# Managers and the Organization of Remote Work

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*with:*
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**2026 Remote Work Conference**

# Remote work persists as return-to-office pressure rises

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ECONOMY • JOBS

## Work From Home Is Here to Stay—Even if Some CEOs Don't Love It

Big companies keep trumpeting return-to-office mandates, but the amount of time Americans work remotely is barely budging

By Justin Lahart
June 15, 2026 at 5:30 am ET

Save Aa 240 Listen (6 min)



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LIFESTYLE • WORKPLACE

## Return-to-Office Mandates Apply to Everyone, Except a Chosen Few

New hybrid-work hierarchy means star employees get to work from home

By Ray A. Smith
Jan. 26, 2025 at 9:00 pm ET

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LIFESTYLE • CAREERS

## Does Remote Work Make Employees Happier? Here's What the Evidence Says

In general, workers like hybrid schedules. But it isn't that simple.

By Andrew Blackman
June 13, 2026 at 11:00 am ET

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HARVARD BUSINESS REVIEW

**Managers and employees disagree about WFH productivity**

Employee assessment: $+7.4\%$ Manager assessment: $-3.5\%$

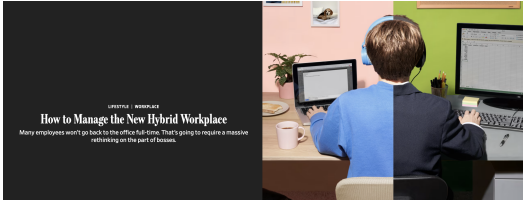
# Increasing focus on organization of remote work and role of managers



Credit: eamesBot/Shutterstock

## A Good Boss Can Boost Team Productivity

By Andrea Riquier December 01, 2023



# Research questions

**Two main questions:**

1. How do managers shape the *intensity and organization* of remote work?
2. How do these managerial choices affect productivity?

# Research questions

**Two main questions:**

1. How do managers shape the *intensity and organization* of remote work?
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**Why has this been hard to answer?** It requires:

(a) granular data on how RW is organized *plus* the internal structure of the firm (workers and managers)

(b) a source of plausibly exogenous variation in manager-worker assignments

→ We bring both to the table using INPS, Italy's Social Security Agency

# This Paper

- We study INPS, a very large public-sector organization
  - Organized into 528 territorial offices with a manager
  - Standardized workflow: review welfare claims
  - frequent manager rotations (anti-corruption rules)
  - managers have *discretion* over how production is organized (workflow, RW)
- Daily worker-level data on RW lets us measure both intensity and organization of RW for 30k workers and 700 managers
- Monthly office-level data on productivity (number of claims processed)
- We exploit manager rotation across offices (anti-corruption rules):
  1. AKM model $\rightarrow$ how much variation in RW is driven by managers vs. workers
  2. Stacked event study $\rightarrow$ how changes in managers' RW practices affect productivity

# Related literature and contributions

1. **Literature on remote work and productivity**
   - Bloom et al. (2015); Bloom et al. (2024); Bloom et al. (2025); Emanuel and Harrington (2024); Emanuel, Harrington, and Pallais (2023); Fenizia and Kirchmaier (2025); Linos (2016)
   - Evidence is mixed on whether RW raises or lowers productivity More
   - Contribution: we study not only RW intensity, but also RW organization, in the public sector, where exits are rare, pay is rigid, and RW may affect productivity differently.

2. **Literature on the role of managers**
   - Hoffman & Tadelis (2021); Metcalfe et al. (2023); Diaz et al. (2025); Janke et al. (2021); Fenizia (2022); Muñoz and Otero (2025);
   - Managers are shown to matter both in private and public sector More
   - Contribution: we study whether managers shape RW in the public sector, in more complex tasks, and whether this affects productivity

# Context and Data

# INPS at a glance



*INPS headquarters, EUR district, Rome.*

- Italy's largest public-sector employer after NHS, ∼30,000 employees
- Handles pensions, welfare, unemp
- Processes tens of millions of claims for ≈ 35 million beneficiaries
- Offices composed of 15 workers, one manager
- Highly *standardized workflow* → ideal setting to study productivity
- Managers do not control pay or firing but influence monitoring/supervision and how work is organized, including RW

# Data sources

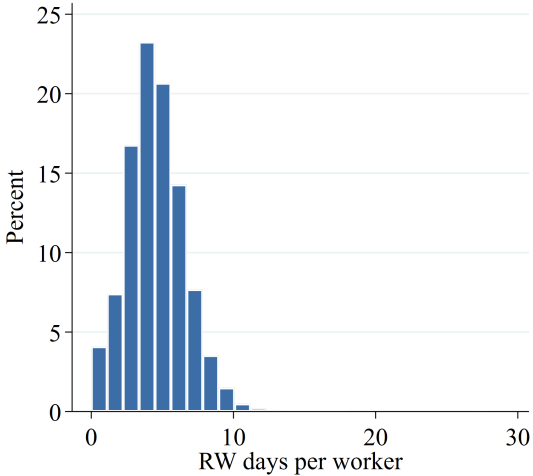
We leverage 3 sources of data between July 2021 and Sept. 2024 (post-Covid)

1. **HR records** ($N$ = 30,403 workers and 703 managers)
   - data on demographics: gender, age, child age, occupation
   - hiring/exit dates + month in which they switch office (if any)

2. **Daily worker data on remote work and absences** ($N$ = 29 million worker×days)
   - for each worker-day, we observe whether the worker is remote, in person, or absent, as well as the reason for the absence (leave or vacation)

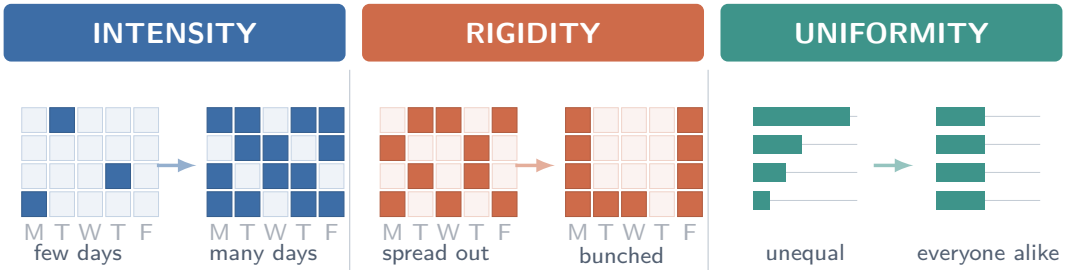
3. **Monthly office-level productivity data** ($N$ = 27,214 office×months)
   - number of claims processed, reweighted by INPS to account for complexity
     - across 1,000+ claim types, some are very quick to process ($<$ 1 min), while others are more complex (e.g., $>$ 1 hour) and receive higher weights
   - main productivity measure: number of (reweighted) claims processed per full-time equivalent worker

# Distribution of RW intensity after COVID




- 28% of workers take no RW over the month
- 20% take more than 8 RW days per month

# Visualizing the three dimensions of remote work




rigidity, in detail | uniformity, in detail | the mirror check

# Do managers matter for the organization of remote work?

# Manager and worker contributions to RW practices

- How much of the variation in RW can be attributed to managers vs. workers?
  - Managers may shape RW through different norms and practices
  - Workers may also differ in their preferences over RW arrangements
- Separate the two with an AKM variance decomposition that exploits staff moves
- Out of all worker-manager match changes, 84% are driven by manager moves
- Managers periodically rotate across offices under administrative and anti-corruption rules, mostly move to other close-by offices

Mobility stats

# How much RW variation is explained by managers and workers?

| | Manager FE | Worker FE | 2× Cov. | Residual | Observations |
|---|---|---|---|---|---|
| | Share of net variance (%) | | | | |
| **A. Naive AKM** | | | | | |
| Intensity | 4.65 | 66.67 | -6.99 | 35.68 | 1,369,234 |
| Rigidity | 27.70 | 33.16 | -10.61 | 49.75 | 1,407,196 |
| Uniformity | 6.72 | 38.80 | -3.61 | 58.09 | 1,406,453 |
| **B. Andrews** | | | | | |
| Intensity | 4.58 | 65.81 | -6.87 | 36.48 | 1,369,234 |
| Rigidity | 27.62 | 31.99 | -10.46 | 50.85 | 1,407,196 |
| Uniformity | 6.58 | 37.35 | -3.42 | 59.49 | 1,406,453 |
| **C. KSS** | | | | | |
| Intensity | 4.54 | 65.49 | -6.80 | 36.77 | 1,369,234 |
| Rigidity | 27.94 | 32.40 | -10.51 | 50.16 | 1,407,196 |
| Uniformity | 6.68 | 38.28 | -3.46 | 58.50 | 1,406,453 |

- Managers matter for all measures, especially rigidity!

# Manager FE and manager characteristics

| | Intensity | Rigidity | Uniformity |
|---|---|---|---|
| *Demographics* | | | |
| Female | -0.16 | -0.19 | 0.10 |
| | (0.12) | (0.13) | (0.13) |
| Age | -0.08 | 0.11** | 0.08 |
| | (0.06) | (0.06) | (0.06) |
| Parent | -0.12 | -0.04 | -0.09 |
| | (0.14) | (0.14) | (0.15) |
| Distance home–office | 0.12** | -0.04 | -0.01 |
| | (0.06) | (0.06) | (0.06) |
| *Own remote work* | | | |
| Intensity | -0.02 | 0.02 | -0.05 |
| | (0.07) | (0.05) | (0.07) |
| Rigidity | 0.07 | 0.16** | 0.18*** |
| | (0.06) | (0.08) | (0.07) |

Management practices

# What is the effect of changing manager RW style on productivity?

# Stacked event study

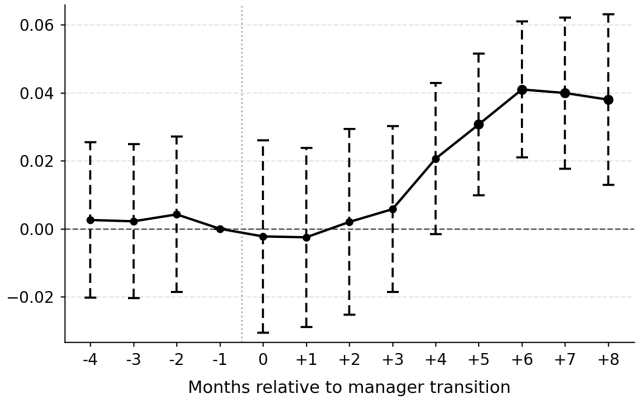
- 376 offices with at least one manager transition, 2021–2025
- Each treated office matched to 3 never-treated or not-yet-treated offices; pooling cohorts:

$$y_{jtc} = \sum_{k \neq -1} D_{tc}^{k} T_{jc} \left( \pi_0^k + \pi_1^k H_{jc} \right) + \alpha_{j,c} + \delta_{t,c} + \varepsilon_{jtc}$$

- $H_{jc}$ — the dose: the change in the manager's RW-practice FE, from step 1
- $\pi_1^k$ — what the figures plot: the effect of changing managerial RW style, net of the average effect of a transition ($\pi_0^k$)

Specification

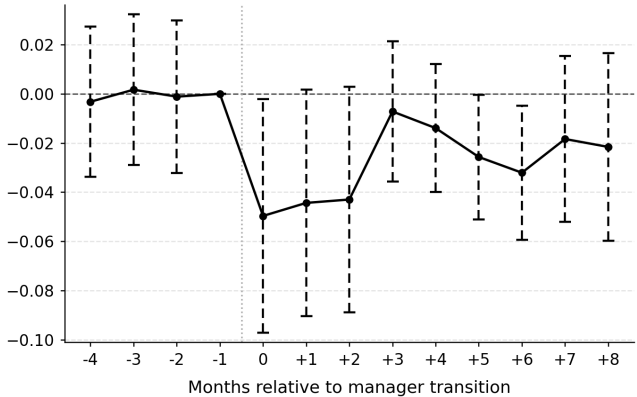
# Effects of manager remote-work style on office productivity, Intensity




$\Rightarrow$ number of claims per worker $\uparrow$ by about 4%.

First Stage

# Effects of manager remote-work style on office productivity, Rigidity




$\Rightarrow$ number of claims per worker $\downarrow$ by about 4%

First Stage

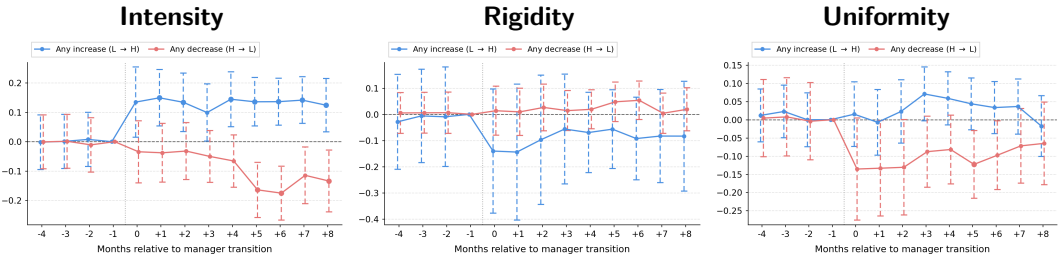
# Effects of manager remote-work style on office productivity, Uniformity




$\Rightarrow$ number of claims per worker $\uparrow$ by about 3%

First Stage

# Are the effects symmetric?




By Transition Type

# Why does managerial RW style move productivity?

# Mechanisms

**1. Not driven by more labor input**

- Manager RW style does not systematically change the number of days worked — Days worked
- Productivity effects remain when output is measured per worker-day rather than per worker — Per worker-day

  ⇒ **Changes in output per day worked, not simply more days worked**

**2. Not driven by worker exits**

- No detectable effect on exits (retirement, resignations, or other non-retirement exits) — Exits

  ⇒ **Productivity effects are not explained by workforce selection**

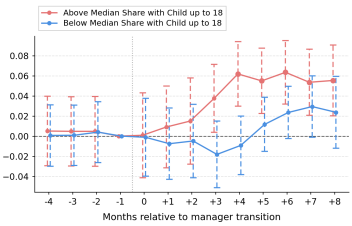
# Where does managerial RW style matter most?

## Why the effects should differ across offices

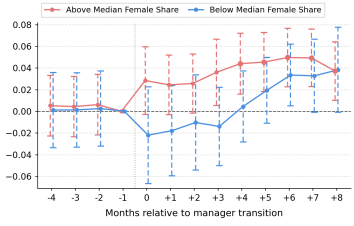
- So far: average effects of a change in managerial RW style
- But the same style should not pay off equally everywhere — it depends on how workers and tasks trade off flexibility against presence
- **Where the value of flexibility is high**, more RW should help more:
  - workers with *care responsibilities* (children at home)
  - offices with a larger share of *women*, who bear more of those constraints
  - workers facing *long commutes*
- **Where presence is more valuable**, more RW should help less:
  - *front-office* units (*agenzie*) vs. *back-office* directorates (*direzioni*)
- We split transitions on the office's pre-transition composition (measured in the four months before the manager change) and on office type

# More RW pays where workers value flexibility most

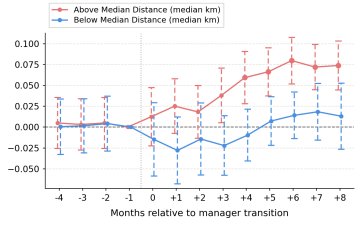
## Child $\leq$ 18




## Women

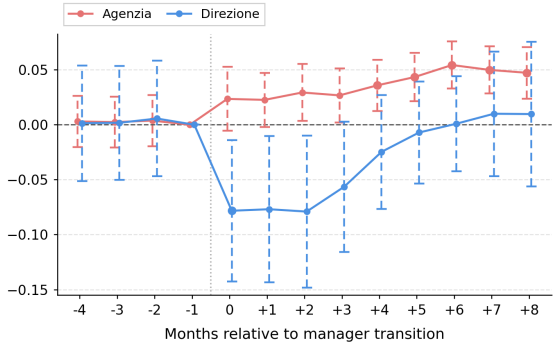



## Home–office distance




Rigidity & uniformity

# ... and in smaller offices that handle standard benefits cases!




Rigidity & uniformity

# Key takeaways

- Managers explain substantial variation in how RW is organized across offices.
- When and how RW is allocated affect productivity beyond overall RW intensity.
- Remote work does not have a single productivity effect: its consequences depend on how managers structure it.

# Appendix

# Literature: mixed evidence on RW and worker productivity

- Productivity gains:
  - Bloom et al. (2015, pre-COVID): Chinese call center. Full-time RW.
    RW ↑ productivity & retention; mechanism: fewer breaks, sick days, distractions.
  - Fenizia and Kirchmaier (2025, post-COVID): UK police staff jobs. Partial RW.
    RW ↑ productivity, especially when supervisors assign tasks; mechanism: fewer distractions.

- Productivity losses:
  - Emanuel and Harrington (2024, post-COVID): U.S. call centers. Full-time RW.
    RW ↓ productivity and promotions; mechanism: weaker learning and coordination.
  - Gibbs et al. (2023, during COVID): Asian IT firm. Full-time RW
    RW ↓ productivity; mechanism: higher communication and coordination costs.
  - Linos (2016, pre-COVID): U.S. Patent and Trademark Office. Partial RW.
    RW ↑ retention but ↓ output; mechanism: more flexibility but less monitoring.

- No productivity effect:
  - Bloom et al. (2024, post-COVID): Chinese firm. Partial RW, 2 days/ week.
    No effect on productivity or promotions, but ↓ quits; mechanism: workers value flexibility.

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# Literature: the role of managers

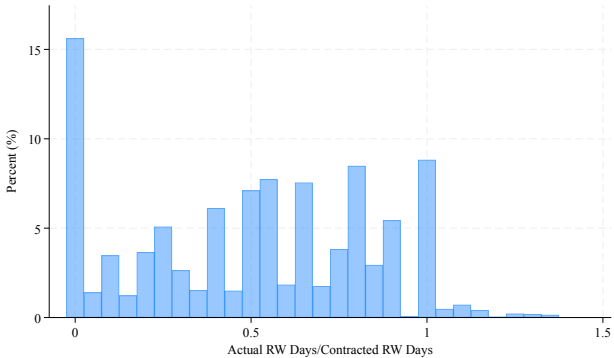
- Private sector evidence:
  - Hoffman and Tadelis (2021): large high-tech firm. Better people-management skills ↓ turnover; mechanism: better manager-worker relationships.
  - Metcalfe et al. (2023): two retail chains. Store managers explain substantial productivity differences even when firm-wide practices are fixed.
  - Diaz et al. (2025): manufacturing, fast food, and retail. Middle managers shape training take-up and worker performance; mechanism: employee engagement and on-the-ground implementation.

- Public sector evidence:
  - Janke et al. (2021): NHS hospitals. CEO changes have limited effects on performance; mechanism: tight constraints and limited managerial discretion.
  - Muñoz and Otero (2025): Chilean public hospitals. Better hospital CEOs ↓ mortality; mechanism: management training, lower doctor turnover, and higher operating-room efficiency.
  - Fenizia (2022): Italian public sector. Manager fixed effects explain substantial productivity variation; mechanism: persistent differences in managerial quality and work organization.

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# Contracted vs. actual RW

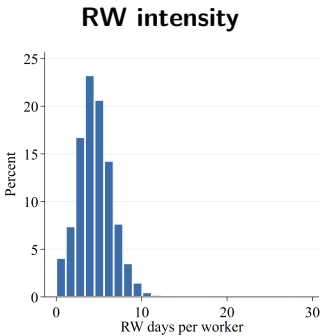
- Max number of RW days per month is negotiated between the worker and the manager and specified in the contract (renegotiated every 6 months)
- In practice, actual RW is often lower than contracted RW.

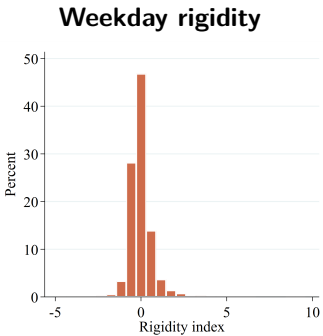


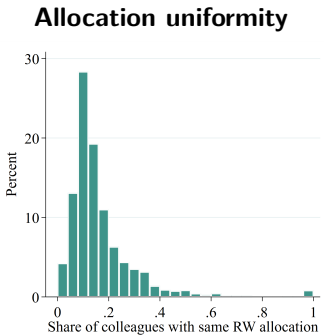

*Notes:* One observation per worker. Plots the distribution of the ratio between the contractual (max) number of RW hours per month and the actual RW hours per month.

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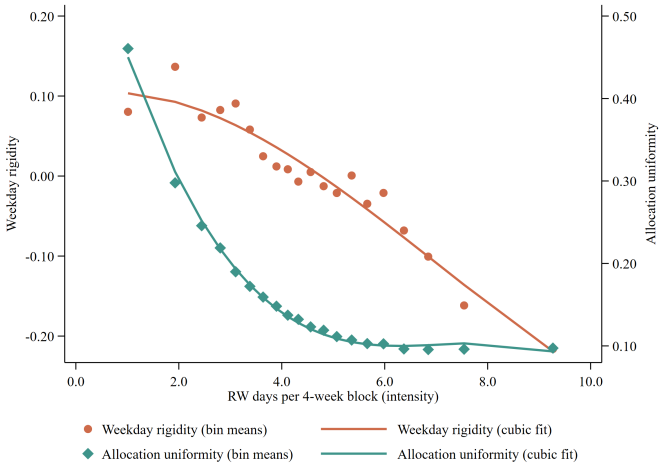
# Distribution of Remote-Work Practices Across Offices



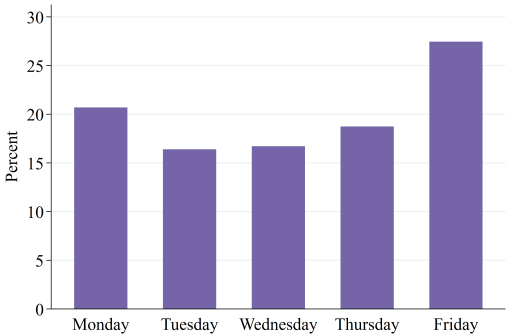



# Remote-work intensity, weekday rigidity, and allocation uniformity



# Temporal distribution of RW

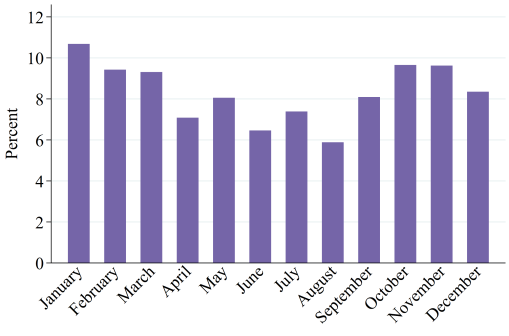
## By day of week




*Notes:* One observation per worker-week, restricting the sample to worker-weeks in which RW is non-zero. Share of RW days taken on Mon, Tue, Wed, Thurs, or Fri (sums to 1 across all days).

⇒ 25% of weekly RW is taken on Friday.

## By month

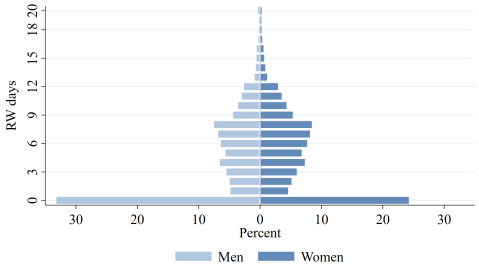


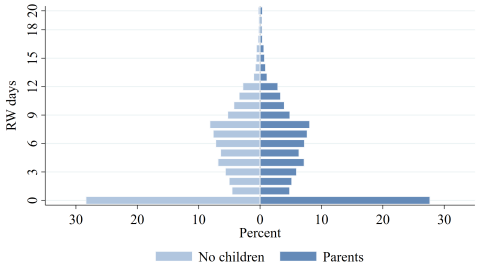

*Notes:* One observation per worker-year, restricting the sample to worker-years in which RW is non-zero. Share of RW days taken in each month (sums to 1 across all months).

⇒ 25% of yearly RW is taken in July and September.

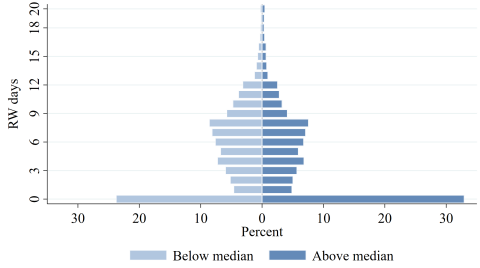
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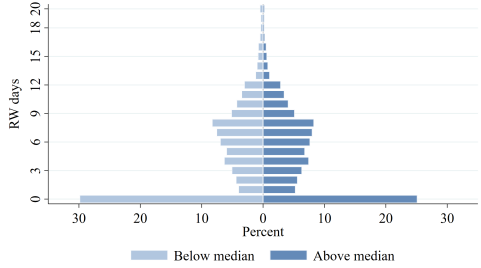
# RW intensity by worker characteristics

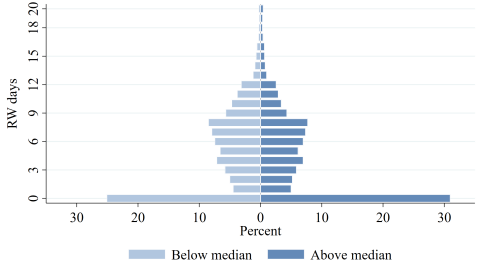


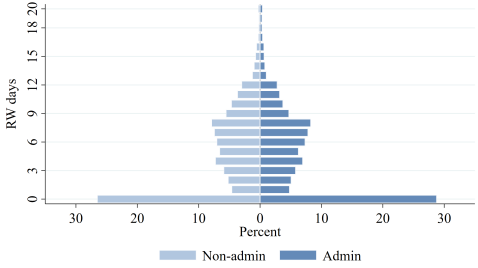
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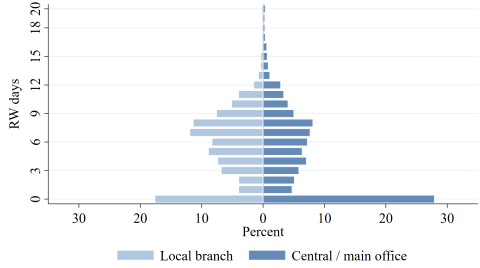


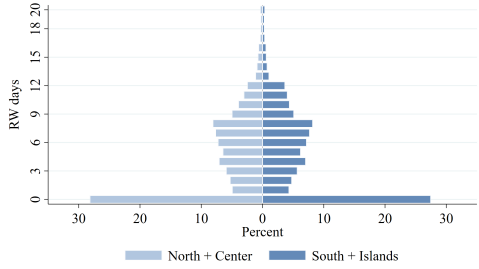



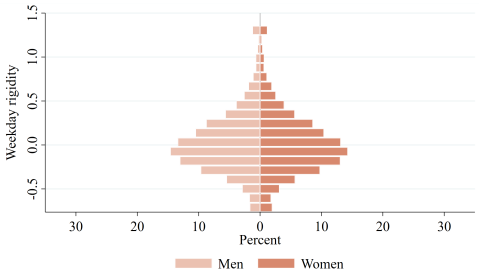
# RW intensity by occupation and office characteristics

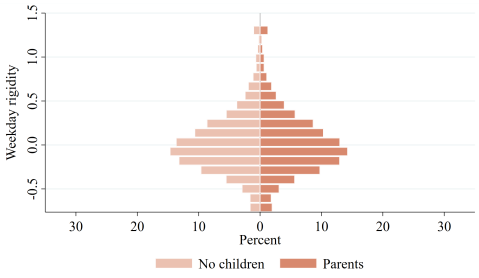


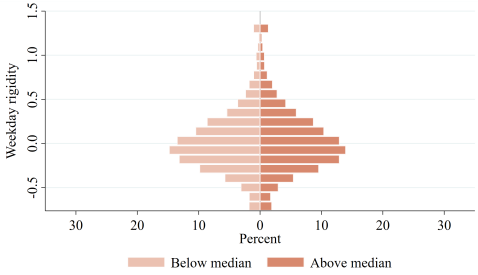



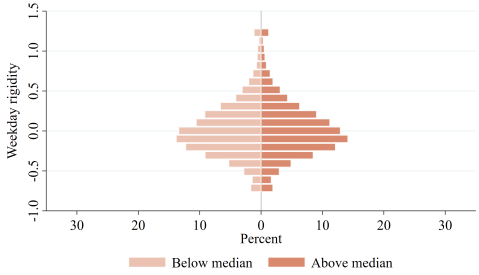
# Weekday rigidity by worker characteristics

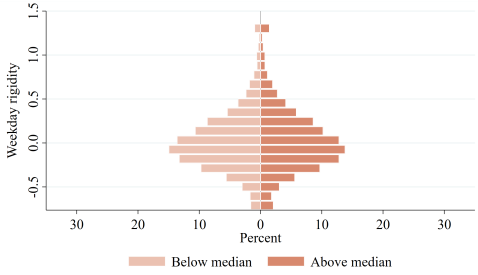


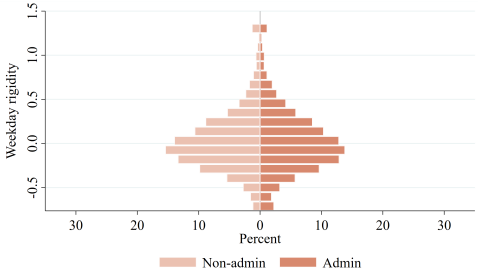
# Weekday rigidity by worker characteristics

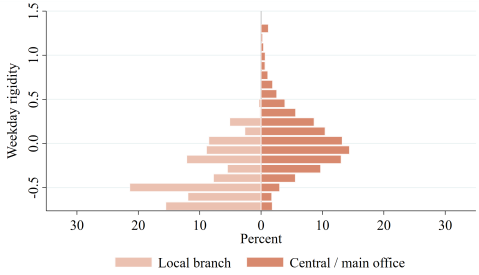


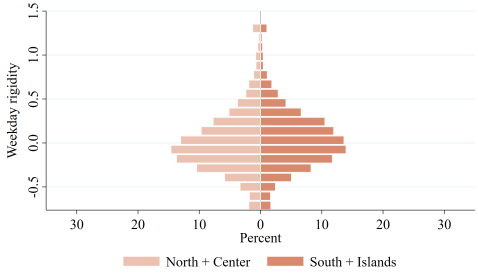



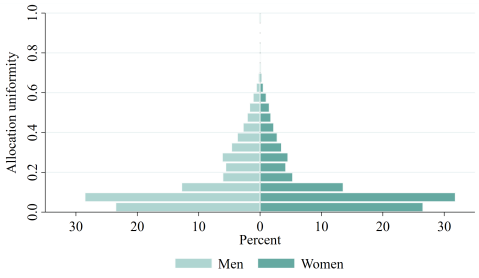
# Weekday rigidity by occupation and office characteristics

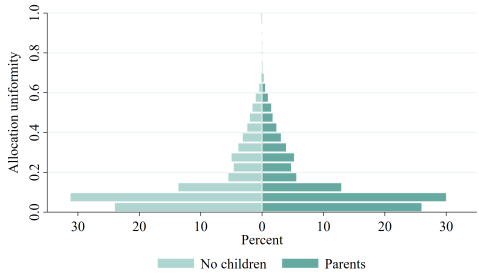


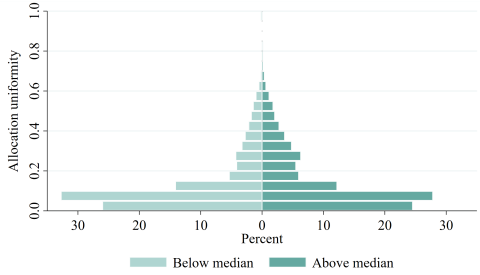



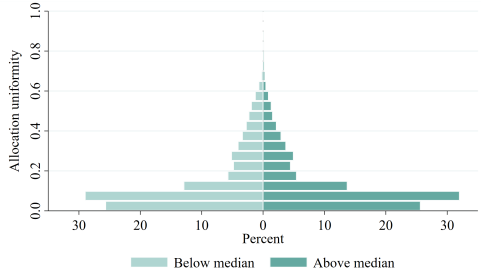
# Allocation uniformity by worker characteristics

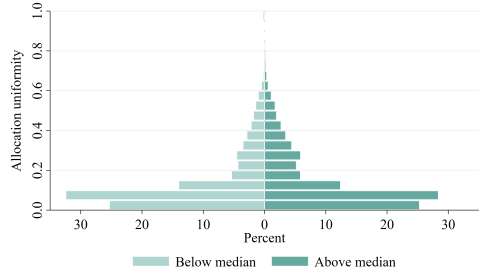


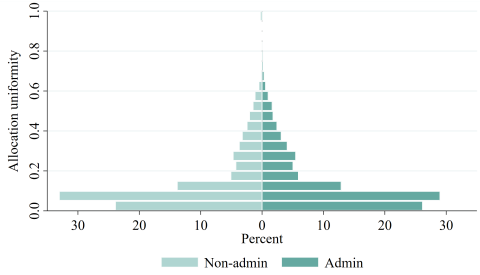
# Allocation uniformity by worker characteristics

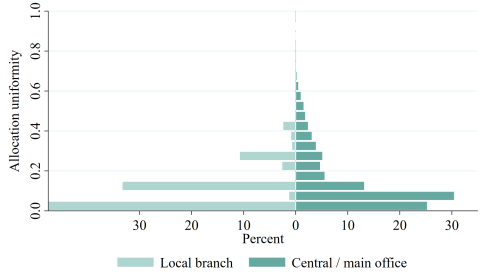


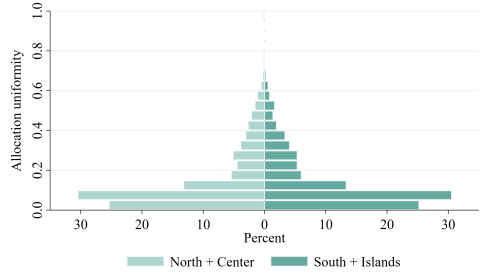



# Allocation uniformity by occupation and office characteristics



# AKM decomposition

**Step 1:** Estimate manager effects separately for each RW measure:

$$RW_{ib} = \psi_{m(i,b)} + \alpha_i + \tau_b + X'_{ib}\gamma + \varepsilon_{ib}$$

- $RW_{ib}$: intensity, rigidity, or uniformity for worker $i$ in four-week block $b$
- $\psi_{m(i,b)}$: fixed effect of the manager supervising worker $i$ in block $b$
- $\alpha_i$ and $\tau_b$: worker and four-week-block fixed effects
- $X_{ib}$: included only for allocation uniformity to account for own RW intensity and office team size

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Largest connected set = 99.5% of observations

No evidence of sorting on pre-trends or on the match-specific component of RW +

# Variance decomposition

**Step 2:** We decompose variation in RW into manager and worker components:

$$
\begin{aligned}
\mathrm{Var}(\widetilde{RW}_{ib}) = \mathrm{Var}(\psi_{m(i,b)}) & \quad \text{manager RW style} \\
+ \mathrm{Var}(\alpha_i) & \quad \text{permanent worker RW preferences} \\
+ 2\,\mathrm{Cov}(\alpha_i, \psi_{m(i,b)}) & \quad \text{assortative matching} \\
+ \mathrm{Var}(\varepsilon_{ib}) & \quad \text{residual}
\end{aligned}
$$

# Mobility Shares

| | Value |
|---|---|
| **A. Source of manager-change events** | |
| Worker office changes | 16.0% |
| Manager office changes | 84.0% |
| **B. Manager mobility** | |
| Unique workers per manager | 242 |
| Manager changed parent office | 35.3% |
| **C. Worker mobility** | |
| Multi-manager workers | 72.2% |
| Unique managers per worker | 2.14 |
| Worker changed office | 19.0% |
| Worker changed manager (no office change) | 66.7% |
| Worker & manager co-moved | 3.5% |

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# No manager sorting based on pre-trends

| | Incoming manager FE | | | Change in manager FE | | |
|---|---|---|---|---|---|---|
| RW practice | Intensity | Weekday rigidity | Allocation uniformity | Intensity | Weekday rigidity | Allocation uniformity |
| $\tau = -1$ | 1.515 | 0.079 | 3.341 | -0.338 | -1.328 | 1.661 |
| | (1.160) | (1.275) | (2.792) | (1.922) | (1.889) | (5.160) |
| $\tau = -2$ | 0.877 | 0.498 | 2.836 | -0.347 | -1.559 | 1.073 |
| | (0.992) | (1.294) | (2.861) | (1.320) | (2.335) | (5.017) |
| $\tau = -3$ | -0.335 | 0.845 | -8.518** | -0.512 | -0.751 | -17.676* |
| | (0.832) | (1.469) | (4.238) | (1.245) | (2.172) | (10.313) |
| $\tau = -4$ | -0.218 | -0.560 | 0.351 | -2.777* | -3.951* | -2.654 |
| | (0.806) | (1.234) | (1.886) | (1.452) | (2.173) | (3.479) |
| $\Delta(t-1)$ | -0.040 | -0.286 | -0.342 | 0.269 | -0.130 | -0.588 |
| | (0.167) | (0.433) | (0.216) | (0.346) | (0.606) | (0.477) |
| $\Delta(t-2)$ | 0.310* | -0.112 | -0.541* | 0.529* | -0.007 | -0.830 |
| | (0.170) | (0.339) | (0.306) | (0.309) | (0.455) | (0.697) |
| $\Delta(t-3)$ | 0.111 | -0.181 | 0.137 | 0.117 | 0.074 | 0.302 |
| | (0.139) | (0.295) | (0.214) | (0.271) | (0.459) | (0.310) |
| N | 15,917 | 17,153 | 17,141 | 15,917 | 17,153 | 16,272 |
| Prob > F (all) | 0.002 | 0.870 | 0.543 | 0.015 | 0.075 | 0.281 |
| Prob > F (changes) | 0.132 | 0.909 | 0.211 | 0.381 | 0.992 | 0.443 |

Back

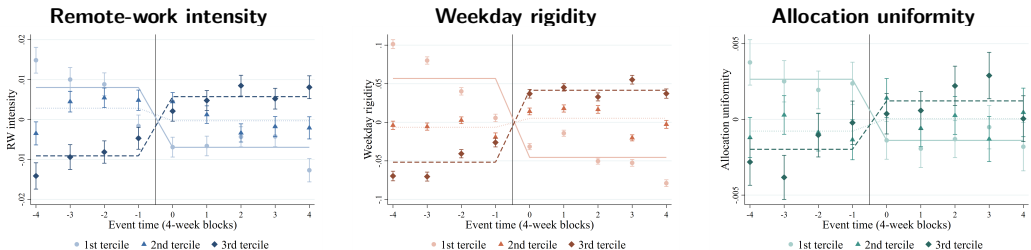
# Worker sorting on pre-trends

| RW practice | Intensity | Weekday rigidity | Allocation uniformity |
|---|---|---|---|
| $\tau = -1$ | -0.517 | 1.200*** | -0.257 |
| | (0.447) | (0.352) | (0.329) |
| $\tau = -2$ | 0.375 | -0.402 | -0.411 |
| | (0.418) | (0.422) | (0.301) |
| $\tau = -3$ | -0.260 | -0.246 | -1.050** |
| | (0.505) | (0.431) | (0.495) |
| $\tau = -4$ | -0.296 | -0.134 | 0.263 |
| | (0.442) | (0.315) | (0.452) |
| $\Delta(t-1)$ | 0.003 | -0.132* | -0.013 |
| | (0.093) | (0.070) | (0.027) |
| $\Delta(t-2)$ | 0.052 | 0.094 | -0.033 |
| | (0.101) | (0.085) | (0.036) |
| $\Delta(t-3)$ | 0.114 | 0.089 | 0.035 |
| | (0.094) | (0.056) | (0.034) |
| N | 670,023 | 724,811 | 724,279 |
| Prob > F (all) | 0.400 | 0.000 | 0.089 |
| Prob > F (changes) | 0.675 | 0.003 | 0.272 |

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# Match-driven sorting

- Issue if managers are assigned to offices based on unobserved factors that determine how their RW style affects actual RW take-up/organization
- We find no evidence of mobility driven by comparative advantage: effect of moving from low-FE to high-FE manager is approximately equal in magnitude and opposite in sign to effect of moving from high-FE to low-FE manager




Symmetry-test $p$-values: 0.969 (intensity), 0.601 (rigidity), 0.611 (uniformity)

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# Econometric issues and how we address them

1. **Limited-mobility bias in the AKM variance decomposition**
   - with limited mobility, plug-in variance components are biased
   - we report both the homoskedastic correction of Andrews et al. (2008) and the heteroskedastic leave-out correction of Kline et al. (2020)

2. **Sampling error in the estimated manager FEs**
   - the baseline treatment uses threshold crossings rather than small continuous FE differences
   - as a robustness, we reconstruct the event-study treatment using Empirical-Bayes-shrunk manager effects

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# Manager FE correlations

| | Mean | SD | (1) | (2) | (3) | (4) |
|---|---|---|---|---|---|---|
| (1) Intensity | -0.56 | 6.36 | 1 | | | |
| (2) Rigidity | 0.03 | 0.24 | 0.00 | 1 | | |
| (3) Uniformity | 0.30 | 2.38 | 0.00 | 0.25*** | 1 | |
| (4) Productivity | 0.00 | 0.46 | -0.15** | -0.19*** | -0.09 | |

*Notes*: Pairwise correlations between manager fixed effects. Rigidity and uniformity are purged of intensity across all managers. Correlations involving productivity are computed on the 150 managers in the largest connected set; the others on all 265 managers. Means and standard deviations in raw units. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

# Manager FE and management practices

| | Intensity | Rigidity | Uniformity |
|---|---|---|---|
| *Evaluation by superiors* | | | |
| Overall performance score | 0.04 | 0.08* | -0.06 |
| | (0.06) | (0.04) | (0.06) |
| *Leave practices in the offices run* | | | |
| Overdue leave | -0.15* | 0.02 | -0.01 |
| | (0.09) | (0.09) | (0.07) |
| Single-day leave | -0.23** | -0.07 | 0.13** |
| | (0.09) | (0.06) | (0.06) |
| *How the manager rates their staff* | | | |
| Leniency | -0.03 | -0.04 | -0.06 |
| | (0.06) | (0.08) | (0.06) |
| Dispersion | 0.15* | -0.03 | 0.07 |
| | (0.08) | (0.07) | (0.08) |

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# Worker FE and worker characteristics

| | Intensity | Rigidity | Uniformity |
|---|---|---|---|
| *Demographics* | | | |
| Female | 0.24*** | -0.02* | 0.09*** |
| | (0.01) | (0.01) | (0.01) |
| Age | -0.13*** | 0.03*** | -0.12*** |
| | (0.01) | (0.01) | (0.01) |
| Parent | 0.07*** | -0.01 | -0.10*** |
| | (0.01) | (0.01) | (0.01) |
| *Career and location* | | | |
| Tenure | -0.11*** | 0.03*** | -0.12*** |
| | (0.01) | (0.01) | (0.01) |
| Distance home–office | 0.07*** | -0.06*** | 0.05*** |
| | (0.01) | (0.01) | (0.00) |

*Notes*: Separate OLS regressions. Fixed effects and continuous characteristics (age, tenure, distance) are standardized to mean zero and unit variance; female and parent are 0/1 indicators. Coefficients are in SD of the fixed effect per SD of the characteristic. Robust s.e. in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

## Econometric issues and how we address them

3. **Generated regressor in the event study**
   - **Concern:** manager FEs and treatment doses are estimated, so baseline SEs may understate first-step uncertainty.
   - **Empirical-Bayes shrinkage:** shrink noisy manager FEs and re-estimate the headline event studies.
   - **Alternative doses:** check robustness to different treatment definitions.
   - **Alternative clustering:** check robustness of inference to different error-correlation structures.
   - **Two-stage bootstrap [to do]:** re-estimate FEs, doses, cohorts, and event study in each replication.
4. **Mechanical correlation and portability of manager FEs**
   - **Concern:** the same observations may identify manager style and enter the validation outcome.
   - **Symmetry / portability test:** upward and downward transitions generate approximately symmetric responses.
   - **Leave-treated-office-out:** estimate manager FEs excluding treated office.
   - **Leave-parent-DP-out [to do]:** exclude the manager's entire parent provincial headquarter.

# Event-study design: matching

- For each treated office $j$ we select the **3** nearest never- or not-yet-treated offices
- Distance is on the **shape** of the pre-period path:

$$d_{j\ell} \;=\; \sum_{k=-4}^{-1} \Big[ \big(y_{\ell,k} - \bar{y}_{\ell}\big) - \big(y_{j,k} - \bar{y}_{j}\big) \Big]^2$$

- **Pool**: offices with no manager transition at all, or whose *first* transition is after the end of that cohort's window, so no control is contaminated inside its own window
- Matching is done separately for each stage, on the pre-period path of that stage's own outcome

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# Event-study design: the dose and the controls

1. **Purged style.** Before any dose is built, the organisation FE is residualised on the intensity FE across managers, $\psi_p^{\text{org}} = \psi^{\text{org}} - \hat{b}\,\psi^{\text{int}}$, and $\text{corr}(\text{dose}_p, \text{dose}_{\text{raw}}) \geq 0.975$. The same projection is applied to the first-stage outcome, to consider the effect net of intensity.
2. **Orthogonalised dose.** The dose is residualised on five characteristics fixed *before* the transition — pre-period productivity and RW intensity, log office size, agency status, and how many offices the incoming manager runs — and rescaled to the raw dose's dispersion. It removes little ($R^2$ between 0.7% and 5.0%).
3. **Manager quality.** The control is the change in the manager's own effect on productivity, re-estimated *leaving that office out* — an office$\times$ month$\times$manager AKM refitted once per office.
4. **Inference.** Standard errors clustered at the office level; 90% confidence intervals in the figures.

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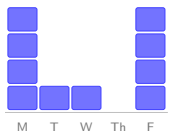
# A measure of RW weekday rigidity

Office $o$, four-week block $b$; $s_\kappa$ / $p_\kappa$ = share of its **remote** / **working** days on weekday $\kappa \in \{\text{Mon}, \ldots, \text{Fri}\}$, $R$ = its remote days. With $s$ scheduled at random, $\mathbb{E}\left[\sum_\kappa s_\kappa^2\right] = E \equiv \sum_\kappa p_\kappa^2 + [1 - \sum_\kappa p_\kappa^2] / R$.

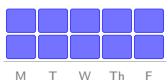
$$\underbrace{\text{conc}_{om} = \frac{\sum_\kappa s_\kappa^2 - E}{1 - E}}_{\text{concentration on } \textit{few} \text{ weekdays}} \qquad \underbrace{\text{mf}_{om} = (s_{\text{Mon}} + s_{\text{Fri}}) - (p_{\text{Mon}} + p_{\text{Fri}})}_{\text{tilt towards } \textit{Mondays and Fridays}}$$

- both are **excess** measures — observed minus random scheduling — so both are 0 under random scheduling and neither varies mechanically with how much RW the office does
- **rigidity**$_{ob}$ = average of the two components **in sd units** (0 is the *average office*)

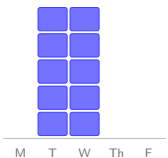
**rigidity** $= +2.0$
concentration $+0.08$
Mon/Fri tilt $+0.40$




**rigidity** $= -1.2$
concentration $-0.11$
Mon/Fri tilt $0.00$




**rigidity** $= 0.0$
concentration $+0.31$
Mon/Fri tilt $-0.40$



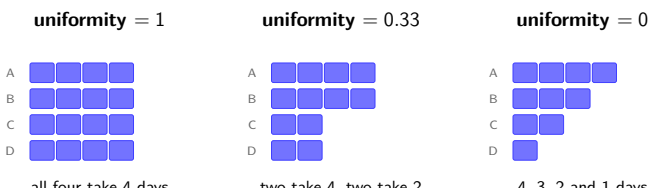

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# A measure of how uniformly RW is allocated

Let $x_{ib}$ be the number of RW days worker $i$ takes in four-week block $b$. Among the colleagues $G_{ob}$ of the same office:

$$\text{uniformity}_{ib} \;=\; \frac{1}{|G_{ob}| - 1} \sum_{j \in G_{ob},\, j \neq i} \mathbf{1}[x_{j,m} = x_{i,m}]$$

- $= 1$: **every** colleague gets exactly the same number of RW days — the manager sets one rule for the whole office
- $= 0$: **no** colleague gets the same number — RW is negotiated person by person
- office measure = the average across its workers




On average **17%** of a worker's colleagues take exactly the same number of RW days.

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# The same idea from the other side: dispersion of RW days

Let $x_{ib}$, denote distance rather than a match — the average gap in RW days between worker $i$ and each colleague:

$$\text{dispersion}_{ib} \;=\; \frac{1}{|G_{ob}| - 1} \sum_{j \in G_{ob},\, j \neq i} \left| x_{j,m} - x_{i,m} \right| \qquad \text{(in days)}$$

- $= 0$: everyone in the office takes the same number of RW days
- large: the manager gives very different amounts to different people
- on the 3 offices of the previous slide: 0 days | 1.3 days | 1.7 days. Mean (data): **4.1**

**Why we build both.**

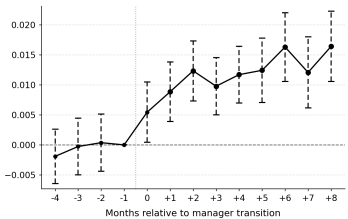
- they are *not* mechanically each other's inverse — one counts exact matches, the other measures distance
- built from separate formulas, they should still move in opposite directions: across managers the two fixed effects correlate $-$**0.69**
- so each is a **mirror check** on the other: a genuine manager effect on "who gets RW" should appear with one sign in uniformity and the opposite sign in dispersion

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# First stage: Manager remote-work style shapes workers' remote-work schedules

Effects of a one-unit increase in the manager-style dose:

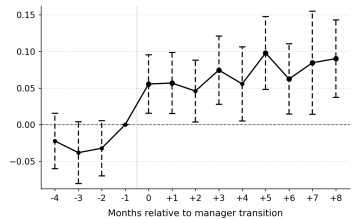
**Intensity**




Effect:

$\Rightarrow$ intensity $\uparrow$ by 1.5 pp

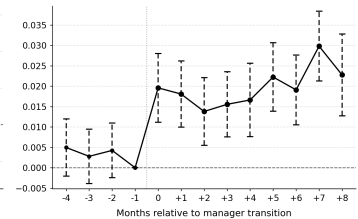
**Rigidity**




Effect:

$\Rightarrow$ rigidity $\uparrow$ by 0.10

**Uniformity**



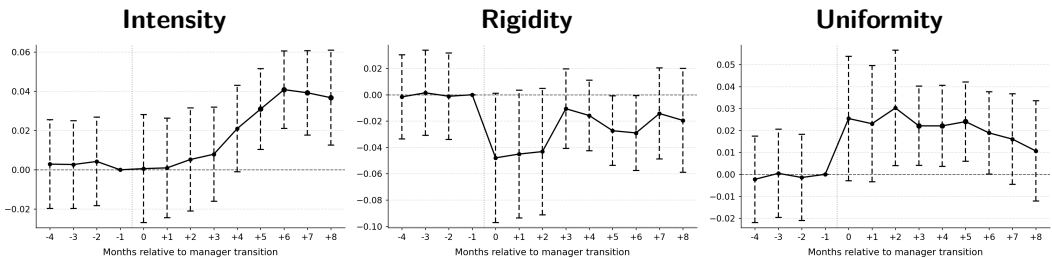

Effect:

$\Rightarrow$ uniformity $\uparrow$ by 3 pp

Back to Intensity Back to Rigidity Back to Uniformity

# Productivity results are robust to including manager productivity FE

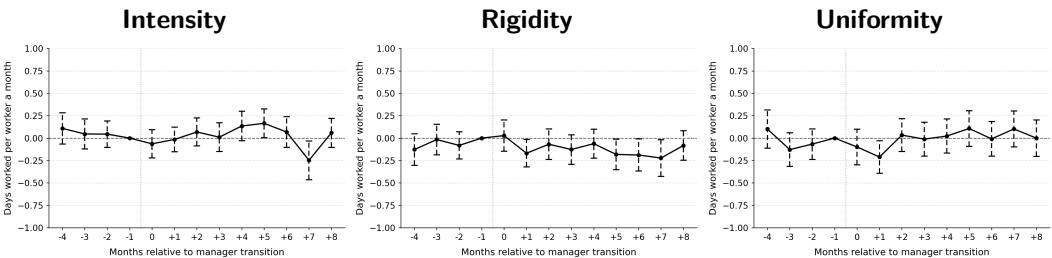
With manager productivity FE (leave-one-office-out):




Main results

# Days worked do not move

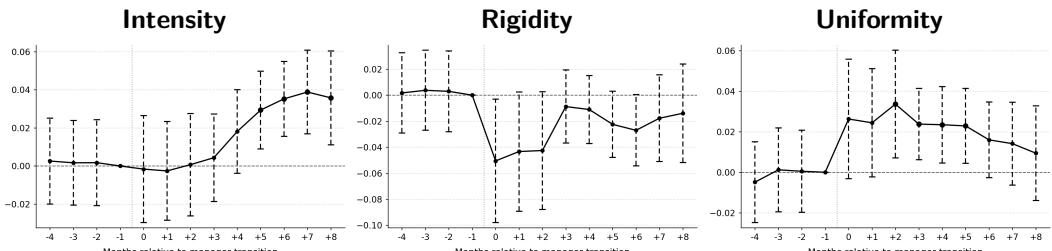
Office-month version:




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# Productivity results are stable

Calculated per worker-day, instead of per worker:




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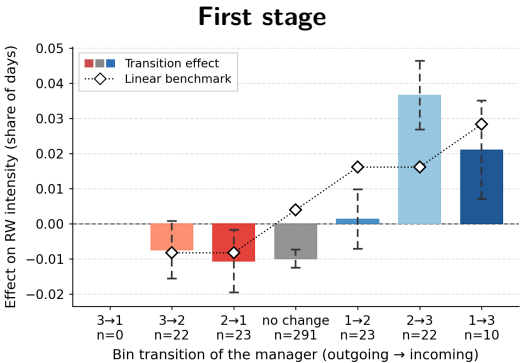
# Exits do not move

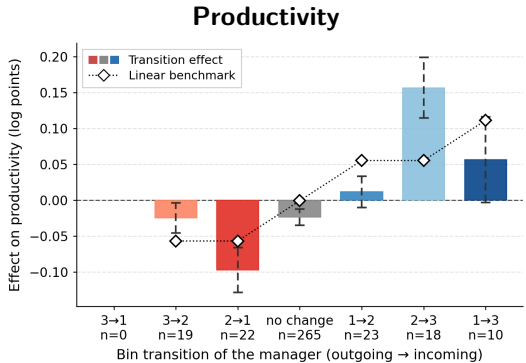
| | Before | Intensity | Rigidity | Uniformity |
|---|---|---|---|---|
| *Retirement* (old-age + early pension) | 3.25 | +0.01 | −0.26 | −0.05 |
| | | (0.22) | (0.19) | (0.24) |
| *Dimissioni volontarie* (resignation) | 2.04 | +0.20 | −0.24 | +0.24 |
| | | (0.20) | (0.18) | (0.23) |
| *Licenziamento* (dismissal) | 0.06 | +0.06 | +0.02 | −0.03 |
| | | (0.04) | (0.02) | (0.03) |
| *Trasferimento* (to another administration) | 0.07 | +0.05** | −0.01 | −0.01 |
| | | (0.02) | (0.03) | (0.03) |
| *Decesso* (death) | 0.16 | −0.07 | −0.04 | −0.05 |
| | | (0.06) | (0.04) | (0.06) |
| *Worker-months; cohorts* | | | 890,790; 357 | |

$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

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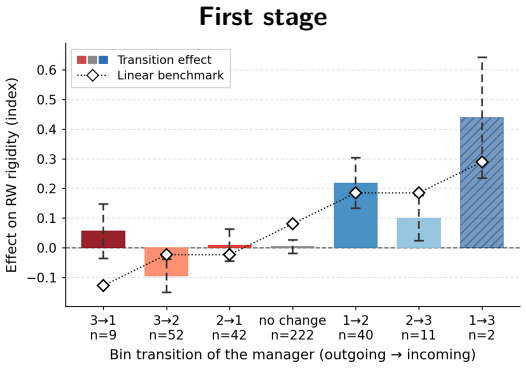
# Where the effect lives: intensity

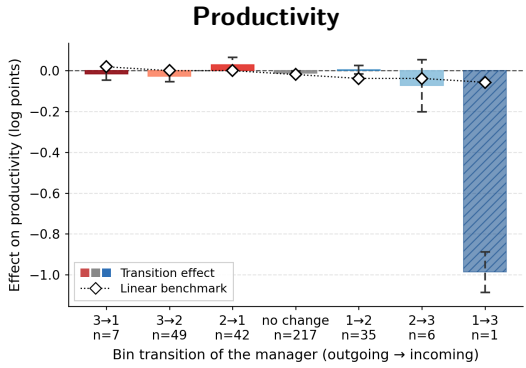



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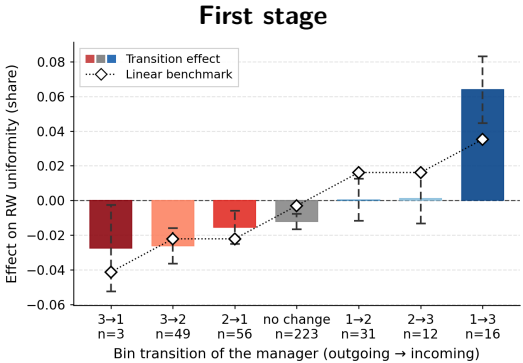
# Where the effect lives: rigidity

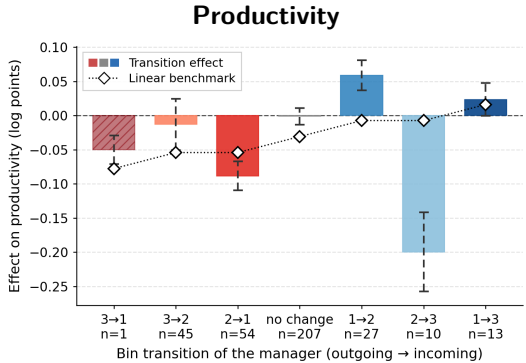



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# Where the effect lives: uniformity

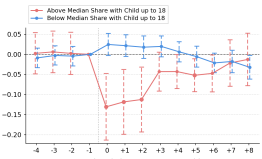



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# Heterogeneity: rigidity

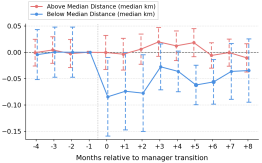
**Child $\leq$ 18**



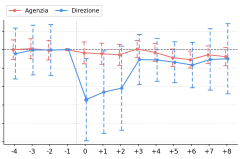

**Women**




**Distance**



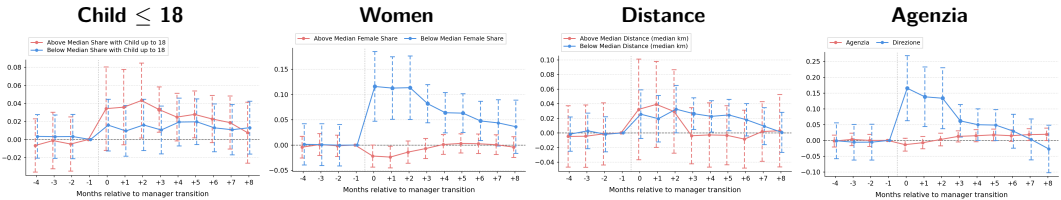

**Agenzia**




$\rightarrow$ Rigidity is most costly where children are common ($-6.7\%$ vs. $+0.5\%$, $p < .001$) and where workers live close by ($-5.3\%$ vs. $+0.4\%$, $p < .001$); no gap by gender

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# Heterogeneity: uniformity




→ Spreading RW evenly pays where women are few (+7.5% vs. −0.6%, $p < .001$) and in direzioni (+7.0% vs. +0.9%, $p < .001$)

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# Weekday rigidity: flexibility vs. coordination

– **less flexibility:** workers cannot freely choose RW timing or concentrate RW in one week

\+ **more coordination:** colleagues are remote, and in the office, together

