The Future of Working from Home

Nick Bloom (Stanford), July 1st 2024 WEAI

Based on work with:

Joel Alcedo (Mastercard), Mert Akan (Stanford), Cevat Aksoy (Kings), Jose Barrero (ITAM), Shelby Buckman (Stanford), Gordon Dahl (Davis), Mathias Dolls (IFO), Steve Davis (Stanford), Alex Finan (INRIX), Ruobing Han (CUHK), Hyoseul Kim (Stanford), James Liang (Peking), Arjun Ramani (MIT), Dan-Olof Rooth (Stockholm), Jane Sun (Trip), Liz Wilkie (Gusto) and Pablo Zarate (Princeton)

Review slides (so no paper), but I’ll post slides on Linked-in this afternoon
Going to cover three sections

>>>>> Current state of working from home

>>>>> Thoughts on managing hybrid and remote

>>>>> Five impacts on the economy
WFH is stabilizing at about 25% of days: a 5-fold jump vs 2019

US full days worked from home, %

Source: N=147,412 (SWAA) N=432,904 (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

2020-2022 rising occupancy

2023+ flat occupancy
Globally WFH is highest in North America, UK and Australasia, then Europe, Latin America and South Africa and then Asia.

Source: Responses to the question “For each day last week, did you work 6 or more hours, and if so where?”. Sample of N=17,019 university graduate workers in 34 countries surveyed in April-June 2023.

Source: “Working from home around the world” by Cevat Aksoy, Jose Barrero, Nick Bloom, Steve Davis, Mathias Dolls and Pablo Zarate.
https://wfhresearch.com/gswadata/
Employees are split into three groups – most firms have some of all

- **Fully on site**: 58.7% of full-time employees are on site. Mostly non-graduates, lower paid.
- **Hybrid**: 29.3% are in a hybrid arrangement. Professionals and managers, mostly graduates, higher paid.
- **Full WFH**: 12.0% are fully remote. Specialized roles - IT support, payroll etc, often contractors.

**Source**: The sample covers the March 2023 to June 2023 waves of the SWAA. Details on [https://wfhresearch.com/](https://wfhresearch.com/)
WFH particularly high in tech and (to a lesser extent) finance

Current WFH: all wage and salary employees by industry

Responses to the question:
- For each day last week, did you work a full day (6 or more hours), and if so where?

Sample: Data are from the November 2023 to April 2024 SWAA waves. The sample includes all wage and salary employees who pass the attention-check questions. We exclude mining due to insufficient observations and agriculture to focus on non-farm jobs. We re-weight the sample of US residents aged 20 to 64 earning $10,000 or more in a prior year to match Current Population Survey on age, sex, education, and earnings.

N = 22,034
Also see a hump-shape over the life-cycle in WFH levels

Source: Full days worked from home as a percent of all paid workdays by age group in the Survey of Working Arrangements and Attitudes (Barrero, Bloom, and Davis, 2023b). We drop respondents who fail our attention-check questions. N = 71,000.
Four Key factors driving WFH choice (focus on the first two – the key drivers)

1. Happiness (→recruitment and retention)

2. Productivity

3. Space

4. Talent
Happiness: Employees like hybrid about as much as 8% more pay...

Value of WFH 2-3 days a week, % current pay

- Technology: 11%
- Finance: 10%
- Business Services: 9%
- Retail Trade: 8%
- Education: 7%
- Health Care: 6%
- Government: 6%
- Manufacturing: 5%

Source: Data from 17,087 responses through 2021, reweighted to match US population. Industries with 1000+ respondents. Details on https://wfhresearch.com/
RCT on 1612 engineers, marketing and finance professionals found hybrid WFH reduced quit rates 35% (and no performance impact)

Hybrid WFH lowered employee quit rates by 35%

Source: Attrition rates for 1612 engineers, marketing and finance professionals of Trip.com who were randomized between September 2021 and February 2022 by even and odd birthdays into control (5-days a week in the office) and treatment (Mon, Tue and Thu in the office; Weds and Fri working from home). Details in Bloom, Han and Liang (2022) “How Hybrid Work from Home Works Out”.
Productivity: *Hybrid* appears to have about a flat impact. *Fully-remote* studies find range of impacts from -30% to +13% (average about -10%)
Going to cover three sections

>>>>> Current state of working from home

>>>>> Thoughts on managing hybrid and remote

>>>>> Five impacts on the economy
Managing WFH policy is hard – there is a wide spread of preferences

Worker desired amount of post-COVID WFH days

- Rarely or never: 18.4%
- 1 day per week: 9.8%
- 2 days per week: 18.2%
- 3 days per week: 16.4%
- 4 days per week: 8.7%
- 5 days per week: 28.5%

Hybrid 53.1%

Sample: Full-time wage and salary employees who are able to WFH. N = 11439
Two broad tips come up repeatedly talking to managers
1) Coordination – office benefits are being with co-workers

Qu: “What are the top three benefits of working on your employer’s business premises?”

Notes: Among workers that have work-from home experience during the COVID-19 pandemic. Responses to the question “What are the top benefits of working on your employer’s business premises? Please choose up to three”. Sample of N=20,732 workers in 34 countries surveyed in April-May 2023. All values are available at https://bit.ly/Figures-GSWA-2023
Coordination generates the hybrid squeeze into Tuesday to Thursday

**Specific Days: Which Days?**

- **Specific Day Required In Office**

<table>
<thead>
<tr>
<th>Day</th>
<th>% of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>23%</td>
</tr>
<tr>
<td>T</td>
<td>72%</td>
</tr>
<tr>
<td>W</td>
<td>66%</td>
</tr>
<tr>
<td>TH</td>
<td>57%</td>
</tr>
<tr>
<td>F</td>
<td>6%</td>
</tr>
</tbody>
</table>

Companies with Specific Day / Week Requirement by Days Required

Source: Flex Index (flex.scoopforwork.com) employee surveys and publicly available data on companies with a specific day / week office requirement. N = 229 companies. The Flex Index is presented by Scoop (scoopforwork.com).
2) Performance reviews critical for managing output with WFH

- Office employees can be (partly) evaluated by observing inputs - hours & activity
- WFH employees instead need outcome evaluation – data, assessments & discussion
- Importantly this is not surveillance, but “outcome” performance reviews
Going to cover three sections

>>>>> Current state of working from home

>>>>> Thoughts on managing hybrid and remote

>>>>> Five impacts on the economy
1) The Donut Effect: almost 1m people have left US big city centers

Cumulative net flows Feb 2020 - June 2023 as % of population

Notes: Zillow’s home value index in the 12 largest US metro areas (New York, Los Angeles, Chicago, Dallas, Houston, Miami, Philadelphia, Washington DC, Atlanta, Boston, San Francisco, and Phoenix – ordered by population). Zip codes are grouped by population density or presence in a Central Business District (CBD). A population weighted average is taken across all zipcodes in each bucket, and each aggregated index is normalized such that Feb 2020 = 100. Groups are given by high density = top 10%, suburb = 50-90th percentile, exurb = 0-50th percentile.
Donut flight from big cities has stopped, but is not reversing

Top 12 US cities, monthly cumulative net population flows

The Donut-Effect is also boosting suburban **retail** spending

Notes: Constructed using Mastercard spending data. Each spending index is normalized such that the average 2019 value is 100; thus the difference has an average value of 0 in 2019. The level of the index can be interpreted as the relative growth of the city center vs the outer ring. Source Ramani, Alcedo and Bloom (2023)
This Donut Effect on retail spending is a global phenomenon

Notes: Constructed using Mastercard spending data. Each spending index is normalized such that the average 2019 value is 100; thus the difference has an average value of 0 in 2019. The level of the index can be interpreted as the relative growth of the city center vs the outer ring. Source Ramani, Alcedo and Bloom (2023)
2) Employees are living further from work

Average US employee lived about 15 miles from work pre-pandemic and now lives 27 miles away.

Notes: The sample contains employees of 5,793 firms in a balanced panel of firms. Employee-level data are reweighted to match the CPS distribution by (age bin) X sex X major industry. Distance from home to employer location is winsorized at 500 miles. Authors’ calculations using Gusto payroll data.
Most of this is new hires - WFH has expanded firm’s hiring circle

Most of the rising distance is from new-employees hired post-pandemic, on average 2x further away than in 2019

Notes: The sample contains employees of 5,793 firms in a balanced panel of firms in the Gusto payroll data. Employee-level data are reweighted to match the CPS distribution by (age bin) X sex X major industry. Source: Authors’ calculations using Gusto payroll data.
Employees in their 30s are particularly living further from work

30s and 40 see biggest rise in distance, presumably children at home

Notes: The sample contains employees of 5,793 firms in a balanced panel of firms. Employee-level data are reweighted to match the CPS distribution by (age bin) X sex X major industry. Distance from home to employer location is winsorized at 500 miles. Authors’ calculations using Gusto payroll data.
Increase in distance greatest for high earning employees

Notes: Gusto payroll data on a sample of about 450,000 employees in a balanced panel of 15,742 firms. Employee-level data are reweighted to match the CPS distribution by (annualized earnings bin) X (age bin) X sex X major industry. Distance to workplace winsorized at 250 miles.
Not surprisingly this is increasing “Super commuting”

Commutes above 75 miles have risen by a third

Note: INRIX GPS data from November 2019-February 2020 and November 2023-February 2024, covering approximately 4m journeys
3) Disability employment has increased by about 2m post pandemic

Note: Graphs of the percent change in the employment rate relative to January 2019 by disability, gender, age, race, education and native/foreign born (18-64 years old). Data from the US Current Population Survey. Disability includes only physical disabilities. From "Working from home and disability employment" with Gordon Dahl and Dan-Olof Rooth.
This rise in disability employment looks linked to WFH

Responses to the questions:
- Last week what was your work status?
- The following items are about activities you might do during a typical day. Does your health currently limit you in these activities?

Index of Physical impairment defines on a 0, 1 or 2 basis on 10 activities (question in Appendix X)

Notes: Data are from March to July 2023 SWAA waves. The sample includes persons aged 40 or more who pass all attention check questions. We reweight the sample of US residents earning $10,000 or more in a prior year to match the Current Population Survey by age, sex, education, and earnings.

N = 14,314
(4) WFH biased technological change

New WFH technologies are being rapidly developed as the market for WFH products has increased 5x. For example, better video, screens, virtual reality and holograms etc.

“Golf effect” - weekday leisure boom

Note: Data for August 2019 and August 2022 for a sample of trips. Those included are trips in the INRIX database, which includes trips in vehicles with GPS and phones with location tracking turned-on. The trip needs to be to one of the 3,400 satellite identified gold courses and to have lasted more than two hours. We estimate we sample about 5% of total golf trips.
...the weekday increase happened throughout the day - for example a 178% increase at 3pm on Wednesday.

Note: Data for August 2019 and August 2022 for a sample of trips. Those included are trips in the INRIX database, which includes trips in vehicles with GPS and phones with location tracking turned-on. The trip needs to be to one of the 3,400 satellite identified gold courses and to have lasted more than two hours. We estimate we sample about 5% of total golf trips.
The “Golf-effect” will boost weekdays for many ‘leisure’ activities
Conclusions

WFH is here to stay, typically 2 or 3 days a week

Managing this is hard - coordination and performance review focus

Impacts wide ranging on cities, transport, retail, technology and golf

Post slides on Linked-In