THE WORK-FROM-HOME OUTLOOK IN 2022 AND BEYOND

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See [www.WFHResearch.com](http://www.WFHResearch.com) for regular updates, media coverage, and all our research output

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Chicago-ITAM-MIT-Stanford *Survey of Working Arrangements & Attitudes*

- 19 monthly waves (repeated cross sections) from May 2020 to December 2021
- 78,000+ responses so far (ongoing)
- Collected by commercial survey providers on our behalf

**Target population:** Americans aged 20 to 64, earning >$10K in 2019

- Reweight to 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\}

**60+ questions per wave:**
- Demographics, earnings, hours worked, commuting time, spending
- Extent of WFH during COVID
- **Worker desires & employer plans** for WFH after COVID
- Experiences, perspectives on WFH
**Key Take-Aways**

1. **Work-from-home will account for nearly 28% of full paid working days after the end of the pandemic**
   - Up from 20% at the start of 2021
   - Median business will opt for a “hybrid” arrangement

2. **Two key reasons why WFH will (partly) stick:**
   - Mass experimentation & learning ⇒ re-optimization
   - Investments by workers & firms

3. **Challenges of managing a hybrid workforce include:**
   - Choice and coordination
   - Presenteeism bias
   - Recruiting and firm culture
WFH BEFORE, DURING, AND AFTER COVID

Notes: Data are from 78,250 survey responses collected between May 2020 and December 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\} cell. Prior to November 2020, we asked respondents to classify themselves: “Currently (this week) what is your work status?” From November 2020 we ask them for the number of days worked in the current week and the number of days WFH. Starting in November 2021 we ask them to report whether they worked and where on each day of the survey’s reference week.

*Pre-COVID estimate taken from the 2017-2018 American Time Use Survey
**Post-COVID estimate based on the latest survey wave
**QUESTION: PLANS FOR POST-COVID WFH**

*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
Assign 0 days (0%) to respondents who choose:

- *Never*
- *About once or twice per month*
- *My employer has not discussed this matter with me or announced a policy about it*

For other choices assign:

- 20% if *1 day per week*
- 40% if *2 days per week*
- ...
**Post-COVID WFH Plans Rose Through 2021**

**Average % of Full Paid Working Days Working From Home**

*After the Pandemic Ends: Employer Plans*

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**Notes:** Data are from 78,250 survey responses collected between May 2020 and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age $\times$ sex $\times$ education $\times$ earnings\} cell. In each month we project employer plans for post-COVID working from home based on the average responses to the question: “After COVID, in 2022 and later, how often is your employer planning for you to work full days at home?” Then we compute a three-month moving average of the monthly averages, except at the endpoints where we use a two-month moving average.
“Hybrid” (Some WFH) Increasingly Popular

Notes: Data are from 78,250 survey responses collected between May 2020 and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\} cell. In each month starting on January 2021 we breakdown responses to the following question by broad working arrangements: “After COVID, in 2022 and later, how often is your employer planning for you to work full days at home?” Our overall projection for post-COVID working from home assigns zeros to respondents who report their employer has not given them clear plans.

Evolution of Plans for Post-COVID Working Arrangements by survey wave

Percent of Employed Respondents

<table>
<thead>
<tr>
<th>Month</th>
<th>No WFH</th>
<th>No clear plans from employer</th>
<th>Some days WFH</th>
<th>All WFH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan21</td>
<td>43.1</td>
<td>27.1</td>
<td>16.5</td>
<td>13.4</td>
</tr>
<tr>
<td>Feb21</td>
<td>48.5</td>
<td>22.1</td>
<td>17.5</td>
<td>11.9</td>
</tr>
<tr>
<td>Mar21</td>
<td>45.0</td>
<td>22.1</td>
<td>19.6</td>
<td>13.3</td>
</tr>
<tr>
<td>Apr21</td>
<td>46.1</td>
<td>20.9</td>
<td>19.9</td>
<td>13.0</td>
</tr>
<tr>
<td>May21</td>
<td>48.4</td>
<td>18.1</td>
<td>20.3</td>
<td>13.2</td>
</tr>
<tr>
<td>Jun21</td>
<td>47.2</td>
<td>16.7</td>
<td>20.8</td>
<td>15.2</td>
</tr>
<tr>
<td>Jul21</td>
<td>46.2</td>
<td>16.4</td>
<td>24.1</td>
<td>13.4</td>
</tr>
<tr>
<td>Aug21</td>
<td>46.2</td>
<td>16.4</td>
<td>23.6</td>
<td>13.6</td>
</tr>
<tr>
<td>Sep21</td>
<td>46.9</td>
<td>14.4</td>
<td>24.6</td>
<td>14.1</td>
</tr>
<tr>
<td>Oct21</td>
<td>43.9</td>
<td>16.8</td>
<td>26.4</td>
<td>12.9</td>
</tr>
<tr>
<td>Nov21</td>
<td>45.3</td>
<td>15.4</td>
<td>24.9</td>
<td>14.4</td>
</tr>
<tr>
<td>Dec21</td>
<td>44.6</td>
<td>11.8</td>
<td>28.4</td>
<td>15.2</td>
</tr>
</tbody>
</table>
50% of the Increase Comes from Increase in the Number of Post-COVID WFH Days

Notes: Data are from 78,250 survey responses collected between May 2020 and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\} cell. In each month we project employer plans for post-COVID working from home based on the average responses to the question: “After COVID, in 2022 and later, how often is your employer planning for you to work full days at home?” Then we compute a three-month moving average of the monthly averages, except at the endpoints where we use a two-month moving average.
**Post-COVID WFH Plans:**

*2× More Hybrid Than Full-Remote*

**Projection for Post-COVID Working Arrangements**

- **Fully on site**: 54.1%
- **Hybrid**: 31.0%
- **Full WFH**: 14.9%

**Notes:** Data are from 6,092 survey responses collected between October and December 2021, focused on wage and salary employees who responded correctly to an attention-check question. We re-weight raw responses to match 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\} cell. We reassign respondents who report receiving “no clear plans” about post-COVID work-from-home from their employer according to their current working status and the responses of others who did report their employers’ plans.
Why WFH Will Stick: Forced experimentation and learning

Relative to expectations, how has WFH turned out?

- Hugely better, 20%+ (22.9%)
- Substantially better - 10 to 20% (22.0%)
- Better -- up to 10% (16.7%)
- About the same (26.1%)
- Worse - up to 10% (5.7%)
- Substantially worse - 10 to 20% (3.2%)
- Hugely worse, 20%+ (3.4%)

Compared to your expectations before COVID (in 2019), how has working from home turned out for you [in terms of productivity/efficiency]?

Notes: Data are from 78,250 survey responses collected between May 2020 and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by {age × sex × education × earnings} cell.
Why WFH Will Stick: Forced experimentation and learning

Notes: Data are from 78,250 survey responses collected between May 2020 and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\} cell.

Two effects:
- High realized payoffs under WFH for some
- Experimentation reveals pessimistic priors about WFH
Why WFH Will Stick: Investments enabling WFH

Investment into WFH adds up to 0.7% of GDP

How many hours have you invested in learning how to work from home effectively (e.g., learning how to use video-conferencing software) and creating a suitable space to work?

▶ Mean: 15.0 hours (SE = 0.2)

How much money have you and your employer invested in equipment or infrastructure to help you work from home effectively – computers, internet connection, furniture, etc.?

▶ Mean: $561 (SE = 9)

Additionally, firms have made investments on business premises
BUSINESS INVESTMENT IN NIPA DATA

[Graph showing trends in Gross Private Domestic Investment and Private fixed investment: Nonresidential: Information processing equipment and software: Computers and peripheral equipment, with shaded areas indicating U.S. recessions.]

Source: U.S. Bureau of Economic Analysis

fred.stlouisfed.org
Failing to Offer WFH Could Make It Difficult to Attract Talent

If my employer announced that all employees must return to the worksite 5+ days a week the month-after-next, I would:

- Comply & return: 58.0%
- Return & look for a WFH job: 35.0%
- Quit, even without another job: 7.0%

How would you respond if your employer announced that all employees must return to the worksite 5+ days a week starting [month-after-next]?

Notes: Data are from 35,000 survey responses collected between June and December 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\} cell. The sample includes respondents who were working from home 1 or more days per week during the week of the survey.
**Particularly For Diverse Talent**

**Notes:** Responses to the question: “How would you respond if your employer announced that all employees must return to the worksite 5+ days a week starting [month-after-next]?” Data are from 10,175 survey responses collected between June and December 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age × sex × education × earnings\} cell.
Letting Workers Choose Their WFH Days Can Be Problematic

If you could work from home two days of the week, which days would you prefer?

How would you respond if your employer announced that all employees must return to the worksite 5+ days a week starting [month-after-next]?

Notes: Data are from 3,604 survey responses collected in June 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\} cell. The sample includes all respondents other than those expressing no preference.
LETTERS WORKERS CHOOSE THEIR WFH DAYS CAN BE PROBLEMATIC

Notes: Responses to the question: “After COVID, in 2022 and later, how often would you like to have paid workdays at home?” Data are from 35,000 survey responses collected between June and December 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\} cell.
The Threat of Presenteeism Bias

Will your manager work from home on the same days as you after the pandemic is over?

If yes, ask: If your manager starts coming into your employer’s place of business on some of your work-from-home days, what will you do?

Notes: The sample includes respondents who (1) report their employer plans for them to work from home 1, 2, 3, or 4 days per week after COVID in 2022 and later, and (2) who report their manager will work from home on the same days as them after the pandemic. N = 989.
CONCLUSION (INCL. MORE MATERIAL)

WFH days: 5% pre-COVID, 45% during COVID, predicting 28% post-COVID

Mechanisms behind a persistent shift to WFH:

1. Experimentation and learning to overcome inertia & biased expectations
2. Investments enabling WFH
3. Worker demand in a tight labor market
4. Diminished stigma
5. Lingering concerns about health risks post-COVID

Consequences:

- Managerial challenges: choice, diversity, presenteeism,
- Uneven benefits for workers
- Higher productivity onboarding
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EMPLOYER PLANS FOR POST-COVID WORKING FROM HOME

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Notes: Responses to the question “Compared to your expectations before COVID (in 2019), how has working from home turned out for you [in terms of productivity/efficiency]?” Data are from 78,250 survey responses collected between May 2020 and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by {age × sex × education × earnings} cell.
42% report higher efficiency while WFH

How does your efficiency working from home [during the COVID-19 pandemic] compare to your efficiency working on business premises before the pandemic?

Relative efficiency of WFH

- Much more, >35%: 15.2%
- Substantially more, 15-25%: 9.1%
- More, <15%: 17.7%
- About the same: 44.5%
- Less, <15%: 5.2%
- Substantially less, 15-25%: 3.1%
- Much less, >35%: 5.2%

Notes: Data are from 78,250 survey responses collected between May 2020 and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by {age × sex × education × earnings} cell.
Commute Time Savings are a Significant Source of Productivity

Is time saved by not commuting part of your extra efficiency when working from home?

Apart from saving time by not commuting, why are you more efficient when working from home? Please select all that apply.

Notes: Data are from 4,469 survey responses collected between August and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\} cell.
**Estimating the Productivity Impact of Saved Commuting Time**

Weekly time savings from greater WFH post-COVID:

\[ TS_i = (WFH_{Plan}^i - WFH_{Pre}^i)(1 - f_i)C_i \]

- \( C_i \) = weekly round-trip commute time in hours
- \( f_i \) = fraction of commute time reallocated to work

Implied productivity gain in percentage terms:

\[ \text{Gain Imp}_i = 100 \cdot \frac{TS_i}{L_i} = 100 \cdot \frac{(WFH_{Plan}^i - WFH_{Pre}^i)(1 - f_i)C_i}{H_{Pre}^i + C_i(Days_{Pre} - WFH_{Pre}^i)} \]

- \( L_i \) = weekly work hours (including commute time)
- \( H_{Pre}^i \) = conventional measure of weekly work hours pre-COVID
- \( Days_{Pre} \) = no. of full days the respondent works in the survey week
- \( WFH_{Pre}^i \) = pre-COVID WFH days
- \( WFH_{Plan}^i \) = planned post-COVID WFH days
Estimating the Productivity Impact of Saved Commuting Time

Weekly time savings from greater WFH post-COVID:

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\( L_i = \) weekly work hours (including commute time)
\( H_{i}^{\text{pre}} = \) conventional measure of weekly work hours pre-COVID
\( Days_{i}^{\text{pre}} = \) no. of full days the respondent works in the survey week
\( WFH_{i}^{\text{pre}} = \) pre-COVID WFH days
\( WFH_{i}^{\text{plan}} = \) planned post-COVID WFH days
**ESTIMATING THE TRUE PRODUCTIVITY GAIN**

True productivity gain (including commute time savings) for respondent $i$:

$$Gain^\text{True}_i = PrDiff_i \left( \frac{WFH^\text{Plan}_i - WFH^\text{Pre}_i}{Days_i} \right) + \chi_i Gain^\text{Imp}_i$$

$PrDiff_i = \text{relative productivity of WFH (equals 0 if respondent } i \text{ is unable to WFH)}$

$WFH^\text{Pre}_i = \text{pre-COVID WFH days}$

$WFH^\text{Plan}_i = \text{planned post-COVID WFH days}$

$Days_i = \text{no. of full days the respondent works in the survey week}$

$\chi_i = 1(PrDiff_i \text{ excludes commuting time savings})$

**Note:** In our preferred specification, we impute $Gain^\text{True}_i = 0$ when $Gain^\text{True}_i < 0$ on the view that individuals for whom WFH is a negative won’t.
CONVENTIONALLY-MEASURED PRODUCTIVITY GAIN

Conventionally-measured productivity gain (excl. commute time savings):

\[ \text{Gain}_{i}^{\text{Conv}} = (1 - \delta_i) PrDiff_i \left( \frac{WFH_{i}^{\text{Plan}} - WFH_{i}^{\text{Pre}}}{Days_i} \right) \]

\[ PrDiff_i = \text{relative productivity of WFH (equals zero if } i \text{ is unable to WFH)} \]
\[ WFH_{i}^{\text{Pre}} = \text{pre-COVID WFH days} \]
\[ WFH_{i}^{\text{Plan}} = \text{planned post-COVID WFH days} \]
\[ Days_i = \text{no. of full days the respondent works in the survey week} \]
\[ \delta_i = \text{fraction of } PrDiff_i \text{ that the respondent attributes to reduced commuting time} \]
Shift to WFH could raise productivity 5.0%

Productivity gains from the persistent shift to WFH (%)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Equal-weighted Mean</th>
<th>Earnings-weighted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commuting time savings only</td>
<td>1.9 (0.03)</td>
<td>2.3 (0.03)</td>
</tr>
<tr>
<td>True productivity gain</td>
<td>4.0 (0.08)</td>
<td>5.0 (0.09)</td>
</tr>
<tr>
<td>Conventionally-measured</td>
<td>1.1 (0.03)</td>
<td>1.2 (0.03)</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. For each respondent who worked 35 or more hours per week in 2019, we obtain commuting time savings from their one-way commuting time, the amount of working from home their employer is planning after COVID, and the amount of commuting time not reallocated to working. True productivity gain (including commuting time savings) is based on the survey question “How does your efficiency working from home during the COVID-19 pandemic compare to your efficiency working on business premises before the pandemic?” We impute relative efficiency to zero for workers who have no work-from-home experience during the pandemic, since they are likely unable to. We then scale relative efficiency by the respondent’s increase in working-from-home between the pre- and post-COVID periods. Finally, we add commuting time savings to these responses for workers who report that their relative efficiency excludes commuting time savings. We estimate the conventionally-measured productivity gains also using the survey question on relative working-from-home efficiency, but explicitly excluding the part of those productivity gains that comes from saved commuting time.
MESSAGES FOR POLICY

1. Shift to WFH brings large benefits, but they will be:
   ▶ Disproportionately enjoyed by men, high earners and the highly-educated
   ▶ Productivity benefits will be unrecorded in productivity statistics

2. Facilitating repurposing of commercial/residential space in cities should be a priority
   ▶ Otherwise, creative destruction spurred by COVID-19 could mainly be “destruction” in many urban areas
Spatial Reallocation of Jobs & Spending Away from Dense City Centers

Notes: Data are from 78,250 survey responses collected between May 2020 and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \{age \times sex \times education \times earnings\} cell.
During the COVID-19 pandemic, while you have been working from home, how are you now spending the time you have saved by not commuting? Please assign a percentage to each activity (the total should add to 100%).

Notes: Data are from 78,250 survey responses collected between May 2020 and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by {age × sex × education × earnings} cell.
How does your efficiency working from home during the COVID-19 pandemic compare to your efficiency working on business premises before the pandemic?

Notes: Data are from 78,250 survey responses collected between May 2020 and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by {age × sex × education × earnings} cell.
**Post-COVID WFH Plans by Fall 2021 Status:**

**84% More Hybrid Than Full-Remote**

Notes: Data are from 15,000 survey responses collected between August and October 2021. We re-weight raw responses to match 2010-2019 CPS pop. by \( \text{age} \times \text{sex} \times \text{education} \times \text{earnings} \) cell. We show the response distribution for the following separately for those working from home in Fall 2021 and those who are not: “After COVID, in 2022 and later, how often is your employer planning for you to work full days at home?” Our overall projection for post-COVID working from home assigns zeros to respondents who report their employer has not given them clear plans.