

How Hybrid Working From Home Works Out

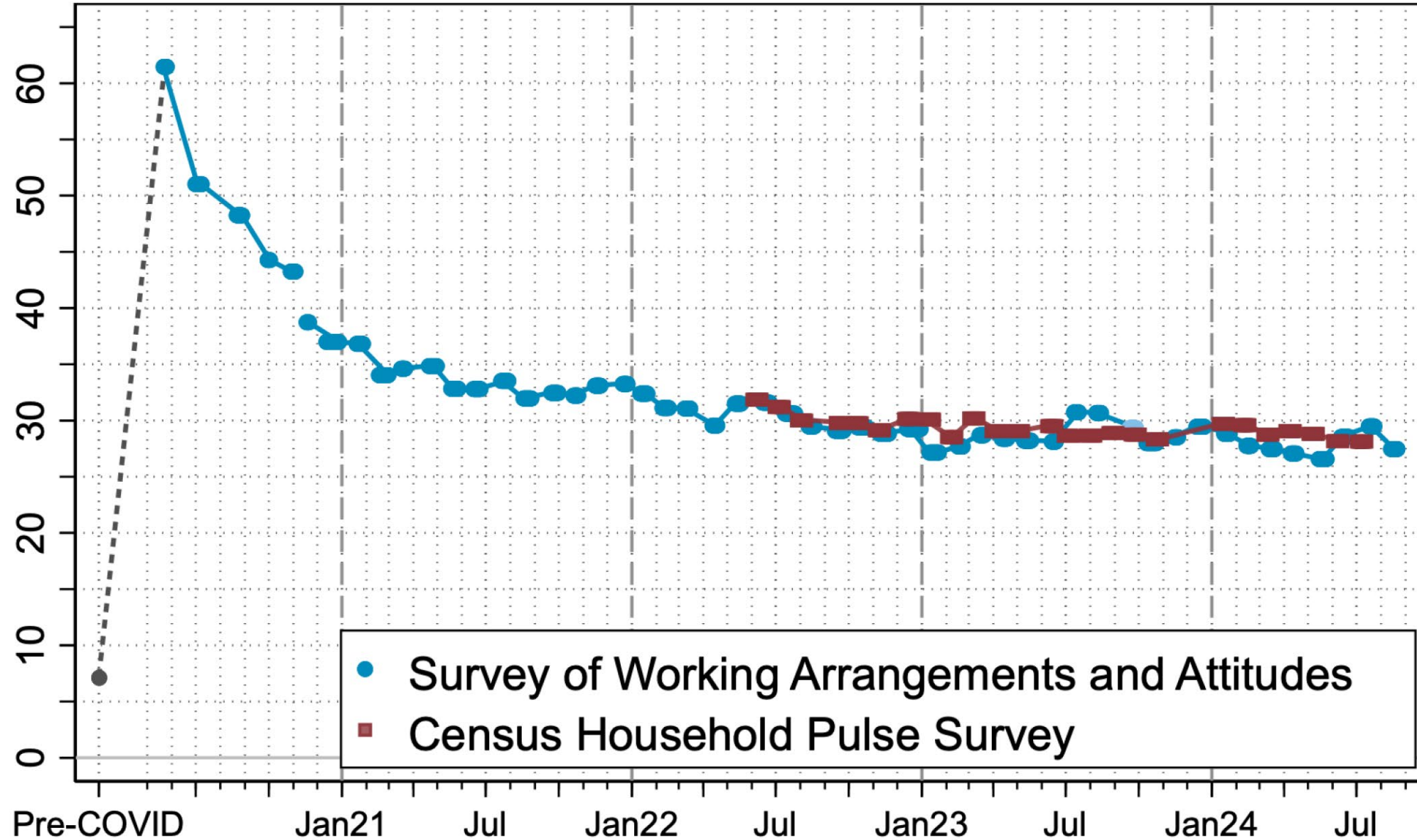
Nick Bloom (Stanford), Ruobing Han (Stanford) and James Liang (Fudan U and Trip.com)

Grand Rounds October 2024



WFH is stabilizing at about 25% of days: a 5-fold jump vs 2019

US full days worked from home, %

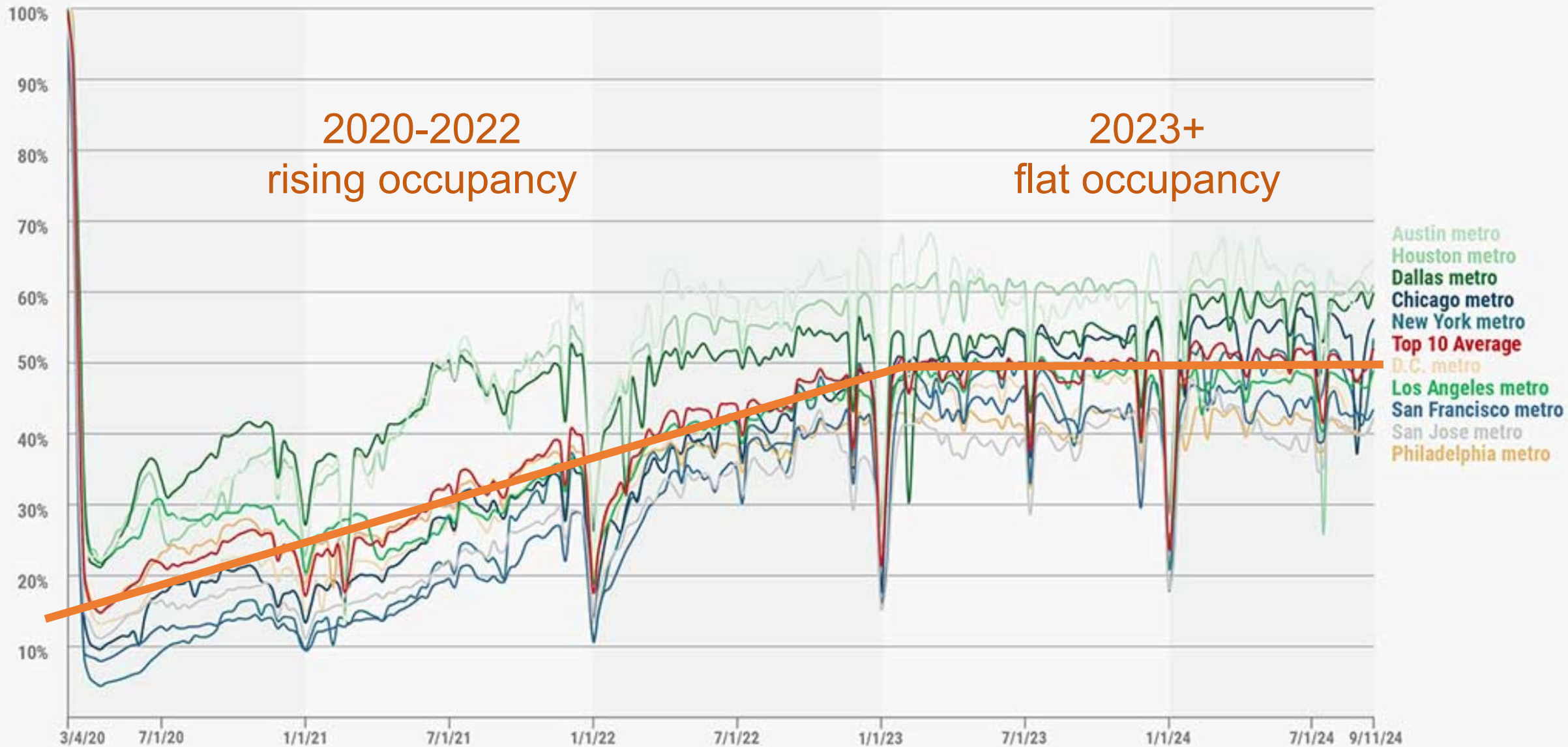


Source: N=198,742 (SWAA) N = 866,373 (HHP) SWAA data from survey responses weighted to match the US population. Pre-covid data from the American Time Use Survey. CHPS respondents weighted to match the US population aged 20 to 64 in households with incomes above \$25,000.

Survey of Workplace Attitudes and Arrangements (Barrero, Bloom and Davis 2021) <https://wfhresearch.com/>

Office occupancy also stabilizing at about 50% of 2019 levels

Kastle office occupancy data



But views vary widely on the efficacy and duration of hybrid WFH

FINANCIAL TIMES

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Opinion Working from home

It's time to admit that hybrid is not working

Mid-morning yoga comes at the expense of professional interactions and employee productivity

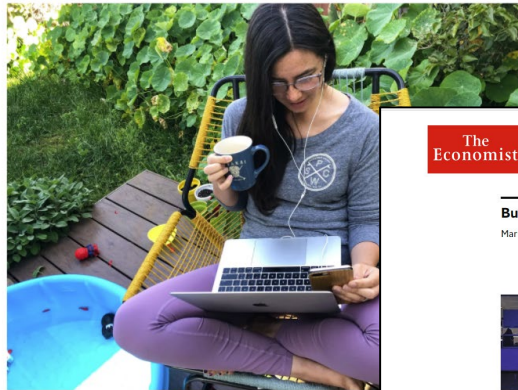
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The New York Times

What if You Don't Want to Go Back to the Office?

Millions of Americans are taking part in an unprecedented experiment in working from home. Many are happier, more efficient and want to hang onto the benefits when the pandemic ends.



Jacque Benetua-Rolens working at home in her yard. Sam Rolens

The Economist


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A growing body of research hints at why



The Atlantic

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Work From Home Is Here to Stay

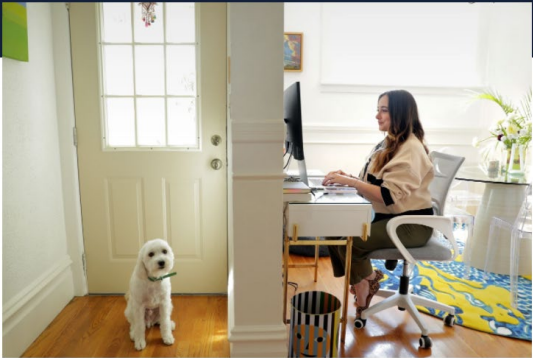
The future of jobs after the pandemic is a blurry mix of work, life, pajamas, and Zoom.

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economy

Full return to office is 'dead,' experts say – and remote is only growing

The return to the office once seemed inevitable. Now, it's remote – forcing employers into a "bend or break" moment.



Rita Raiji in her home where she has been working during the Covid-19 pandemic in San Francisco on April 6, 2021. Raiji is hoping to return to work with a hybrid schedule that includes several work from home days. (Carlos Avila Gonzalez/The San Francisco Chronicle via Getty Images) / Carlos Avila Gonzalez / News/Newsphoto via Getty Images

Jan. 7, 2022, 3:05 PM PST / Updated Jan. 11, 2022, 1:46 AM PST

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The Economist

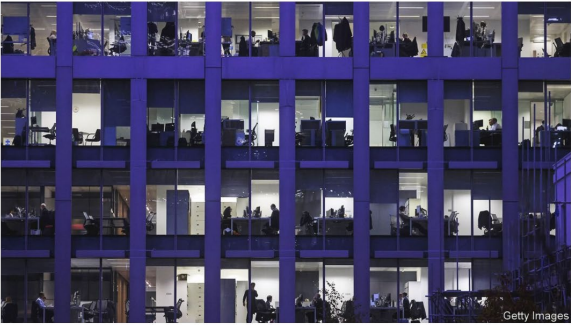
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Work life in balance

Is hybrid work the worst of both worlds?

Evidence is piling up that it might be



Getty Images



So I ran a Randomized Control Trial on Hybrid Working From Home

Hybrid working from home improves retention without damaging performance

nature

<https://doi.org/10.1038/s41586-024-07500-2> Nicholas Bloom^{1,2,3}, Ruobing Han^{2,3} & James Liang^{3,4}

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Open access

Check for updates

Working from home has become standard for employees with a university degree. The most common scheme, which has been adopted by around 100 million employees in Europe and North America, is a hybrid schedule, in which individuals spend a mix of days at home and at work each week^{1,2}. However, the effects of hybrid working on employees and firms have been debated, and some executives argue that it damages productivity, innovation and career development^{3–5}. Here we ran a six-month randomized control trial investigating the effects of hybrid working from home on 1,612 employees in a Chinese technology company in 2021–2022. We found that hybrid working improved job satisfaction and reduced quit rates by one-third. The reduction in quit rates was significant for non-managers, female employees and those with long commutes. Null equivalence tests showed that hybrid working did not affect performance grades over the next two years of reviews. We found no evidence for a difference in promotions over the next two years overall, or for any major employee subgroup. Finally, null equivalence tests showed that hybrid working had no effect on the lines of code written by computer-engineer employees. We also found that the 395 managers in the experiment revised their surveyed views about the effect of hybrid working on productivity, from a perceived negative effect (–2.6% on average) before the experiment to a perceived positive one (+1.0%) after the experiment. These results indicate that a hybrid schedule with two days a week working from home does not damage performance.

Working from home (WFH) surged after the COVID-19 pandemic, with university-graduate employees typically WFH for one to two days a week during 2023 (refs. 2,6). Previous causal research on WFH has focused on employees who are fully remote, usually working on independent tasks in call-centre, data-entry and helpdesk roles. This literature has found that the effects of fully remote working on productivity are often negative, which has resulted in calls to curtail WFH^{7–12}. However, there are two challenges when it comes to interpreting this literature. First, more than 70% of employees WFH globally are on a hybrid schedule. This group comprises more than 100 million individuals, with the most common working pattern being three days a week in the office and two days a week at home^{2,6,9}. Second, most employees who are regularly WFH are university graduates in creative team jobs that are important in science, law, finance, information technology (IT) and other industries, rather than performing repetitive data-entry or call processing tasks^{10,11}.

This paper addresses the gap in previous studies in two key ways. First, it uses a randomized control trial to examine the causal effect of a hybrid schedule in which employees are allowed to WFH two days per week. Second, it focuses on university-graduate employees in software engineering, marketing, accounting and finance, whose activities are mainly creative team tasks.

Our study describes a randomized control trial from August 2021 to January 2022, which involved 1,612 graduate employees in the Airfare and IT divisions of a large Chinese travel technology multinational called Trip.com. Employees were randomized by even or odd birth-days into the option to WFH on Wednesday and Friday and come into the office on the other three days, or to come into the office on all five days.

We found that in the hybrid WFH ('treatment') group, attrition rates dropped by one-third ($\text{mean}_{\text{control}} = 7.20$, $\text{mean}_{\text{treat}} = 4.80$, $t(1610) = 2.02$, $P = 0.043$) and work satisfaction scores improved ($\text{mean}_{\text{control}} = 7.84$, $\text{mean}_{\text{treat}} = 8.19$, $t(1343) = 4.17$, $P < 0.001$). Employees reported that WFH saved on commuting time and costs and afforded them the flexibility to attend to occasional personal tasks during the day (and catch up in the evenings or weekends). These effects on reduced attrition were significant for non-managerial employees ($\text{mean}_{\text{control}} = 8.59$, $\text{mean}_{\text{treat}} = 5.33$, $t(1215) = 2.23$, $P = 0.026$), female employees ($\text{mean}_{\text{control}} = 9.19$, $\text{mean}_{\text{treat}} = 4.18$, $t(568) = 2.40$, $P = 0.017$) and those with long (above-median) commutes ($\text{mean}_{\text{control}} = 6.00$, $\text{mean}_{\text{treat}} = 2.89$, $t(609) = 1.87$, $P = 0.062$).

At the same time, we found no evidence of a significant effect on employees' performance reviews, on the basis of null equivalence tests, and no evidence of a difference in promotion rates over periods of up to two years ('Null results' section of the Methods). We did find significant differences in pre-experiment beliefs about the effects of WFH on productivity between non-managers and managers. Before

¹Department of Economics, Stanford University, Stanford, CA, USA. ²Shenzhen Finance Institute, School of Management and Economics, The Chinese University of Hong Kong, Shenzhen, China. ³National School of Development, Peking University, Beijing, China. ⁴Trip.com, Shanghai, China. *These authors contributed equally: Nicholas Bloom, Ruobing Han. ✉e-mail: nbloom@stanford.edu; hanruobing@cuhk.edu.cn; liangj@trip.com

Experimental design

Drop in Quit Rates

No Impact on Performance

Working with trip.com on a hybrid WFH randomized control trial

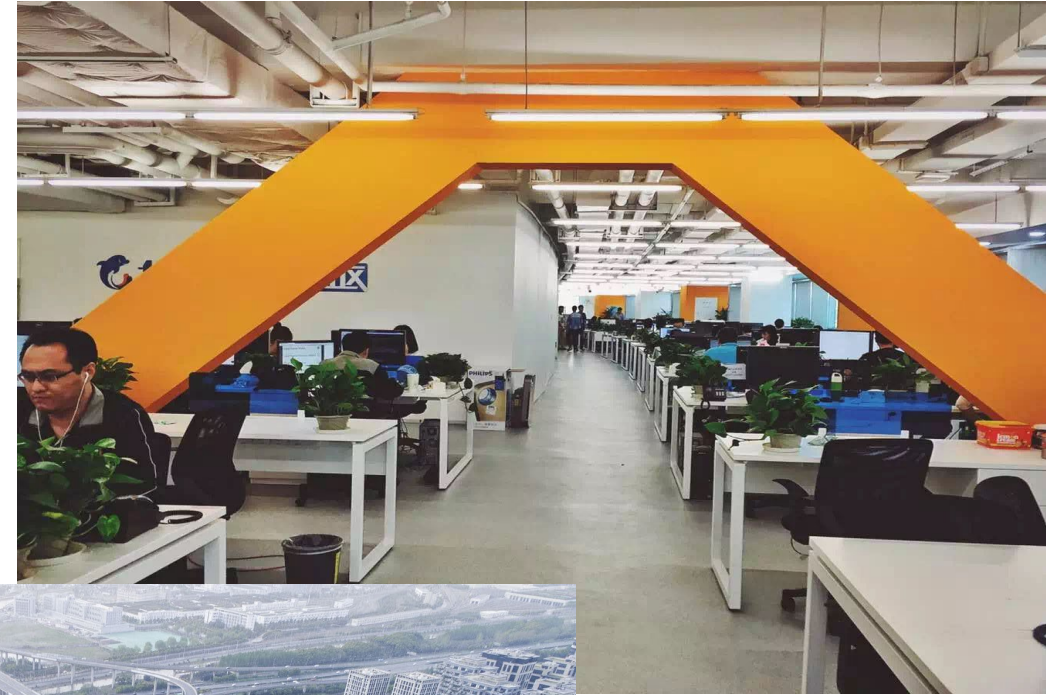
Headquartered in Shanghai

Employs about 35,000 people

NASDAQ listed

Provides flights, hotel bookings,
package and corporate travel

Pre-experiment employees in
the office every day



Trip.com
tripadvisor®

Management



James Jianzhang Liang

Co-founder, Executive Chairman of the Board



Min Fan

Co-founder, Vice Chairman of the Board and President



Jane Jie Sun

Chief Executive Officer, Director



Cindy Xiaofan Wang

Chief Financial Officer, Executive Vice President



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The company has modern offices with teams working and training mostly in person



- Figures from top-left clockwise:
- 1) Team meeting describing the experiment, August 2021
 - 2) An employee training camp, September 2021
 - 3) An employee workshop, October 2021

Source: trip.com internal photographs

Trip ran an RCT on the Apple hybrid plan on IT and Airfare divisions



TECH

Apple Prepares Office Staff for Hybrid Workweek

iPhone maker wants staff to come to the office three days a week starting in September



Apple Chief Executive Tim Cook, in an email to staff, notified office employees of the company's back-to-office plans.

[Apple Inc.](#) [AAPL 0.51%](#)▲ is telling office staff to prepare to return to the workplace at least most of the time, joining the growing pool of companies [adopting hybrid work](#).

Apple Chief Executive Tim Cook, in an email to staff, told office employees that they are expected to return to their workspace three days a week starting in September. The iPhone maker said it wants most office workers to show up Mondays, Tuesdays and Thursdays, with the option to work remotely on Wednesdays and Fridays.

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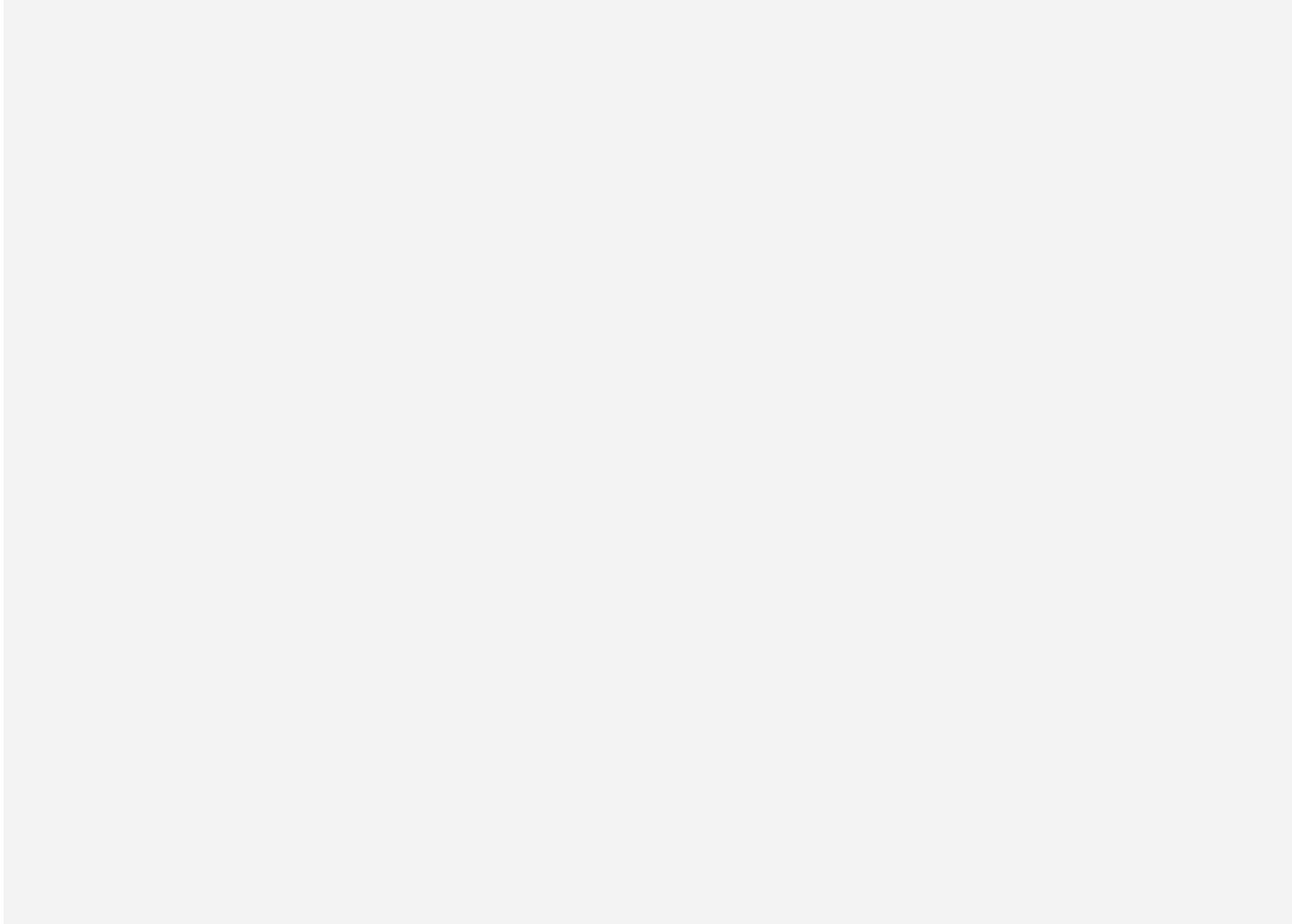
These two divisions look similar to a typical US tech or finance firm

Variable	N	Mean	Min	Max	Median	SD
Manager	1610	0.244	0	1	0	0.430
Commute (hours)	1259	1.658	0.067	4	1.5	0.867
Female	1612	0.354	0	1	0	0.478
Children	1612	0.477	0	1	0	0.500
Grad School	1612	0.324	0	1	0	0.468
Prior performance	1582	3.741	0	5	4	0.915
Age	1612	32.610	22	52	32	5.399
Tenure (years)	1612	6.349	0.333	22	5.750	4.626
Treated	1612	0.491	0	1	0	0.500
Take-up rate (Wednesdays)	15201	0.426	0	1	0	0.494
Take-up rate (Fridays)	15145	0.517	0	1	0	0.500
VPN time (daily hours)	205990	0.610	0	12	0	2.034
Office time (weekday daily hours)	147336	7.615	0	15	8.667	3.701
Messages per day	223206	37.474	0	294	20	51.136
Non-working days (percentage of day)	147336	7.007	0	100	0	22.902
Business trips (percentage of day)	147336	4.345	0	100	0	19.824
IHS Lines of code (per day)	95494	1.629	0	6.908	0	2.697
Lines of code (per day)	95494	81.210	0	500	0	168.939

Notes: Data from 1612 experiment participants. Missing data on some variables from different number of participants.

Treatment Decided by Lottery

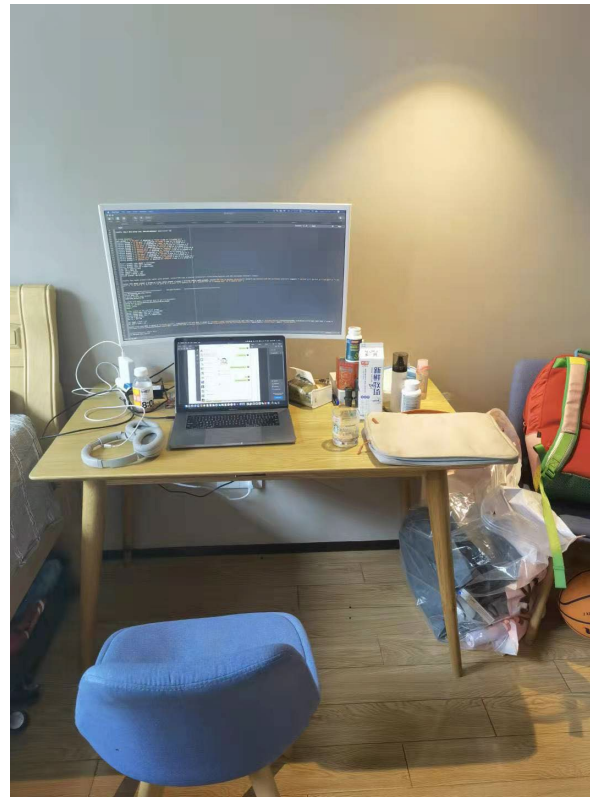
- Odd Birthday (1st, 3rd, 5th day of month) Treatment**
- Even Birthday (2nd, 4th, 6th day of month) Control**



Office vs Home



Employees typically with team members on 4 person desks



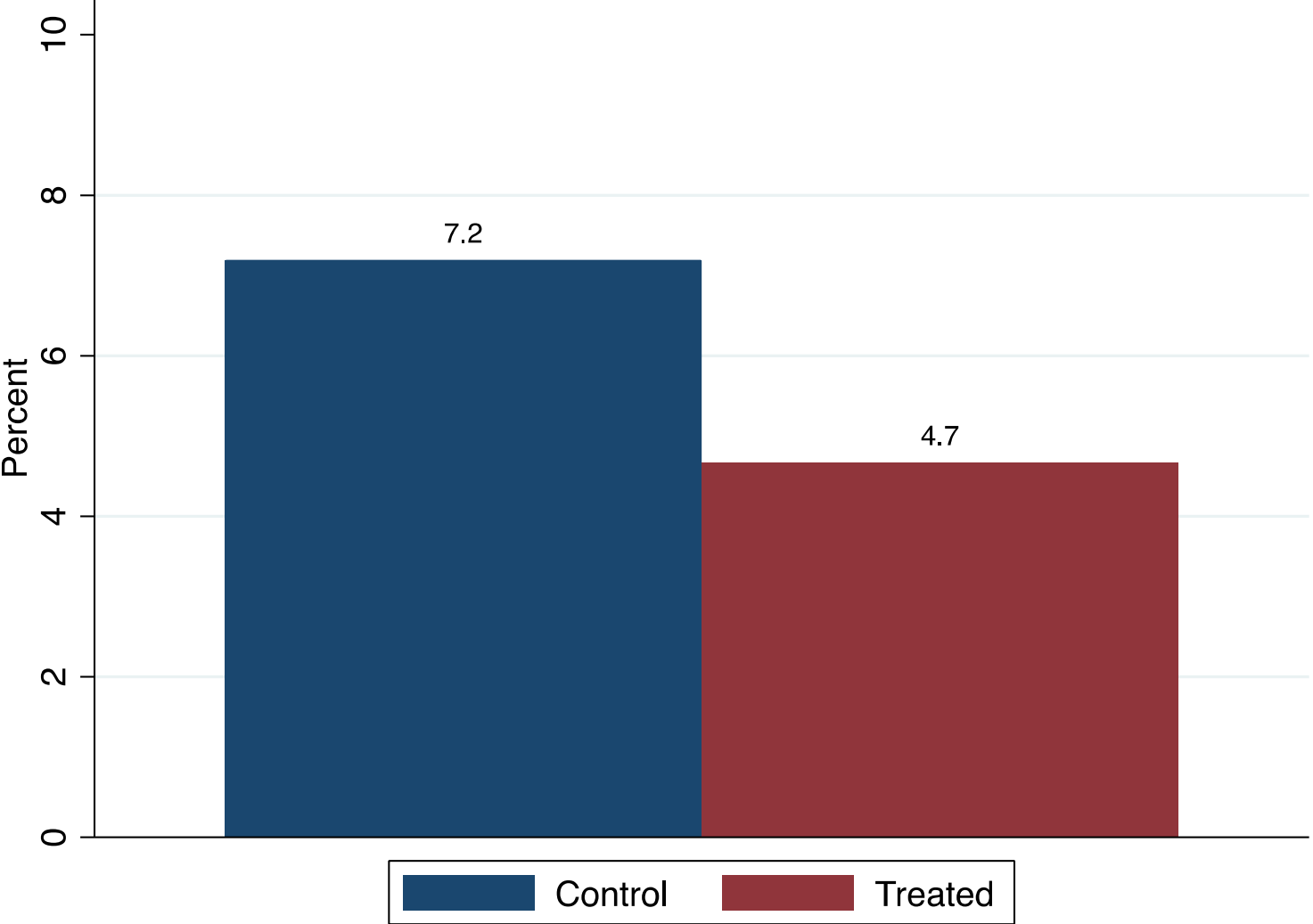
Experimental design

Drop in Quit Rates

No Impact on Performance

Attrition fell 33% (significantly)

Attrition rates over 2021H2



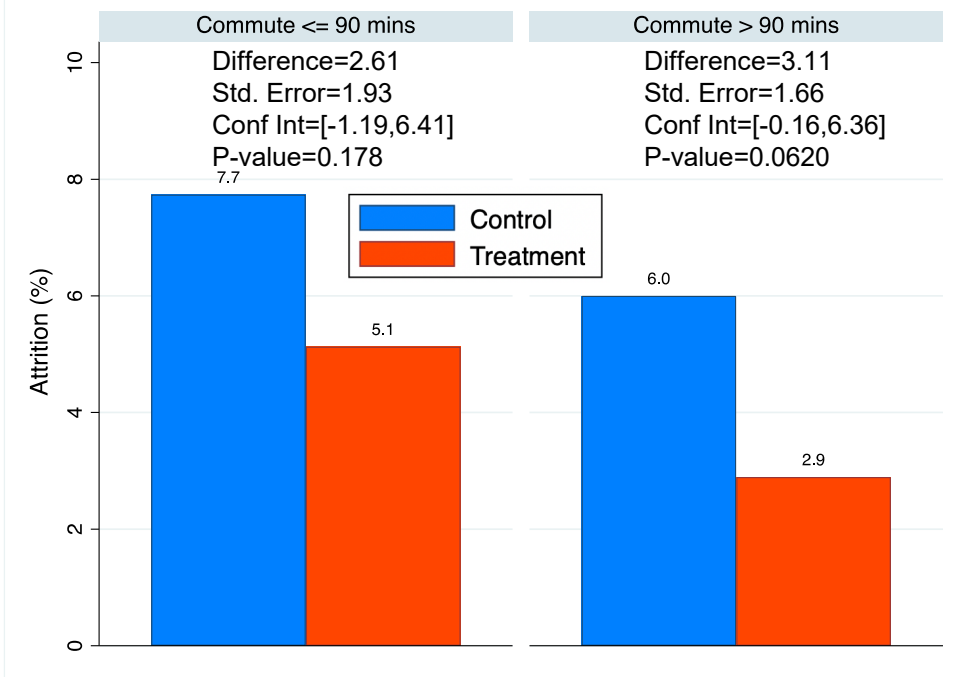
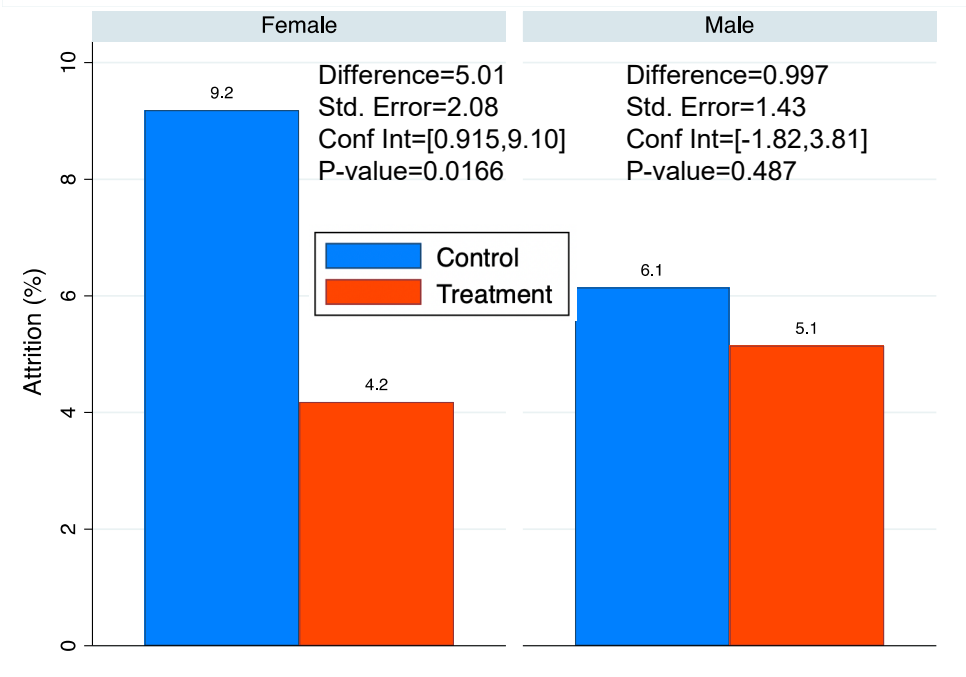
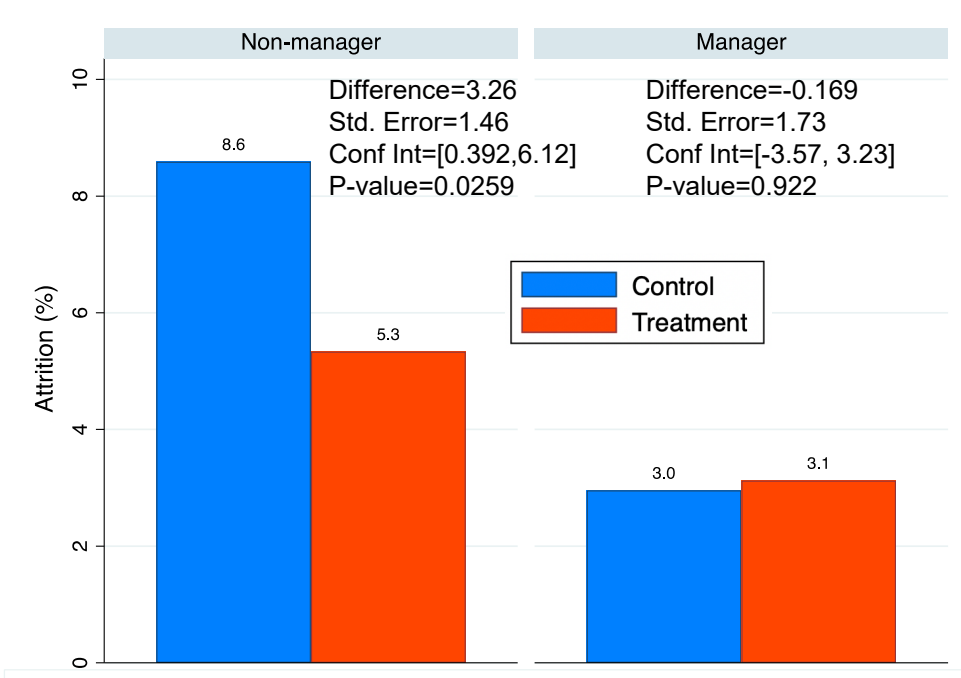
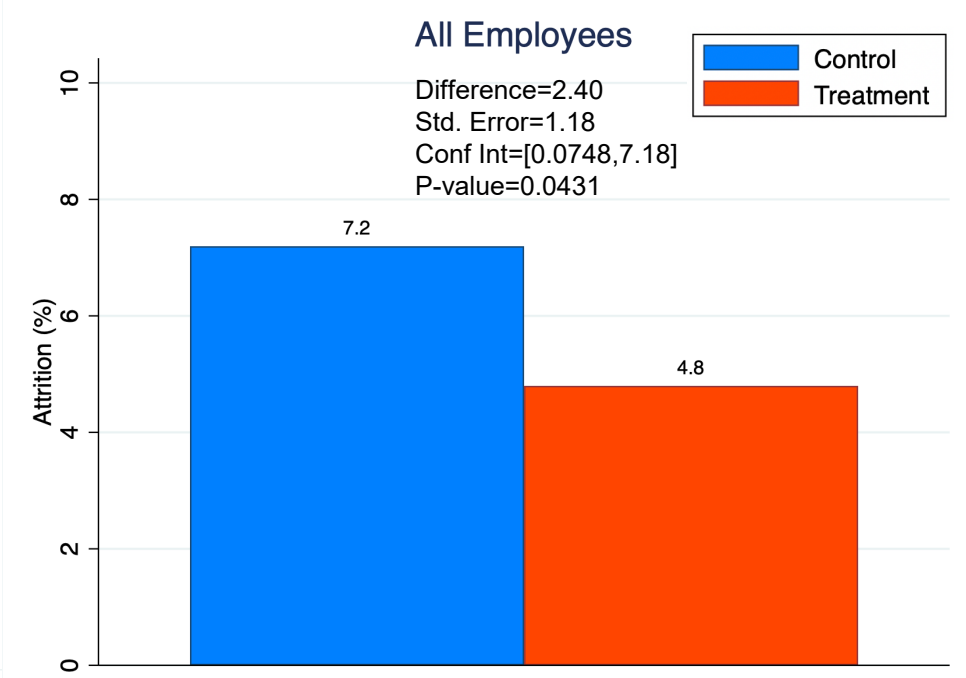
Notes: Data on 1612 employees attrition between August 9th 2021 (volunteers) and September 13th (non-volunteers) to January 13th 2022.

See improvements in satisfaction surveys for treatment employees

	(1)	(2)	(3)	(4)	(5)
	Recommend to friends	Work satisfaction	Life satisfy satisfaction	Work-life balance	expected attrition
Treat	0.352*** (0.0988)	0.351*** (0.0841)	0.352*** (0.0972)	0.538*** (0.111)	-0.0241*** (0.00907)
_cons	7.994*** (0.0733)	7.835*** (0.0619)	7.462*** (0.0697)	6.946*** (0.0801)	-0.107*** (0.00642)
<i>N</i>	1345	1345	1345	1345	1345

Notes: Sample from 1345 employees (446 volunteers, 899 non-volunteers) in the endline survey. Values range from 0 (lowest) to 10 (highest). For example, “recommend to friends” ranges from “Definitely no” at 0 to “Definitely yes” at 10. Robust standard errors.

Figure 2: WFH cut attrition by 33% overall, most for non-managers, females, and those with longer-commutes



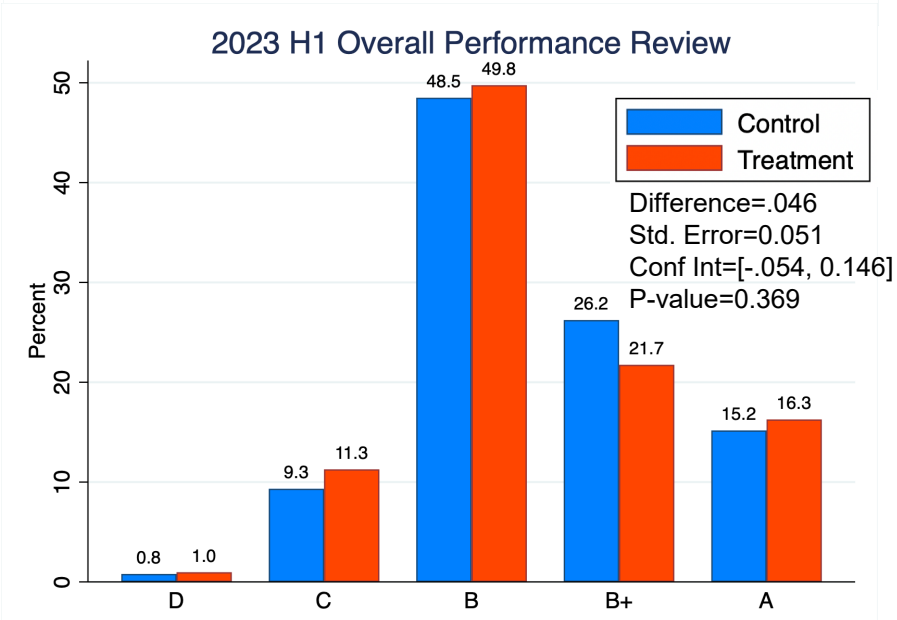
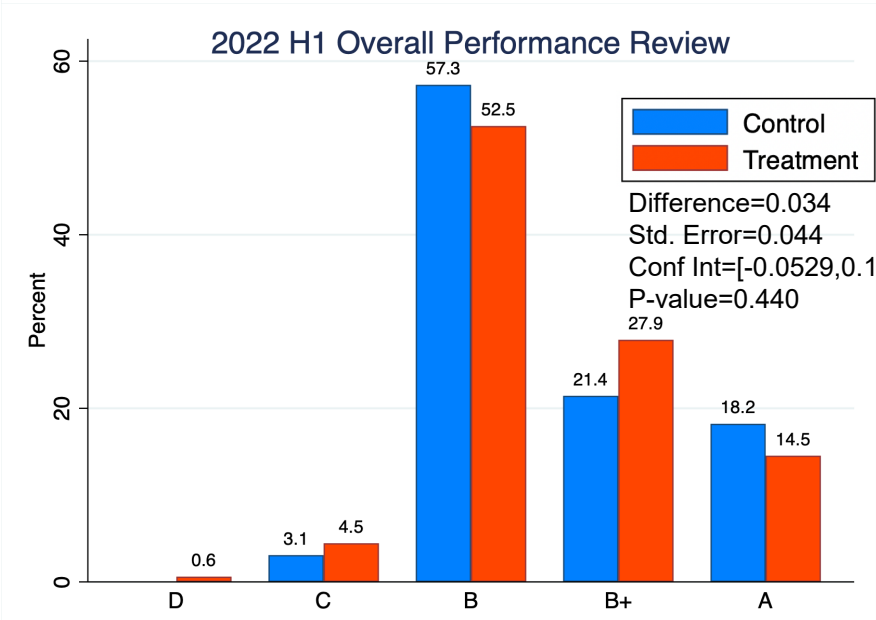
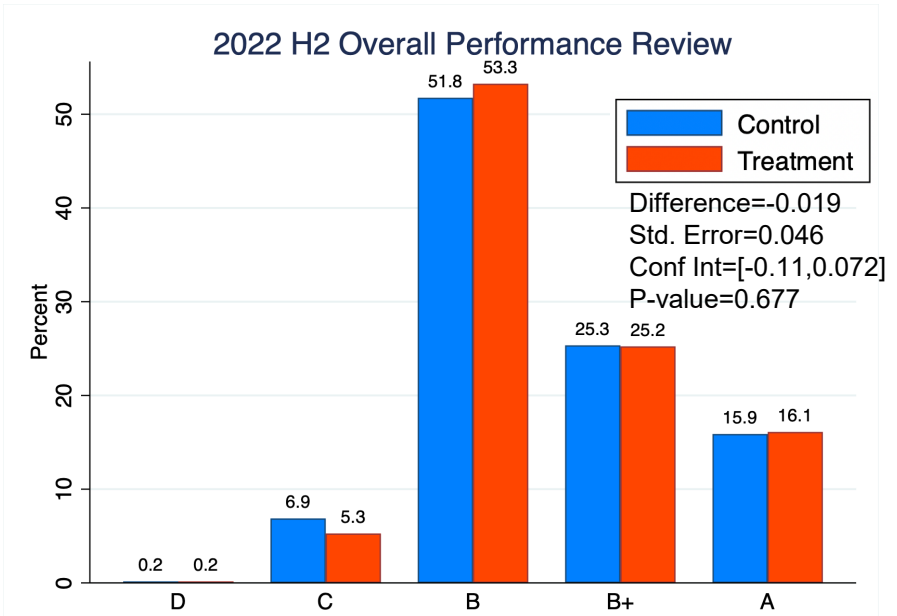
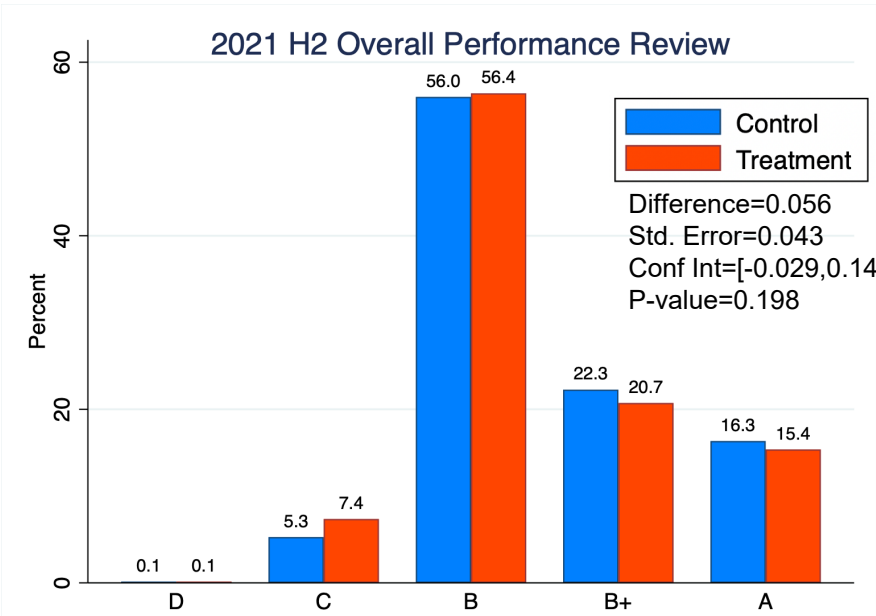
Notes: Data on 1612 employees' attrition until January 23rd 2022. Top-left panel is for all employees. Only 1259 employees filled out the baseline survey question on commuting length, so the commute-length (two ways) sample is for 1259 employees. Samples sizes are 820 and 792 for Control and Treatment, 1217 and 395 for Non-managers and Managers, 570 and 1042 for Female and Males, and 648 and 611 for short and long commuters, respectively. Probability values are calculated using two tailed t-tests and reported above for the difference within each group between the control and treatment groups.

Experimental design

Drop in Quit Rates

No Impact on Performance

Figure 3: WFH treatment had no impact on performance reviews over the next two years



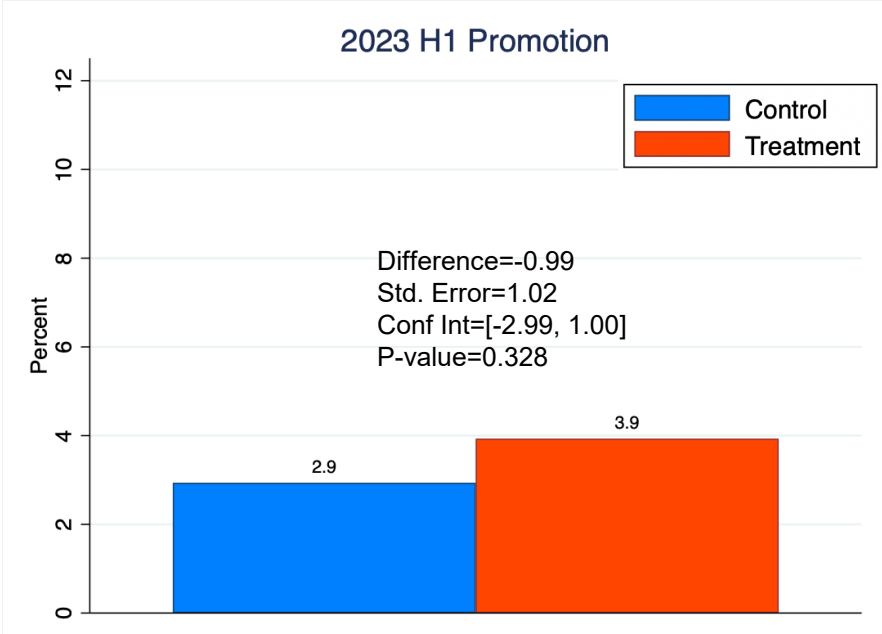
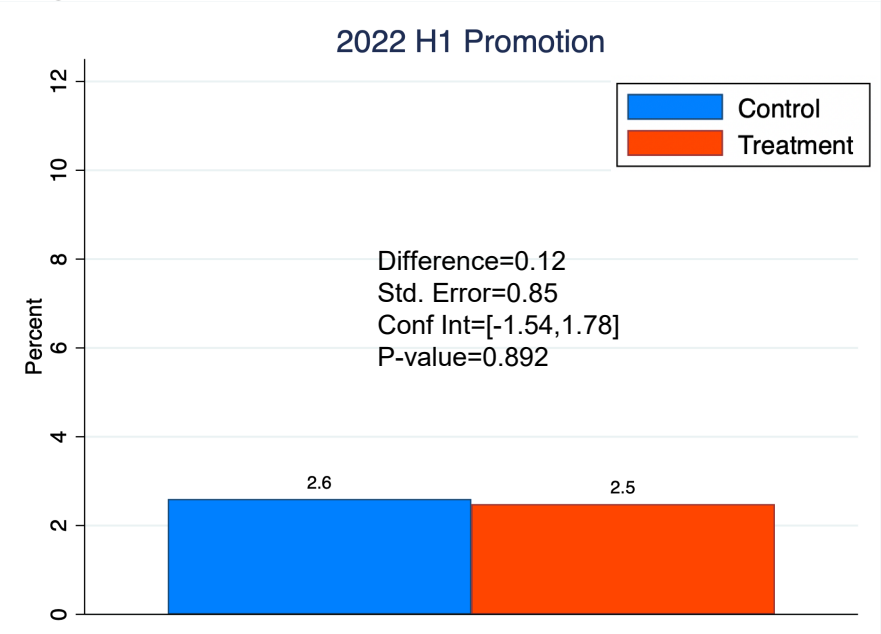
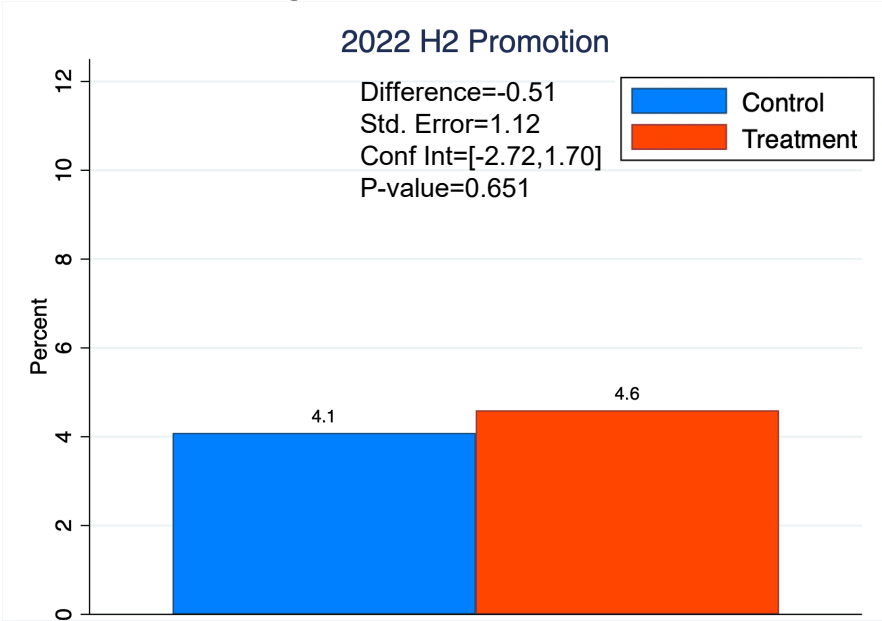
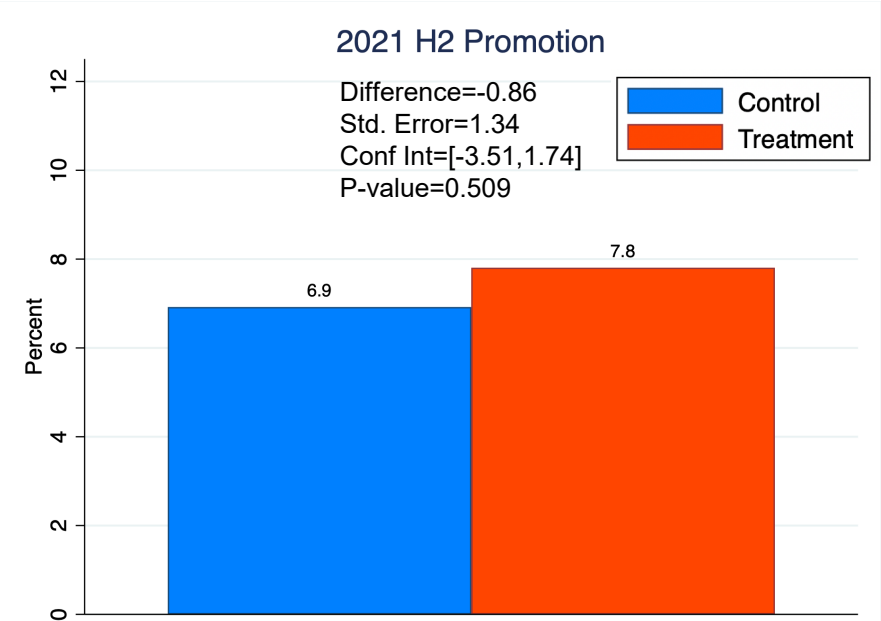
Notes: Results from 1507 employees in 2021H2, 1355 employees in 2022H1, 1301 employees in 2022H2 and 1254 employees in 2023H1. Samples are lower over time due to employee attrition from the original experimental sample. Probability values for difference in treatment and control distributions calculated using using two tailed t-tests after assigning each letter grade a numeric value from 1 (D) to 5 (A) and reported above for the difference of the letter grade between the control and treatment.

Extended Data Table 7: WFH showed no impact on performance reviews for the 9 major sub-categories

	Communication	Development	Efficiency	Execution	Innovation	Leadership	Learning	Project	Risk
2021H2									
Treatment Mean	3.73	3.73	3.74	3.72	3.73	3.74	3.73	3.73	3.76
Control Mean	3.70	3.71	3.73	3.72	3.74	3.71	3.70	3.71	3.76
P-value of difference	0.44	0.51	0.54	0.99	0.71	0.51	0.40	0.46	0.92
N	1036	1093	1479	1408	853	608	1148	1372	1018
2022H1									
Treatment Mean	3.74	3.72	3.76	3.71	3.70	3.70	3.72	3.71	3.74
Control Mean	3.74	3.75	3.76	3.76	3.74	3.71	3.74	3.75	3.75
P-value of difference	0.72	0.33	0.10	0.04	0.27	0.82	0.44	0.12	0.72
N	959	973	1307	1262	794	552	1058	1240	948
2022H2									
Treatment Mean	3.72	3.73	3.75	3.72	3.72	3.68	3.72	3.73	3.73
Control Mean	3.73	3.72	3.74	3.72	3.74	3.71	3.74	3.72	3.74
P-value of difference	0.80	0.64	0.60	0.91	0.59	0.51	0.43	0.64	0.78
N	910	935	1257	1199	765	521	996	1196	906
2023H1									
Treatment Mean	3.78	3.78	3.77	3.77	3.79	3.78	3.74	3.77	3.78
Control Mean	3.77	3.74	3.78	3.75	3.78	3.78	3.73	3.76	3.78
P-value of difference	0.50	0.17	0.86	0.61	0.78	0.92	0.86	0.66	0.85
N	845	872	1188	1144	711	481	900	1156	808

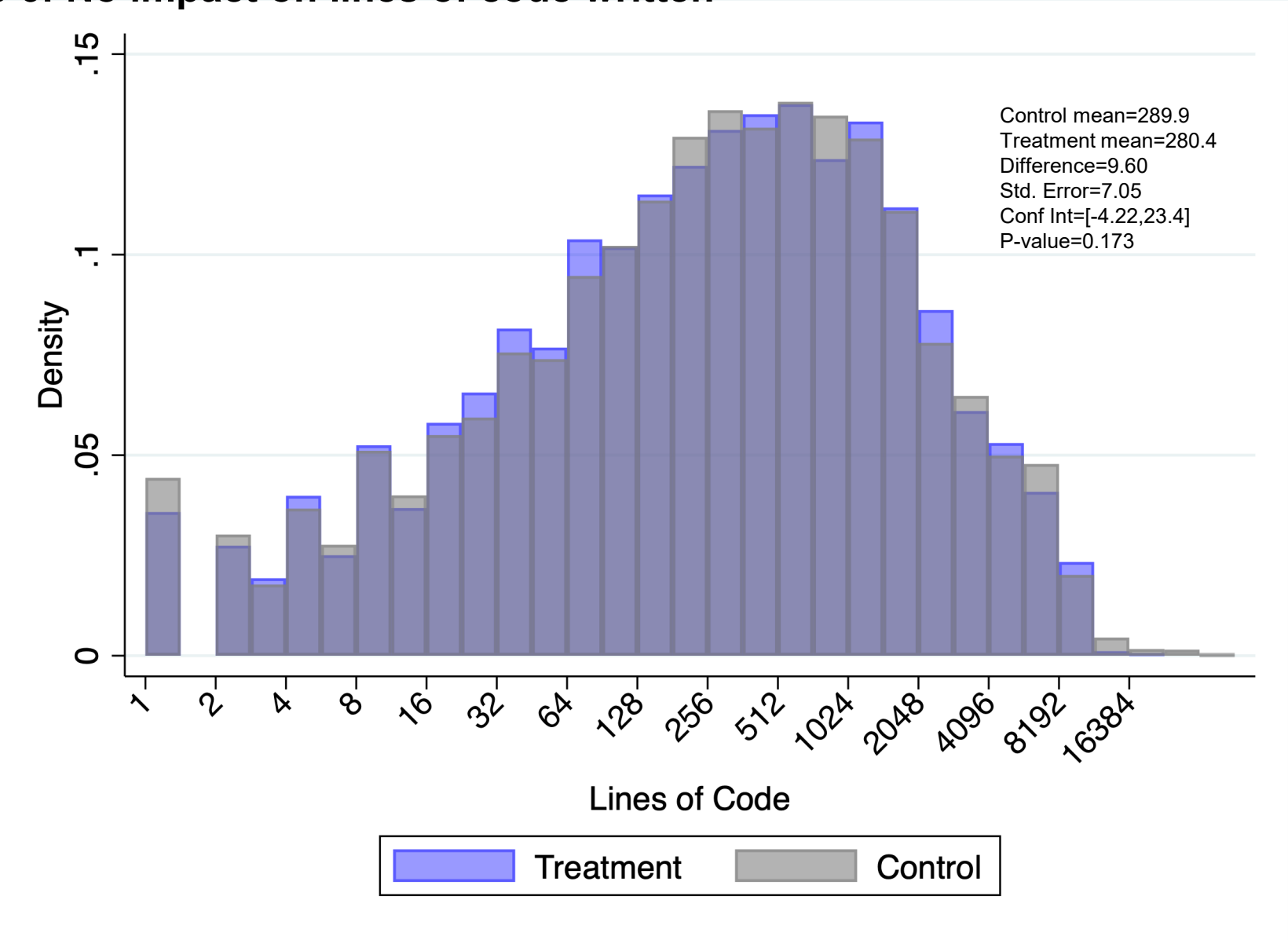
Notes: Results from 1507 employees in 2021H2, 1339 employees in 2022H1, 1290 employees in 2022H2 and 1246 employees in 2023H1. Probability values for difference in treatment and control distributions calculated using two-sided t-tests. Results reported for sub-categories where a score existed – so for example in 2021H2, 1093 employees were assessed for “Development”.

Figure 4: WFH treatment had no impact on promotions over the next two years



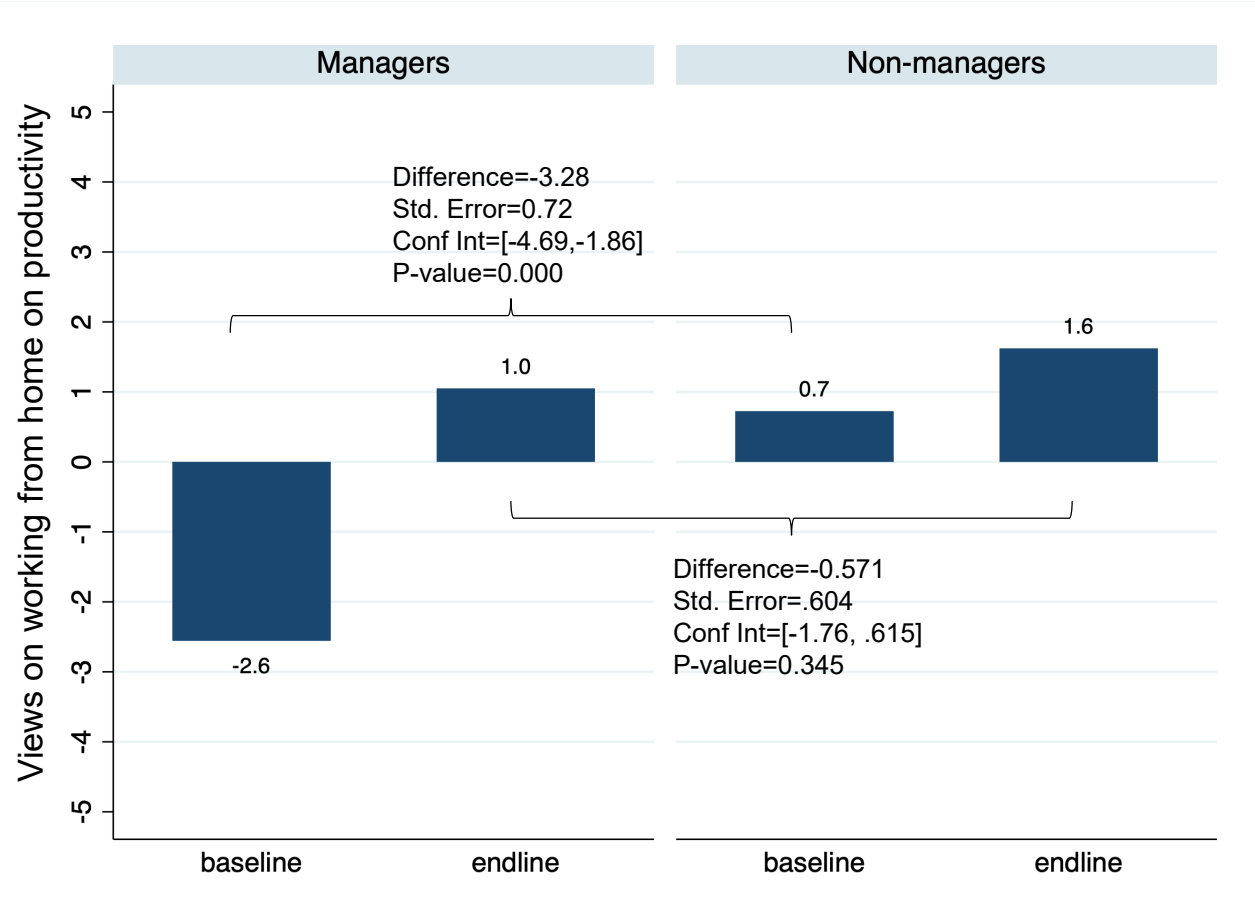
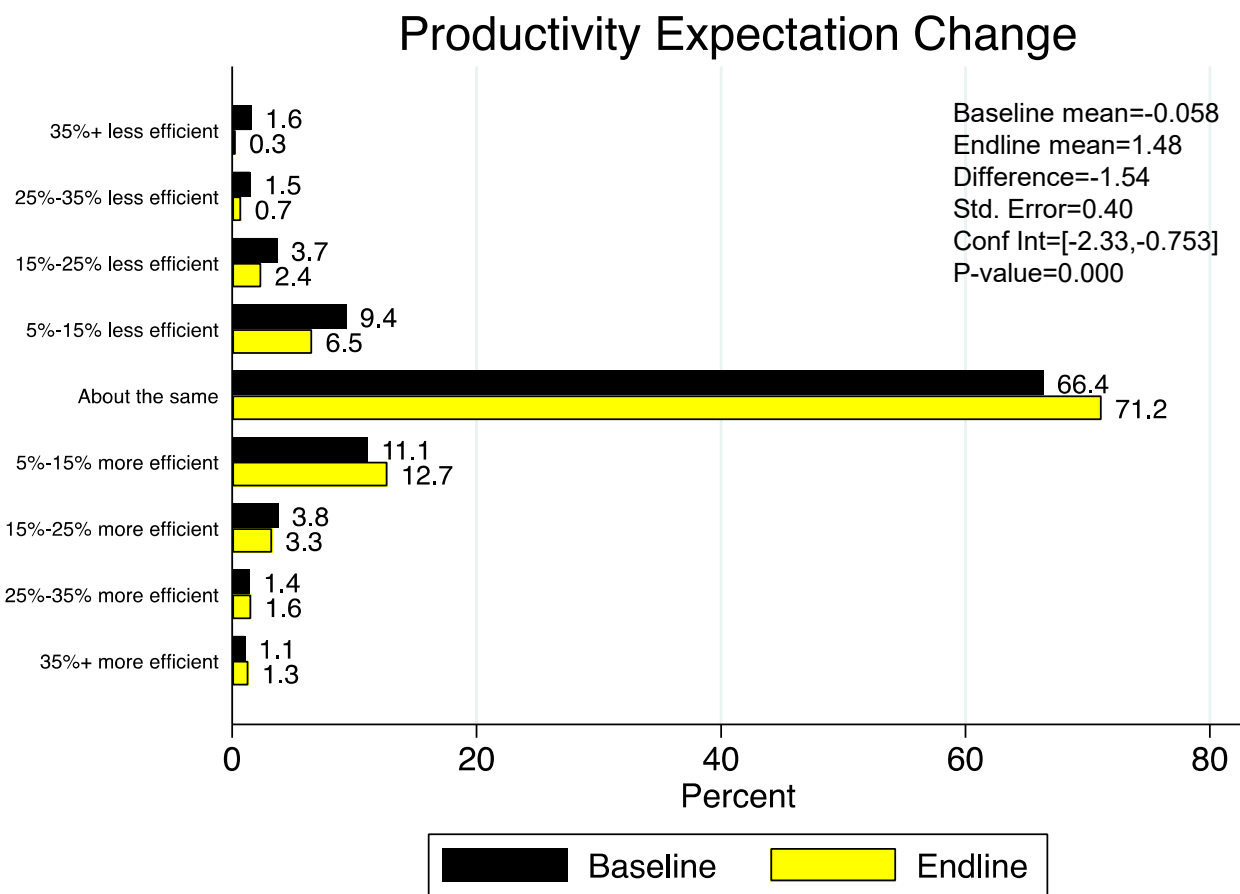
Notes: Results from 1522 employees in 2021H2, 1378 employees in 2022H1, 1314 employees in 2022H2 and 1283 employees in 2023H1. Samples are lower over time due to employee attrition from the original experimental sample. P-values are calculated using two tailed t-tests and test statistics are reported above for the difference within each group between the control and treatment groups.

Extended Figure 6: No impact on lines of code written



Notes: The data covers the experimental period starting on August 9th, 2021, for the 1st wave and September 13th for the 2nd wave, running to January 23rd, 2022, for both waves. Lines of code submitted per day is available for 653 employees whose primary role was writing code, spanning a total of 95,494 days. Lines are those uploaded to trip.com on a daily basis. Data plotted on a log-2 scale for readability. Reported P-value is calculated using a 2-sided t-test on the number of code-lines. When using $\log_2(\text{codelines})$ the difference has a p-value of 0.750 (noting the sample is 27,605 days because of dropping 0 values). When using $\log_2(1+\text{codelines})$ the difference has a p-value of 0.0103, with treatment having the higher average values.

Figure 5: Views on the productivity impact of WFH improved after the experiment, particularly for managers



Notes: Sample from 1315 employees (314 managers, 1001 non-managers) at the baseline, 1345 employees (324 managers, 1021 non-managers) at the endline. Probability values for the figure on the left are calculated using two tailed t-tests after assigning a numeric value corresponding to the midpoint of the bucket. P-values for the figure on the right are reported above for the difference between managers and non-managers separately for baseline and endline.

After the Experiment Ended...

On February 14th 2022 the HR board decided to roll out hybrid WFH to the entire company (starting on March 1st, announced immediately)

The screenshot shows the Trip.com Group website with a navigation bar and a Management team section. The navigation bar includes links for Overview, Financial Information, News & Events, Stock Information, About the Company, and Shareholder Services. The Management section features four team members: James Jianzhang Liang (Co-founder, Executive Chairman of the Board), Min Fan (Co-founder, Vice Chairman of the Board and President), Jane Jie Sun (Chief Executive Officer, Director), and Cindy Xiaofan Wang (Chief Financial Officer, Executive Vice President). At the bottom of the section are icons for Print, RSS, E-mail Alerts, and Contact Us.

The screenshot shows an internal document titled "Trip.com Group Hybrid Work Regulation". It is an internal document of Trip.com Group, applicable to all companies. The document ID is Trip.com Group SH HR (2022) 005. A table at the bottom provides details about the document's topic, publishing department, release date, implementation date, drafting department, and CC list.

Trip.com Group Hybrid Work Regulation

Internal Document of Trip.com Group

Hybrid Work Regulation

【Applicable to All Companies】

Trip.com Group SH HR (2022) 005

Topic	Employee Management
Publishing Department	Human Resources Department
Release Date	2022-02-14
Implementation Date	2022-03-01
Drafting Department	Human Resources Department
CC	Heads of Human Resources Department, Heads of Relevant Regions of Human Resources, Heads of Human Resources of Branches, Heads of Business Units / Department

Summary of results

1. Employees appear to enjoy WFH – reduced attrition by about 33%
2. No impact on performance measures – if anything positive (from survey data)
3. For company highly profitable – turnover is very expensive – so rolled it out
4. Why Hybrid is dominant for US professional and managers (it's profitable)

Nature paper free access here:

<https://www.nature.com/articles/s41586-024-07500-2>