The Work-from-Home Phenomenon

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Overview

1. WFH: Past, present, and future
2. Why the shift to remote work will stick
3. People like working from home – a lot
4. Some consequences
WFH was growing before 2020 – but slowly. Then COVID-19 struck.

Looking across the entire U.S. workforce, the incidence of full-paid days WFH roughly doubled in the 12 years leading up to 2020, reaching about 5%.

In March 2020, the incidence of full-paid days rose 12-fold.

It has since dropped backed but will remain much higher than pre-pandemic levels.

Where Work Happens Now: 30% Is WFH, 44% Is Remote

“What percentage of your total working time last week did you spend at the following locations?”

- Your home
- Your employer’s work site
- Client or customer’s work site
- Friend or family member’s home
- Co-working space
- Public space (cafe, library, etc.)

Reproduced from Caros, Guo And Zhao (2022).

**SWAA waves:** November 2021 to February 2022. N = 17,664
6. *After COVID, in 2022 and later*, how often is your employer planning for you to work full days at home?

- Never
- About once or twice per month
- 1 day per week
- 2 days per week
- 3 days per week
- 4 days per week
- 5+ days per week
- My employer has not discussed this matter with me or announced a policy about it
- I have no employer
Post COVID employees will split into three groups: fully on site, hybrid and fully WFH

Front-line employees, mostly non-graduates, lower paid,

Professionals and managers, mostly graduates, higher paid

Specialized roles - IT support, payroll etc, often contractors

Based on what they tell workers, companies increasingly plan for employees to work from home after the pandemic.

Responses to the question:
- After COVID, in 2022 and later, how often is your employer planning for you to work full days at home?

Sample: SWAA waves from July 2020 to February 2022, excluding respondents who report having no employer. "Workers able to WFH" are those who report any WFH experience during the pandemic.

N = 66,438 (all respondents) and 46,345 (able to work from home)

Methodological Note: If the employer has not discussed post-COVID WFH plans with the employee, we impute 0 days for plan before January 2002 wave. From January 2022 onwards, we impute: 0 days if the employee is not currently WFH; the mean value of planned WFH days in the same survey wave among workers who are currently WFH 1+ days per week, otherwise.

Before the pandemic, WFH averaged about 0.25 days per week in ATUS data.
RETURN TO NORMAL. BUT NOT TO THE OFFICE.
IN-PERSON ACTIVITIES AS A % OF ACTIVITIES IN 2019

FEBRUARY 2020 TO FEBRUARY 2022

Bloomberg Opinion
Americans are traveling and eating out, but still working from home. Read our chairman, Mark Ein's, new op-ed in Bloomberg.

Read Now

93.3% NBA Games
89.4% Movie Box Office
87.9% TSA Checkpoints
87.0% OpenTable Diners

36.8% Kastle Barometer

Source: Kastle.com at https://www.kastle.com/safety-wellness/getting-america-back-to-work/, accessed on 7 March 2022

Kastle Back to Work Barometer: Kastle customers are in more than 2,600 buildings in 138 cities. The Barometer reflects swipes of Kastle access controls from the top 10 cities, averaged weekly. It summarizes recent weekday building access activity among our business partners, not a national statistical sample.

Sources: Restaurant Seated Diners Database Sourced by Open Table; TSA Checkpoint travel numbers sourced by U.S. Transportation Security Administration; National Basketball Association Stadium Attendance data sourced by ESPN; Movie Theater Attendance data sourced by Box Office Mojo by IMDbPro.
Why the big shift to WFH will stick

1. Mass experimentation and learning \(\rightarrow\) re-optimization of working arrangements
2. Investments (in time, equipment, systems, processes) by workers and firms that enable WFH
3. Attitudinal shifts:
   • Stigma around WFH has plummeted
   • Long-lingering fears of infection risks
4. A surge in innovation that supports WFH
5. WFH has big benefits for workers
6. Long pandemic entrenches shift to WFH
COVID-19 Compelled Firms and Workers to Experiment at Scale with Working from Home

“If you’d said three months ago that 90% of our employees will be working from home and the firm would be functioning fine, I’d say that is a test I’m not prepared to take because the downside of being wrong on that is massive.”

– James Gorman, CEO of Morgan Stanley*

Quotation from Cutter (WSJ, 2020)
Forced Experimentation: WFH productivity during the pandemic has exceeded expectations

Relative to expectations, how has WFH turned out?

- **Hugely better, 20%+**
  - 20.2% of respondents

- **Substantially better - 10 to 20%**
  - 22.3% of respondents

- **Better -- up to 10%**
  - 19.0% of respondents

- **About the same**
  - 25.4% of respondents

- **Worse - up to 10%**
  - 6.9% of respondents

- **Substantially worse - 10 to 20%**
  - 3.3% of respondents

- **Hugely worse, 20%+**
  - 3.0% of respondents

Compared to your expectations before COVID (in 2019) how has working from home turned out for you?

- **Hugely better -- I am 20%+ more productive than I expected**
- **Substantially better -- I am to 10% to 19% more productive than I expected**
- **Better -- I am 1% to 9% more productive than I expected**
- **About the same**
- **Worse -- I am 1% to 9% less productive than I expected**
- **Substantially worse -- I am to 10% to 19% less productive than I expected**
- **Hugely worse -- I am 20%+ less productive than I expected**
Desired and planned levels of WFH after the pandemic increase with WFH productivity surprises during the pandemic

**Source:** Response to the questions:

**After COVID, in 2022 and later, how often would you like to have paid workdays at home?**

**After COVID, in 2022 and later, how often is your employer planning for you to work full days at home?**

**Compared to your expectations before COVID (in 2019) how has working from home turned out for you?**

**Notes:** This figure shows bin scatters of worker desires and employer plans for WFH after the pandemic against WFH productivity surprises during the pandemic.

Data are from 30,750 survey responses collected from July 2020 to March 2021 and reweighted to match the share of working age respondents in the 2010-2019 CPS in a given (age x sex x education x earnings) cell. We did not ask about productivity relative to expectations in May 2020.
A Similar Pattern Holds in a 27-Country Sample

Source: Global WFH Dataset, a multi-country version of the SWAA fielded across 27 countries in July-August 2021 and January-February 2022. See Barrero et al. (2022).

Most countries are in Europe, but the sample includes Australia, Brazil, China, Egypt, India, Japan, Malaysia, South Korea, Taiwan, and Turkey.

The chart at left uses the pooled sample. Vertical scale: How many days per week, on average, employers plan for respondents to WFH.

This pattern holds within each individual country as well.

N=18,455 observations, from 27 countries.
COVID-19 Shifted Patent Applications to Technologies that Support WFH

Percent of newly filed patent applications for technologies that support WFH and remote interactivity (last 3 months)

When employees work from home, they save an average **65 minutes per day** by not commuting and taking less time to get ready for work. The chart shows time saved by age of youngest child.

**Source:** Data from 8,313 SWAA respondents who can work from home. Reweighted to match the US population. See [https://wfhresearch.com/](https://wfhresearch.com/).
Minutes Spent Getting Ready for Work

### When Commuting to Work

**Women**
- Minutes Spent: 30.6

**Men**
- Minutes Spent: 25.5

### When Working from Home

**Women**
- Minutes Spent: 18.4

**Men**
- Minutes Spent: 19.7

**Source:** Data from 3,997 respondees who can work from home in January 2022, reweighted to match the US population. Details on [https://wfhresearch.com/](https://wfhresearch.com/)
People Place High Value on Option to Work from Home ….

Average valuation of 8% matches Mas and Pallais (2017 AER)

Value of the option to WFH 2 - 3 days/wk, % of current pay?

<table>
<thead>
<tr>
<th>Value of the Option</th>
<th>Percent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 35% raise</td>
<td>4.3</td>
</tr>
<tr>
<td>25 to 35% raise</td>
<td>4.6</td>
</tr>
<tr>
<td>15 to 25% raise</td>
<td>9.1</td>
</tr>
<tr>
<td>10 to 15% raise</td>
<td>15.1</td>
</tr>
<tr>
<td>5 to 10% raise</td>
<td>19.6</td>
</tr>
<tr>
<td>Less than 5% raise</td>
<td>10.4</td>
</tr>
<tr>
<td>Neutral</td>
<td>28.2</td>
</tr>
<tr>
<td>Less than 5% cut</td>
<td>5.0</td>
</tr>
<tr>
<td>5 to 10% cut</td>
<td>0.9</td>
</tr>
<tr>
<td>15 to 25% cut</td>
<td>0.5</td>
</tr>
<tr>
<td>25 to 35% cut</td>
<td>0.7</td>
</tr>
<tr>
<td>More than 35% cut</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Source: Responses to a two-part question.

Part 1: After COVID, in 2022 and later, how would you feel about working from home 2 or 3 days a week?
- Positive: I would view it as a benefit or extra pay
- Neutral
- Negative: I would view it as a cost or a pay cut

Part 2: How much of a pay raise [cut] (as a percent of your current pay) would you value as much as the option to work from home 2 or 3 days a week?

Data are from 20,750 survey responses collected from September 2020 to February 2021 by Inc-Query and QuestionPro. We asked a similar question in earlier and subsequent waves, but we focus on the above waves, which use identical questions and response options. We re-weight raw responses to match the share of working age respondents in the 2010-2019 CPS in a given {age x sex x education x earnings} cell.
… But the Benefits of WFH Will Be Realized Mainly by the Well Paid and the Highly Educated

<table>
<thead>
<tr>
<th></th>
<th>As a Percent of Earnings</th>
<th>Value of Planned Post-COVID WFH</th>
<th>Value of Option to WFH 2-3 Days a Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ann. Earnings of $20 to $50K</td>
<td>1.5 (0.1)</td>
<td>6.8 (0.2)</td>
<td></td>
</tr>
<tr>
<td>Ann. Earnings of $50 to $100K</td>
<td>3.0 (0.1)</td>
<td>8.2 (0.2)</td>
<td></td>
</tr>
<tr>
<td>Ann. Earnings of $100 to $150K</td>
<td>4.8 (0.2)</td>
<td>9.6 (0.2)</td>
<td></td>
</tr>
<tr>
<td>Ann. Earnings over $150K</td>
<td>7.3 (0.2)</td>
<td>12.2 (0.3)</td>
<td></td>
</tr>
<tr>
<td>Goods-producing sectors</td>
<td>2.6 (0.2)</td>
<td>7.1 (0.3)</td>
<td></td>
</tr>
<tr>
<td>Service sectors</td>
<td>2.4 (0.1)</td>
<td>7.8 (0.1)</td>
<td></td>
</tr>
<tr>
<td>No children</td>
<td>1.8 (0.1)</td>
<td>6.6 (0.2)</td>
<td></td>
</tr>
<tr>
<td>Living with children under 18</td>
<td>3.2 (0.1)</td>
<td>8.8 (0.1)</td>
<td></td>
</tr>
</tbody>
</table>

To obtain the “Value of Planned Post-COVID WFH” for a given person, we multiply “Value of Option to WFH” by ½ if their employer plans for one WFH day per week after the pandemic, by 1 if the plan is for multiple WFH days per week, and 0 otherwise. We then average over persons in the indicated group.
People with Children, Especially Younger Children, Place Higher Value on Option to WFH

Value hybrid-WFH by schooling of youngest child, as % pay

Source: Data from 17,087 responses through 2021, reweighted to match US population. Split by gender of respondee and by schooling of youngest child at home. Details on https://wfhresearch.com/
What People Like about WFH

Saved time particularly important for women

What are the top 3 benefits of working from home?

Notes: The sample includes respondents to the February 2022 SWAA who passed the attention check questions and worked from home at some point since the start of the COVID-19 pandemic. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more in 2019. N = 2,973.
What People Like about the Worksite

What are the top 3 benefits of working on your employer's business premises?

Notes: The sample includes respondents to the February 2022 SWAA who passed the attention check questions and worked from home at some point since the start of the COVID-19 pandemic. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more in 2019. \( N = 2,973. \)
Some Consequences

1. Fewer commuters into city centers & less worker spending.
2. Net outflow of residents in at least some city centers.
3. A drop in the demand for office space, but less than suggested by the size of the shift to remote work.
4. Residential real estate prices and rents: Increases in suburbs and exurbs (and some “consumer cities) relative to city centers and high-density urban areas.
Fewer commuters into city centers, and less worker spending there

**Reduction of person days on business premises (percent) by MSA of Current Residence**

- San Francisco, CA: 53.3%
- New York, NY: 49.1%
- Phoenix, AZ: 47.9%
- Dallas, TX: 47.6%
- Los Angeles, CA: 47.0%
- Washington, DC: 46.0%
- Miami, FL: 44.7%
- Chicago, IL: 43.9%
- Atlanta, GA: 43.0%
- Houston, TX: 41.4%
- Boston, MA: 37.4%
- Philadelphia, PA: 35.0%

**Reduction in spending ($ per person per year) by MSA of Current Residence**

- New York, NY: $6,730
- Los Angeles, CA: $5,665
- San Francisco, CA: $5,293
- Atlanta, GA: $5,089
- Washington, DC: $5,003
- Miami, FL: $4,942
- Dallas, TX: $4,933
- Chicago, IL: $4,207
- Phoenix, AZ: $3,861
- Houston, TX: $3,782
- Boston, MA: $3,135
- Philadelphia, PA: $2,895

**Source**: January to March 2022 SWAA data for working plans (N=7,787) and July 2020 to January 2021 for pre-pandemic spending data (N=14,527). Only respondents who have WFH at some point during the pandemic. Reduction in spending estimated from proportional reduction in office days (vs baseline of 5% of WFH days pre-pandemic). Details in [www.wfhresearch.com](http://www.wfhresearch.com)
People are leaving some city centers (e.g., NY and SF)

Cumulative net flows (moves in – moves out) from Feb 2020-Jul 2021 as a % of the zipcode population

Why the Fall in Demand for Office Space Will Be Muted

1) Similarity of preferences over which workdays in the office (Mondays & Friday are unpopular
2) To maximize the benefits of hybrid, you still need to bring people together in the office on some days.
3) There is a need to de-densify office space to address lingering fears of infection risk
4) To entice workers to the office, space must be inviting and pleasant – no cramped cubicles + need for more amenity space.
Offices are not moving - but they are focusing on quality space

City Centers (SF and NY)

Office Parks (Texas and Cupertino)
Design: Zoom rooms, more meeting rooms and lounge seating

Individual office corridors are out

Cubicles, meeting rooms and open plan (lounge) seating are in
Residential real estate rental rates and home values

Notes: Zillow zip-code rent and home value data for NY, LA, SF, Chicago, Dallas, Houston, Miami, Philadelphia, Washington, Atlanta, Boston and Phoenix by zip-code population density. Source: “The Donut Effect” by Arjun Ramani and Nicholas Bloom (2021)
Conclusions

1. The big shift to WFH will endure
2. Big benefits for workers; challenges & opportunities for organizations
3. Cities will survive, but they must adapt to thrive in the post-pandemic world.
4. Real estate and land use are key elements of the adaptation process.
Conclusions

- WFH is here to stay – typically 2.5 days a week for the average office worker
- Some employees are moving out of the city center dropping rents and values a little
- Retail spending is also down while office demand is soft but has not collapsed

New York will definitely survive, but it will reduce tax take (particularly for the subway)
End of Prepared Remarks
Survey of Working Arrangements and Attitudes

- Monthly online survey since May 2020, ~100,000 observations to date.
- **Target population**: U.S. residents 20-64, who earned at least $10K in 2019.
- We design the survey instrument.
- It’s fielded by market research firms that rely on wholesale aggregators (e.g., Lucid) for lists of potential survey participants.
- After dropping “speeders” (16% of sample), we re-weight to match 2010-2019 CPS worker shares in age-sex-education-earnings cells. Dropping those who fail attention checks (another 12%) sharpens some results.
- Median response time: 7 to 12 minutes, after dropping speeders
- Results and micro data are freely available at www.WFHresearch.com.

See “Why Working from Home Will Stick,” by Barrero, Bloom and Davis for more information about the SWAA.
The Global WFH Dataset

A Multi-Country Version of the SWAA

• Barrero, Bloom, Davis, Aksoy Cevat, Mathias Dolls, Pablo Zarate, European Bank for Reconstruction and Development, IFO

• Two waves fielded thus far:
  15 countries in July-August 2021
  25 countries in January-February 2022

• Roughly 500 to 1,500 respondents per country-wave – about 36,000 in total – after dropping speeders and those who fail attention checks.

• Similar selection criteria as in U.S. SWAA, but samples are clearly unrepresentative of target populations in some countries.

Big country differences in economic development, work practices, pandemic severity, government responses to pandemic, etc.
Remarks on Forced (and Coordinated) Experimentation, Learning, and Re-optimization

1. Experimentation revealed information that alters optimal working arrangements through a tail effect and a bias-removal effect.

2. Strategic complementarities across firms in the choice of working arrangements amplify the direct impact of the pandemic experience on WFH – e.g., it’s easier for law firm staff to WFH when clients WFH.

3. There are also strategic complementarities across firms in experimentation with WFH and remote work.

4. COVID (permanently?) knocked down regulations that blocked virtual service delivery, especially in the healthcare sector
   • Before COVID, Medicare and Medicaid rules allowed payments for remotely supplied healthcare services only in very limited circumstances.
   • Pandemic led to relaxation of occupational licensing rules that inhibited the provision of healthcare services by out-of-state healthcare providers.
The Pandemic Has Endured and May Become Endemic – Further Entrenching the Shift to Remote and Hybrid Work

New deaths reported per day
At least 956,918 have been reported since Feb. 29, 2020.

U.S. deaths attributed to COVID. Reproduced from the *Washington Post* on 4 March 2022. Anomalous data are shown on the daily chart but not included in the 7-day rolling average.
References


