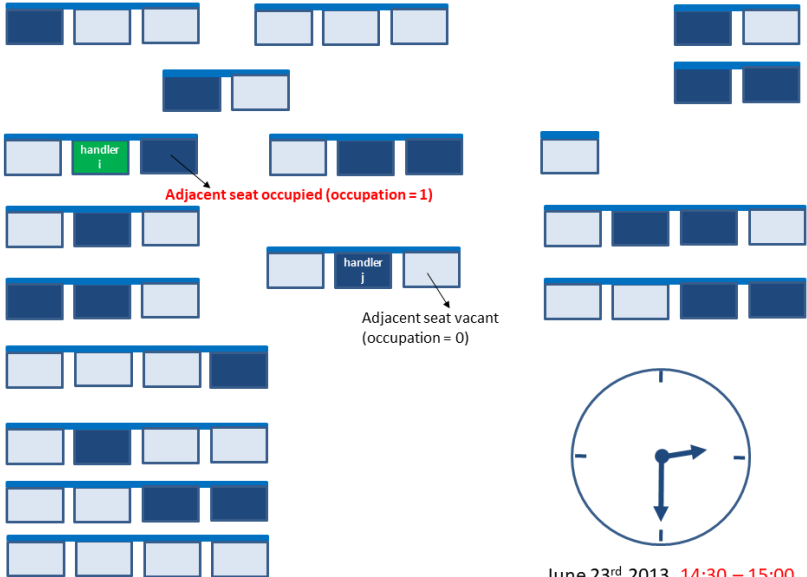
- Exploit high-frequency (e.g. 30mins) variation in occupation of adjacent seats
    - within handler-shift variation
    - absorb common shocks at granular time level

The Effect of Having Peers: Occupation of Adjacent Seats

Adjacent seat vacant (occupation = 0)

Adjacent seat vacant (occupation = 0)

June 23rd 2013, 14:00 − 14:30

The Effect of Having Peers: Occupation of Adjacent Seats

handler i

Adjacent seat occupied (occupation = 1)

handler j

Adjacent seat vacant (occupation = 0)

June 23rd 2013, 14:30 − 15:00

Panel of individual i $\times$ shift s $\times$ half-hour r periods:

$$y_{isr} = \qquad\qquad\qquad\qquad\qquad + \epsilon_{isr}$$

Panel of individual i × shift s × half-hour r periods:

$$y_{isr} = \beta Occupied_{isr} \qquad\qquad + \epsilon_{isr}$$

- $Occupied_{isr} \in [0,2]$: average occupation of adjacent(s) seat(s)

Panel of individual i × shift s × half-hour r periods:

$$y_{isr} = \beta Occupied_{isr} + \gamma_{is} \qquad\qquad + \epsilon_{isr}$$

- $Occupied_{isr} \in [0,2]$: average occupation of adjacent(s) seat(s)
- γ_{is}: individual × shift effect

Panel of individual i × shift s × half-hour r periods:

$$y_{isr} = \beta Occupied_{isr} + \gamma_{is} + \lambda_{t(isr)} \qquad + \epsilon_{isr}$$

- $Occupied_{isr} \in [0, 2]$: average occupation of adjacent(s) seat(s)
- γ_{is}: individual × shift effect
- $\lambda_{t(isr)}$: time (year×month×day×half-hour) effect

Panel of individual i × shift s × half-hour r periods:

$$y_{isr} = \beta Occupied_{isr} + \gamma_{is} + \lambda_{t(isr)} + \theta_r + \epsilon_{isr}$$

- $Occupied_{isr} \in [0,2]$: average occupation of adjacent(s) seat(s)
- γ_{is}: individual × shift effect
- $\lambda_{t(isr)}$: time (year×month×day×half-hour) effect
- θ_r: half-hour-within-individual-shift effect

Panel of individual i $\times$ shift s $\times$ half-hour r periods:

$$y_{isr} = \beta Occupied_{isr} + \gamma_{is} + \lambda_{t(isr)} + \theta_r + \epsilon_{isr}$$

- $Occupied_{isr} \in [0,2]$: average occupation of adjacent(s) seat(s)
- γ_{is}: individual $\times$ shift effect
- $\lambda_{t(isr)}$: time (year$\times$month$\times$day$\times$half-hour) effect
- θ_r: half-hour-within-individual-shift effect

In first differences within individual-shift:

$$\Delta y_{isr} = \beta \Delta Occupied_{isr} + \lambda_{t(isr)} + \theta_r + \Delta\epsilon_{isr}$$

Baseline Regression:

Feb2012-Nov2014, 71,000 shifts, 350 handlers, 2 million calls.

$$\Delta y_{isr} = \beta \Delta Occupied_{isr} + \lambda_{t(isr)} + \theta_r + \Delta \epsilon_{isr}$$

The Effect of Occupation of Adjacent
Desks on Handler Productivity

VARIABLES	(1) Δ LogCalls	(2) Δ LogPhone
Δ Occupied	.04*** (.002)	.06*** (.003)
N	1,120,501	1,120,501

Controls = Half-Hour FE, Shift Half-Hour FE, Minutes Worked During Half-Hour

Dataset in first-differences within handler/shift

S.E. clustered at handler/shift level

Identification assumption: occupation of adjacent seats orthogonal to within-individual-shift/across-half-hour shocks.

E.g. arriving peer doesn't sit next to a handler that is becoming more productive at half-hour t

Identification assumption: occupation of adjacent seats orthogonal to within-individual-shift/across-half-hour shocks.
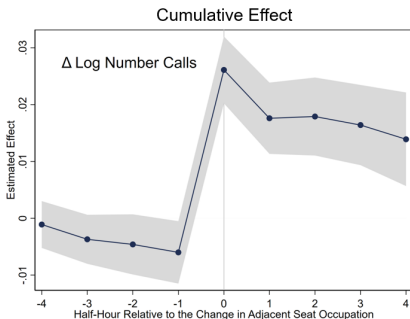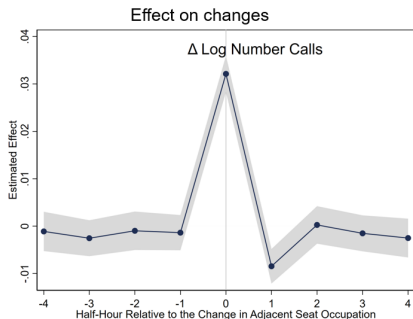
E.g. arriving peer doesn't sit next to a handler that is becoming more productive at half-hour t

$$\Delta y_{isr} = \sum_{j=-4}^{j=4} \beta_j \Delta Occupied_{i(r-j)} + \lambda_{t(isr)} + \theta_r + \Delta\epsilon_{isr}$$

Identification assumption: occupation of adjacent seats orthogonal to within-individual-shift/across-half-hour shocks.

E.g. arriving peer doesn't sit next to a handler that is becoming more productive at half-hour t

$$\Delta y_{isr} = \sum_{j=-4}^{j=4} \beta_j \Delta Occupied_{i(r-j)} + \lambda_{t(isr)} + \theta_r + \Delta \epsilon_{isr}$$

Identification assumption: occupation of adjacent seats orthogonal to within-individual-shift/across-half-hour shocks.

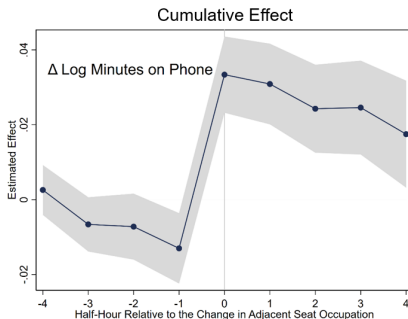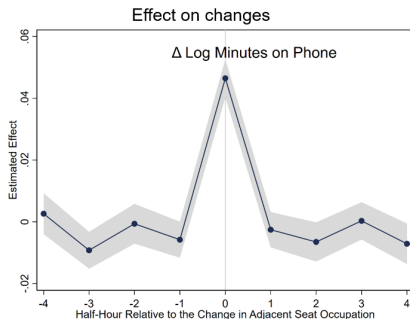E.g. arriving peer doesn't sit next to a handler that is becoming more productive at half-hour t

$$\Delta y_{isr} = \sum_{j=-4}^{j=4} \beta_j \Delta Occupied_{i(r-j)} + \lambda_{t(isr)} + \theta_r + \Delta \epsilon_{isr}$$

17

Placebo Test using Characteristics of Calls received

$$\Delta z_{isr} = \sum_{j=-4}^{j=4} \beta_j \Delta Occupied_{i(r-j)} + \lambda_{t(isr)} + \theta_r + \Delta \epsilon_{isr}$$

▸ Test 2: balance   ▸ Test 3: by occupation
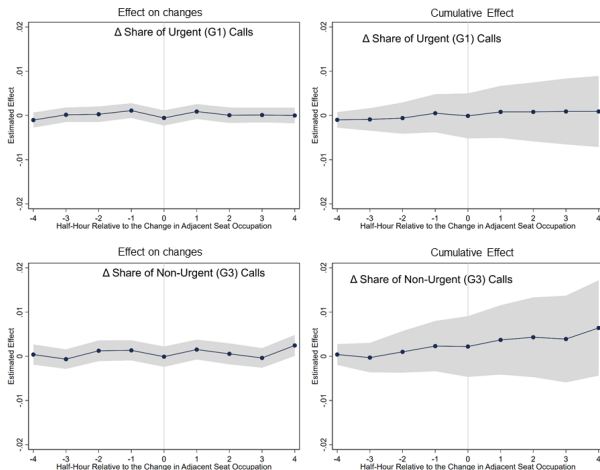
Summary of heterogeneous results

1. both for increases and decreases in occupation ▶

2. most individual-level effects are positive ▶
   - for focus handler
   - spillovers created when arriving/leaving

3. weaker effects for occupation of front/behind row ▶

4. stronger effects when ▶
   - similar experience
   - arriving peer high productivity
   - co-located prior to 2012

▶ additional robustness

Plan for Today

1. identify peer effects
   - properly
   - robustness/heterogeneity
2. mechanism/relation with manager pressure (predictions 2 and 3)
3. simulations and discussion

Prediction 2: stronger peer effects when manager gets a weaker direct signal
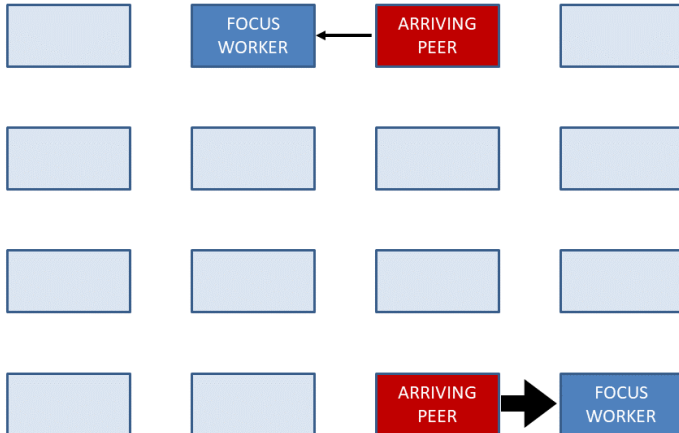
Effect by distance to closest supervisor

$$\Delta y_{isr} = \beta \Delta Occup_{isr} + \alpha(\Delta Occup_{isr} \times Distance_{is}) + \lambda_{t(isr)} + \theta_r + \Delta \epsilon_{isr}$$

Dependent Variable:	(1) Δ Log Phone	(2) Δ Log Calls	(3) Δ Log Phone	(4) Δ Log Calls
Δ Occupied	-.001 (.0134)	-.001 (.0081)		
Δ Occupied × Log Distance to Supervisor	.026*** (.0064)	.016*** (.0038)	.025*** (.0074)	.016*** (.0045)
Δ Occupied × Focus Handler F.E.	No	No	Yes	Yes
Δ Occupied × Time (Half-Hour) F.E.	No	No	Yes	Yes
N	982,861	982,861	982,861	982,861

▶ Non-Parametric

Effect by distance to closest supervisor

Controlling for selection:

$$\Delta y_{isr} = \alpha(\Delta Occup_{isr} \times Dist_{is}) + \beta_i(\Delta Occup_{isr} \times \eta_i) + \gamma_i(\Delta Occup_{isr} \times \lambda_t)$$
$$+ \theta_r + \Delta \epsilon_{isr}$$

Dependent Variable:	(1) Δ Log Phone	(2) Δ Log Calls	(3) Δ Log Phone	(4) Δ Log Calls
Δ Occupied	-.001 (.0134)	-.001 (.0081)		
Δ Occupied $\times$ Log Distance to Supervisor	.026*** (.0064)	.016*** (.0038)	.025*** (.0074)	.016*** (.0045)
Δ Occupied $\times$ Focus Handler F.E.	No	No	Yes	Yes
Δ Occupied $\times$ Time (Half-Hour) F.E.	No	No	Yes	Yes
N	982,861	982,861	982,861	982,861

▸ Non-Parametric

22

Instrument for distance:

- avg distance of free seats at the time handler starts her shift
- intuition: seat choice constrained by free seats $\rightarrow$ idiosyncratic

Avg. distance empty desks to supervisor = 2.4

Instrument for distance:

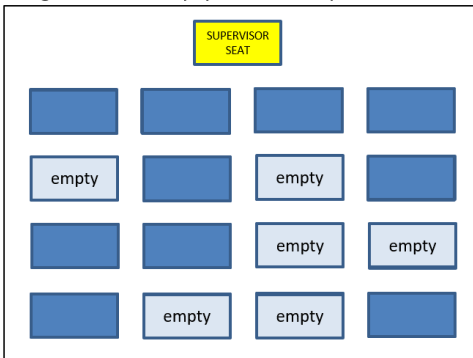- avg distance of free seats at the time handler starts her shift
- intuition: seat choice constrained by free seats $\rightarrow$ idiosyncratic

Avg. distance empty desks to supervisor = 3.7

Effect by distance to closest supervisor

2SLS results:

	First Stage	Second Stage	
	(1)	(2)	(3)
Dependent Variable:	Δ Occupied $\times$ Log Distance to Supervisor	Δ Log Phone	Δ Log Calls
Δ Occupied $\times$ Log Av. Distance Free Seats	1.572*** (.0478)		
Δ Occupied $\times$ Log Distance to Supervisor		.072*** (.0304)	.051*** (.0184)
Δ Occupied $\times$ Focus Handler F.E.	Yes	Yes	Yes
Δ Occupied $\times$ Time (Half-Hour) F.E.	Yes	Yes	Yes
Kleibergen-Paap F	2666.66		

24

Prediction 3: stronger peer effects if manager/peer link is stronger

Prediction 3: stronger peer effects if manager/peer link is stronger

What do Managers do?
Two Functions

Supervisors:

- in the room
- monitor visually
- solve hard problems

Evaluators:

- undertake performance review (plus mentoring, advice)
- requires 'hard' and 'soft' information
- regular meetings with handlers

Co-evaluated Handlers

Effect by evaluator affiliation of peer

	Δ LogCalls				
	(1)	(2)	(3)	(4)	(5)
Δ Occ	.033***				
	(.002)				
Δ (Occ × Co-Evaluated)	.02***	.018***			
	(.006)	(.006)			
Δ Occ interacted with:					
Focus Handler FE	NO	YES			

▶ Phone

27

Effect by evaluator affiliation of peer

	Δ LogCalls				
	(1)	(2)	(3)	(4)	(5)
Δ Occ	.033***				
	(.002)				
Δ (Occ × Future Co-Evaluated)			-.006		
			(.012)		
Δ (Occ × Current Co-Evaluated)	.02***	.018***	.017***		
	(.006)	(.006)	(.006)		
Δ (Occ × Past Co-Evaluated)			-.009		
			(.008)		
				.	
Δ Occ interacted with:					
Focus Handler FE	NO	YES	YES		

▶ Phone

Effect by evaluator affiliation of peer

	Δ LogCalls				
	(1)	(2)	(3)	(4)	(5)
Δ Occ	.033***				
	(.002)				
Δ (Occ × Future Co-Evaluated)			-.006		
			(.012)		
Δ (Occ × Current Co-Evaluated)	.02***	.018***	.017***	.018**	
	(.006)	(.006)	(.006)	(.009)	
Δ (Occ × Past Co-Evaluated)			-.009	-.011	
			(.008)	(.011)	
				.	
Δ Occ interacted with:					
Focus Handler FE	NO	YES	YES	NO	
Focus/Peer Pair FE	NO	NO	NO	YES	

For same pair of focus-arriving handlers:
Stronger effects in periods when they share the evaluator

▸ Phone

Effect by evaluator affiliation of peer

	Δ LogCalls				
	(1)	(2)	(3)	(4)	(5)
Δ Occ	.033***				
	(.002)				
Δ (Occ × Future Co-Evaluated)			-.006		
			(.012)		
Δ (Occ × Current Co-Evaluated)	.02***	.018***	.017***	.018**	.017**
	(.006)	(.006)	(.006)	(.009)	(.01)
Δ (Occ × Past Co-Evaluated)			-.009	-.011	-.014
			(.008)	(.011)	(.011)
Δ (Occ × N Past Interactions)					.006***
					(.001)
Δ Occ interacted with:					
Focus Handler FE	NO	YES	YES	NO	NO
Focus/Peer Pair FE	NO	NO	NO	YES	YES

▸ Phone

27

Simulating Alternative Seating/Shift Arrangements

Use estimated peer effects to simulate:

1. Maximize occupation of adjacent seats

2. Change shifts to maximize overlap in co-evaluated peers

Simulating Alternative Seating/Shift Arrangements

Use estimated peer effects to simulate:

1. Maximize occupation of adjacent seats $\Delta 5\%$

2. Change shifts to maximize overlap in co-evaluated peers $\Delta 12\%$

Simulating Alternative Seating and Shifts Arrangements
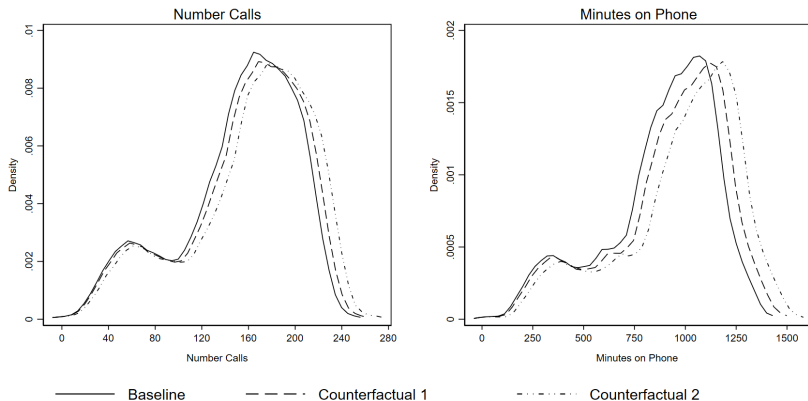
Final Remarks:

- Working with peers closeby:
  - positive effects despite potential for distraction/noise

- Peer pressure is related to manager pressure
  - substitute for direct monitoring
  - driven (at least partly) by manager pressure

- Policy implications
  - workplace design and hierarchical structure matters for productivity
  - e.g. potential productivity gains by changing seat arrangement
  - working from home?

- Caution: paper is silent about e.g. workers' satisfaction

Additional Slides
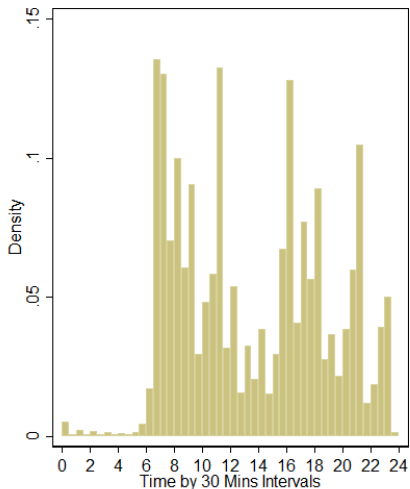
Additional Slides:

- Descriptive ▶

- Additional Tests ▶

- Quality ▶

- Additional Channel: Share of Co-evaluated ▶

- Discussing Other Mechanisms ▶

Handlers Start/End their Shifts at all Times of the Day

Distribution of Shift Hours
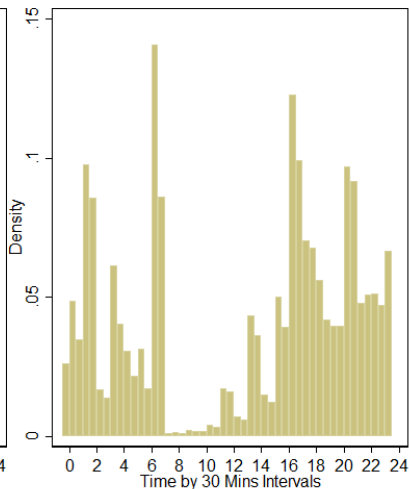
Observations by Existing/Occupied Adjacent Seats

Number of Occupied Seats	Number of Adjacent Seats			
	0	1	2	Total
0	7,646	230,145	39,410	277,201
1	0	610,825	137,732	748,557
2	0	0	143,166	143,166
Total	7,646	840,970	320,308	1,168,924

Distribution of Change in Adjacent Seats Occupied
Conditional on Value Different from 0
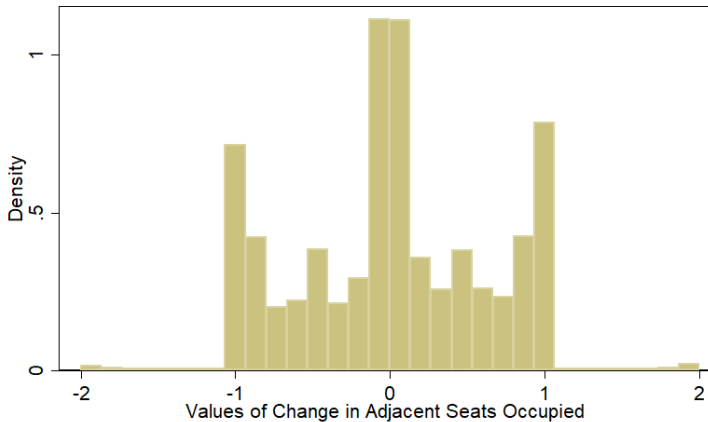
88% of observations have a value of 0.
The histogram displays the distribution of the variable for the remaining observations.

back

Distribution of Outcome Variables
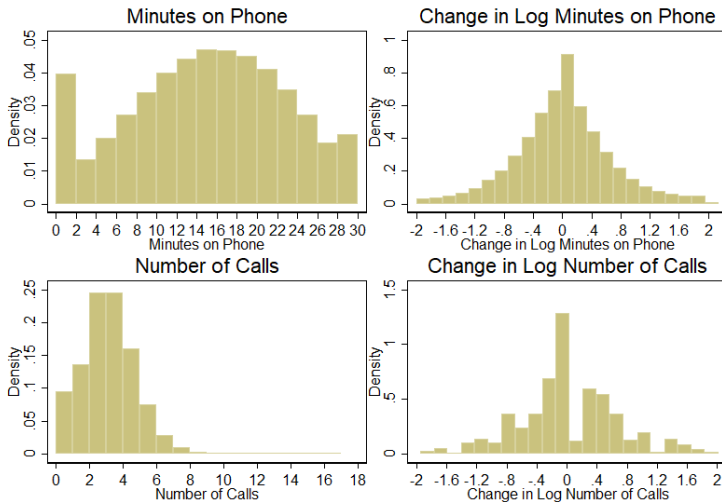
Balance Test: Characteristics of the calls
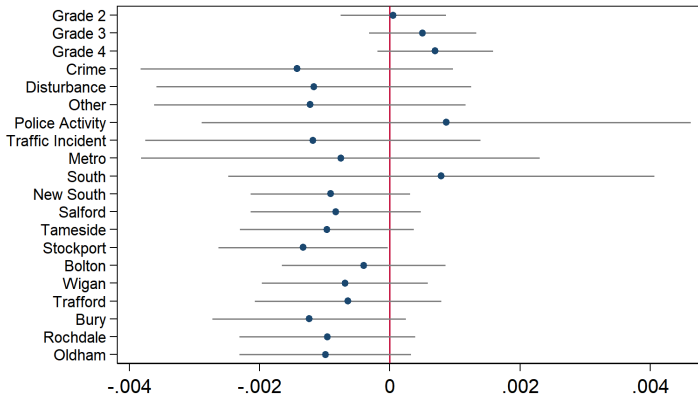
Regression at the call level. N = 2022385
Dependent variable = change in the number of neighbouring seats occupied in the half-hour
RHS variables are displayed in the vertical axis.
F Joint significance = .66

▶ Back

Additional Test: Similar results when handlers have less seat choices

Effects by Room Occupation
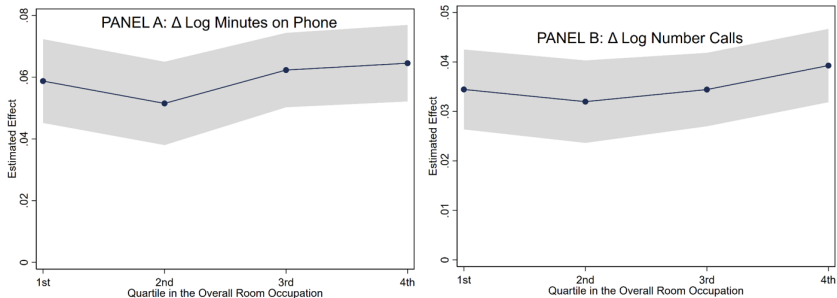
Effects on Quality of Work

Dependent Variable:	(1) Δ Log Average Call Duration	(2) Δ Log Allocation Time	(3) Δ Log Response Time	(4) Δ Log Clearance Dummy
Δ Occupied	.005 (.0029)	.02 (.0165)	.012 (.0124)	-.026 (.0327)
N	908,253	355,363	351,023	9,625

Additional Channel: Effects beyond adjacent desks. It may be easier to evaluate handlers working at the same time

- Exploit variation in the share of co-evaluated peers in the room
- Scheduled weeks in advance
  - i.e. orthogonal to idiosyncratic shocks at handler-30mins level

Share of Co-Evaluated Peers in the Room

	Δ LogCalls			
	(1)	(2)	(3)	(4)
Δ Share Current Co-Evaluated in the Room	.115***	.134***	.134***	.125***
	(.0305)	(.0305)	(.0305)	(.0317)
Δ Share Past Co-Evaluated in the Room	.002	.001	.002	0
	(.0272)	(.0272)	(.0272)	(.0283)
Δ Share Future Co-Evaluated in the Room	.012	.014	.013	.018
	(.0271)	(.027)	(.027)	(.0283)
Δ Occupied		.033***		
		(.0021)		
Δ Occupied × Current Co-Evaluated		.021***	.018***	.02**
		(.0062)	(.0064)	(.0091)
Δ Occ interacted with:				
Focus Handler FE	NO	NO	YES	NO
Focus/Peer Pair FE	NO	NO	NO	YES

orthogonal to the effect of occupation of adjacent desk by co-evaluated

Effect by evaluator affiliation of peer - Time on the Phone

	Δ LogPhone				
	(1)	(2)	(3)	(4)	(5)
Δ Occ	.057***				
	(.0036)				
Δ (Occ × Future Co-Evaluated)			-.013		
			(.0207)		
Δ (Occ × Current Co-Evaluated)	.027***	.029***	.027***	.029*	.029*
	(.0103)	(.0106)	(.0107)	(.0153)	(.0153)
Δ (Occ × Past Co-Evaluated)			-.023*	-.017	-.022
			(.0124)	(.0185)	(.0185)
Δ (Occ × N Past Interactions)					.011***
					(.0015)
Δ Occ interacted with:					
Focus Handler FE	NO	YES	YES	YES	YES
Focus/Peer Pair FE	NO	NO	NO	YES	YES

Baseline Regression with Asymmetric Effects (Non-Parametric)

$$\Delta y_{isr} = \sum_{j=1}^{9} \beta_j \Delta OccupiedDummyJ_{isr} + \lambda_{t(isr)} + \theta_r + \Delta \epsilon_{isr}$$

Increases vs. Decreases in Occupation
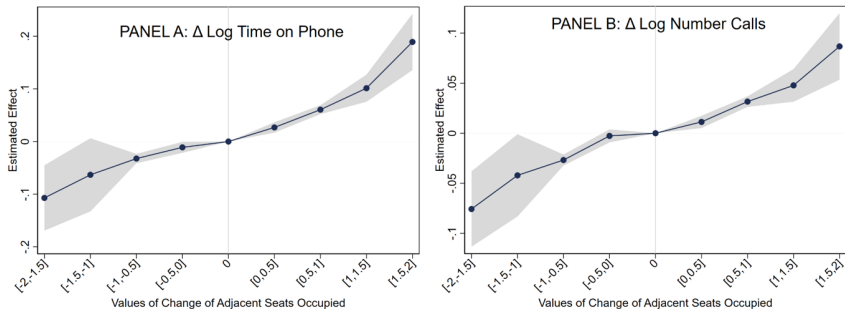
▶ Positive vs Negative   ▶ back

Baseline Regression with Asymmetric Effects

Seats Becoming Free vs Becoming Occupied

VARIABLES	(1) Δ LogPhone	(2) Δ LogCalls
Δ Occupied × (Δ Occupied > 0)	.078***	.04***
	(.004)	(.003)
Δ Occupied × (Δ Occupied < 0)	.04***	.03***
	(.005)	(.003)
p-value (Δ < 0 = Δ > 0)	.000	.007
r2	.34	.27
N	1120501	1120501

Controls = Half-Hour FE, Shift Half-Hour FE, Minutes Worked During Half-Hour

Dataset in first-differences within handler/shift

S.E. clustered at handler/shift level

Calculating Individual i (Focus Worker) Effects

$$\Delta y_{isr} = \beta_i(\Delta Occupied_{isr} \times \eta_i) + \lambda_{t(isr)} + \theta_r + \Delta\epsilon_{isr}$$

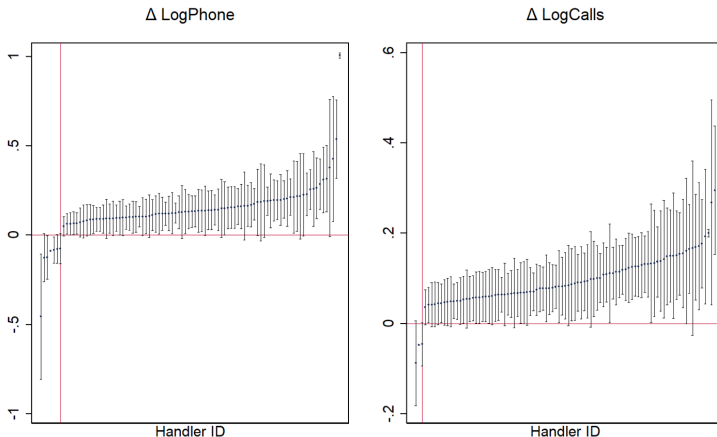Estimated Individual-Level Effects

Only β_i significant at 10%

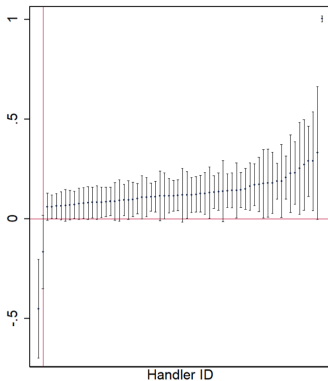# Calculating Individual j (Peer Spillover) Effects

$$\Delta y_{isr} = \beta_j(\Delta Occupied_{isr} \times \eta_{j(isr)}) + \lambda_{t(isr)} + \theta_r + \Delta\epsilon_{isr}$$

Estimated Average Spillover on Co-Workers

Ony β_j significant at 10%
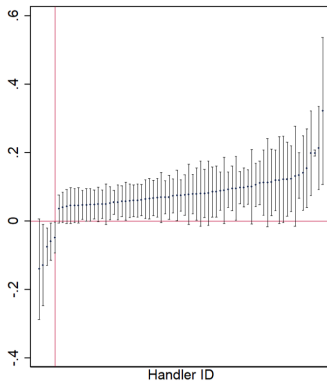
Sanity Check: Visibility of Peer Matters

back
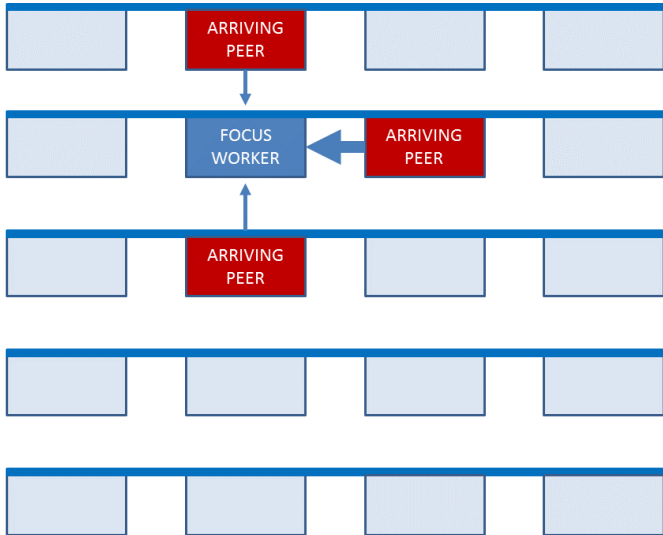
Effect of Occupation of Adjacent vs Non-Adjacent Seats

VARIABLES	(1) Δ LogCalls	(2) Δ LogPhone
Δ Adjacent	.035***	.06***
	(.002)	(.0034)
Δ Behind Row	.009***	.016***
	(.002)	(.0033)
Δ Front Row	.004	.012***
	(.0028)	(.0047)
p-value (Δ Adj $=\Delta$ Vic)	.000	.000
p-value (Δ Vic $=\Delta$ Fro)	.152	.452
r2	.27	.34
N	1120501	1120501

Heterogenous Effects
By Focus Handler Characteristics

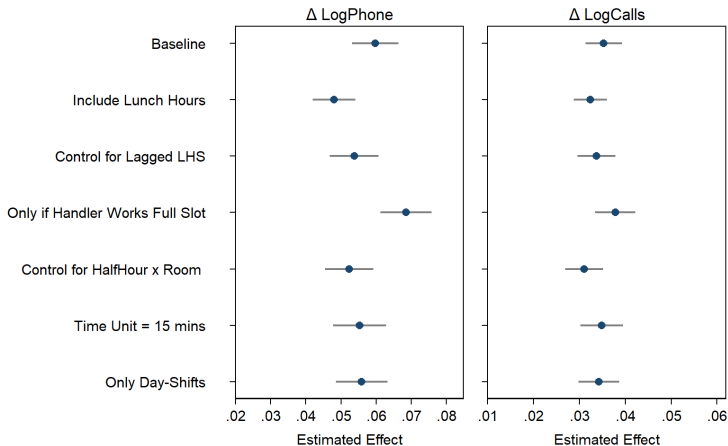| VARIABLES	(1) Δ LogPhone	(2) Δ LogCalls	(3) Δ LogPhone	(4) Δ LogCalls
ΔOccupied	.028**	.012*		
	(.012)	(.007)		
ΔOcc × Female	.001	-.003		
	(.007)	(.004)		
ΔOcc × AvgProductivity	.007	-.002		
	(.007)	(.004)		
ΔOcc × LogExperience	-.017***	-.007***	-.008	.001
	(.004)	(.002)	(.022)	(.013)
ΔOcc × LogIncomingCalls	.034***	.024***	.029***	.02***
	(.006)	(.003)	(.006)	(.003)
IndivFE X ΔOccupied	NO	NO	YES	YES
r2	.34	.34	.34	.34
N	1113720	1113720	1113720	1113720

Heterogenous Effects
By Peer Handler Characteristics

VARIABLES	(1) Δ LogPhone	(2) Δ LogCalls	(3) Δ LogPhone	(4) Δ LogCalls
ΔOccupied	.055***	.036***		
	(.008)	(.005)		
ΔOcc × High Experience	.004	.008	.006	.01
	(.015)	(.009)	(.015)	(.009)
ΔOcc × High Productivity	-.005	-.01	-.007	-.005
	(.009)	(.006)	(.01)	(.007)
ΔOcc × Experience Diffs	-.003***	-.002***	-.004***	-.002***
	(.001)	(.001)	(.001)	(.001)
ΔOcc × Productivity Diffs	.03	.046***	.029	.022
	(.019)	(.018)	(.024)	(.024)
ΔOcc × Same Gender	.008	0	.009	.005
	(.008)	(.005)	(.009)	(.005)
ΔOcc × Co-located in 2011	.037*	.017	.062***	.024*
	(.021)	(.013)	(.024)	(.014)
IndivFE X ΔOccupied	NO	NO	YES	YES
r2	.32	.32	.32	.32
N	1043114	1043114	1043114	1043114

▸ back

Robustness
Effect of Change in Adjacent Seats Occupied

Δ LogPhone | Δ LogCalls

Baseline
Include Lunch Hours
Control for Lagged LHS
Only if Handler Works Full Slot
Control for HalfHour x Room
Time Unit = 15 mins
Only Day-Shifts

Estimated Effect

back

Effect of Distance to Closest Supervisor Position

VARIABLES	(1) Δ LogPhone	(2) Δ LogPhone	(3) Δ LogPhone
Δ Occ	-.006		
	(.0154)		
Δ Occ X (log) Distance to Supervisor	.025***	.018***	.021***
	(.0065)	(.0069)	(.0076)
Δ Occ X Indiv FE	NO	YES	YES
Δ Occ X HalfHour FE	NO	NO	YES
r2	.34	.34	.37
N	982777	982777	982777

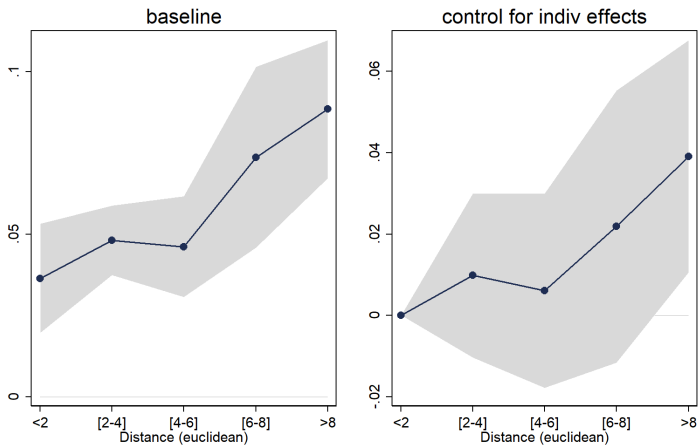# Estimated Effect by Distance to Closest Supervision Position
Δ LogCalls

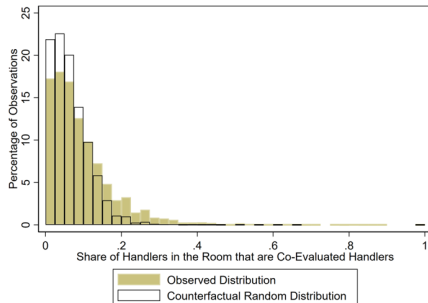# Estimated Effect by Distance to Closest Supervision Position
Δ LogPhone

▶ back
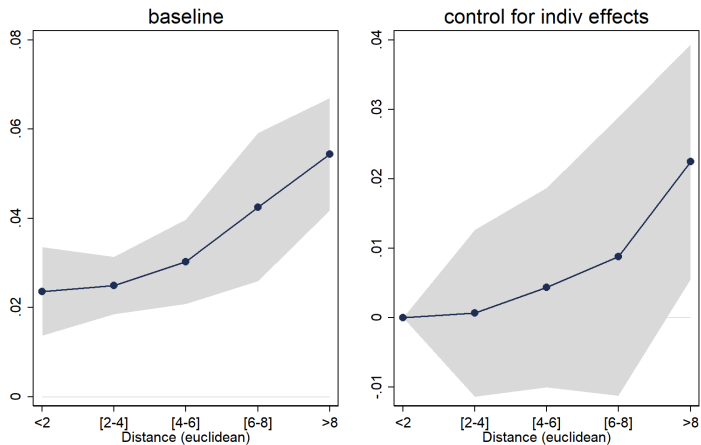
Allocation of handlers to evaluators

Balance of Co-Evaluated vs. Non Co-Evaluated Pairs

$Charack_{ijt} = \psi CoEvaluated_{ijt} + \theta_i + \lambda_j + \pi_t + \epsilon_{ijt}$

	(1)	(2)
Same Gender	-.011	-.001
	(.019)	(.002)
Difference in Age	-.026	-.002
	(.017)	(.002)
Difference in Experience	-.037*	-.004
	(.021)	(.003)
Average Distance Within Room	-.004	0
	(.012)	(.001)
Overlap in the Night Shifts	-.017	-.003
	(.011)	(.002)
Overlap in the Morning Shifts	-.005	0
	(.009)	(.001)
Difference in Share of Urgent Calls	-.013	-.001
	(.011)	(.001)
Difference in Number of Hours Worked	-.02	-.001
	(.013)	(.001)
Difference in Share of Time with Adjacent Seats Occupied	.003	.001
	(.008)	(.001)
First Handler Fixed Effects	Yes	Yes
Second Handler Fixed Effects	Yes	Yes
Year/Semester Fixed Effects	Yes	Yes
F-Statistic Coefficients Jointly Equal to Zero		1.16

(2) is a single regression of a co-evaluated dummy on pair's characteristics

Co-Evaluated shift overlapping

back

Share of Co-Evaluated Peers in the Room - Time on the Phone

	Δ LogPhone			
	(1)	(2)	(3)	(4)
Δ Share Current Co-Evaluated in the Room	.183***	.215***	.215***	.215***
	(.0493)	(.0492)	(.0492)	(.0512)
Δ Share Past Co-Evaluated in the Room	-.008	-.009	-.007	.001
	(.0422)	(.0422)	(.0422)	(.044)
Δ Share Future Co-Evaluated in the Room	-.028	-.025	-.026	-.023
	(.0425)	(.0425)	(.0425)	(.0447)
Δ Occupied		.057***		
		(.0036)		
Δ Occupied × Current Co-Evaluated		.028***	.03***	.033**
		(.0103)	(.0106)	(.0153)
Δ Occ interacted with:				
Focus Handler FE	NO	NO	YES	NO
Focus/Peer Pair FE	NO	NO	NO	YES

Discussion of alternative mechanisms

Summary of Findings:

F1 Positive effect (for almost all handlers) of occupation of adjacent seat

F2 Stronger effects when far from supervisors

F3 Stronger effects for pairs with same evaluator

Mech 1: Relative Evaluation

- conceptually very similar mechanism (signal "passively" transmitted, but handler cares about the signal)

- why F2?

- F3? could be, but why evaluators don't compare with **any** handler?
  - e.g. non-adjacent, past evaluatees, etc.

- overlap of evaluators-evaluatees very small (shouldn't be visual comparison)

Mech 2: Pro-social preferences

- F1? but effects similar when seating choice is very constrained

- why F2?

- F3?
    - co-evaluated $\perp$ friends
    - holds within pairs
    - unchanged when controlling for $\Delta Occ \times NInteractions$

Mech 3: Adjacent Peers are Reference Points

- many handlers should adjust effort downwards

- why F2?

Mech 4: Knowledge Spillovers

- makes no sense with 30 minutes variation

Mech 5: Adjacent Peers can Help

- tasks are parallel, little scope for help

- odds are the peer is busy

- predicts stronger effects when high experienced peer (not the case)

Mech 6: Conformity to Norm - Collusion

- predicts a reduction in effort

Mech 7: F2 predicted by convex cost of effort

- model assumes this, still predicts F2

- not true for other proxies of baseline effort (e.g. calls per handler, occupation of room, etc.)