Methodological Note:
Update to our data series tracking the extent
of working from home since the start of the COVID-19 pandemic

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Shortly after we launched the www.wfhresearch.com website we started posting and updating a version of Figure 1 below, showing the extent of working from home before COVID (our estimate based on data from the 2017-2018 American Time Use Survey), as well as during and after the pandemic using data from our Survey of Working Arrangements and Attitudes (SWAA). In early 2022 we started posting an Excel file each month showing the data series underlying the most recent version of that figure.

As of June 2022, we have begun to produce a new series of the extent of working from home using an updated methodology, shown in Figure 2. This note describes the new methodology and the reasons why this is now our preferred estimate for the extent of working from home during the pandemic.

The new methodology uses a new question that we first fielded in November 2021 wave and have included in every subsequent SWAA wave. The question asks respondents whether they worked each day of the previous week and if so were, as shown in Figure 3. We believe responses to this new question provide a more accurate picture of the current extent of working from home in the US economy for several reasons: (1) The new question asks respondents to make an active choice for how they spent their working day in each day of the reference week. (2) The question allows respondents to accurately report working 6 or even 7 days in the reference week, whereas our earlier methodology assumed most people work no more than 5 days a week. (3) Because the question requires an active choice for each day of the week, there is less scope for respondents to be biased towards reporting 0 or 5+ days per week working from home.

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We use responses to the new question to estimate the percent of full paid days that are working from home days as follows. First, we obtain the total number of days each respondent worked during the reference week by adding the number of days for which the respondent said they worked from home or worked on business premises (i.e., adding up the number of rows for which the respondent picked the second or third columns in Figure 3). We also obtain the total number of days they worked from home (i.e., adding the number of rows for which they chose the second column). For each respondent, the percent of full paid days working from home equals 100 times the ratio (total days working from home)/(total days working from home or on business premises). We can then compute the average across respondents to each monthly survey wave to obtain the time series value for that wave. Denote the new series by $WFH_{new\ question}$.

The strategy above, however, does not work for months prior to November 2021 when we did not ask the question shown in Figure 3. Instead, we need to rely on other questions about current working arrangements that we did ask in those earlier months.

Between May and October 2020 we asked respondents to report their working status and working arrangements categorically:

> ***Currently (this week)*** *what is your working status?*
>
> - *Working on my business premises*
> - *Working from home*
> - *Still employed and paid, but not working*
> - *Unemployed*
> - *Not working and not looking for work*

For these months, we estimate the extent of working from home using workers' own classification as "working on my business premises" or "working from home," adjusted for potential misclassification as noted in footnote 11 of Barrero, Bloom, and Davis (2021). In those early months of the pandemic, most people who worked from home did so full time, so we believe we are not missing many workers in hybrid working arrangements. Our approach for these early months, May to October 2020, does not modify the methodology we had previously been using, so Figures 1 and 2 show an identical series during this period.

We obtain values for the new series between November 2020 and October 2021 (inclusive) using a regression approach. During those months, we asked three questions about respondent

working status and working arrangements. (As of June 2022, we continue to ask all three underlying questions in each monthly wave of the SWAA.) First we ask about working status:

Currently (this week) *what is your work status?*

- *Working, whether on business premises or working from home*
- *Still employed and paid, but not working*
- *Unemployed, looking for work*
- *Unemployed, awaiting recall to my old job*
- *Not working, and not looking for work*

For those who work, we then ask: *How many full days are you working this week (whether at home or on business premises)?* Response options are 1, 2, …, 5+ days. The third question asks where work happens: *You have indicated that you are working this week. How many* ***full paid working days*** *are you* ***working from home*** *this week?* Response options are: ***None****, all my paid working days were on business premises* and separate options for 1, 2, 3, 4 and 5+ full paid days WFH. Responses to the second and third questions provide us with the number of days the respondent reported working in total the previous week and the number that were full paid days at home. Their ratio (multiplied by 100) is the basis of the series that we published previously and that appears in Figure 1. Let $WFH_{old\ question}$ stand for that series on and after November 2020.

To impute values for $WFH_{new\ question}$ prior to November 2021, when we lack data from the new question shown in Figure 3, we use the following regression model:

$$WFH_{new\ question} = \alpha + \beta \cdot WFH_{old\ question} + \varepsilon$$

Specifically, we consider the first six months that we have data on both $WFH_{new\ question}$ and $WFH_{old\ question}$ (namely, November 2021 to April 2022) and regress the percent of full paid days worked from home from the new question on the estimate based on the legacy questions described in the previous paragraph. We then use the regression estimates to impute $WFH_{new\ question}$ between November 2020 and October 2021, when we do not have data from the new question but do have a measure of $WFH_{old\ question}$:

$$\widehat{WFH}_{new\ question} = \hat{\alpha} + \hat{\beta} \cdot WFH_{old\ question},$$

where $\hat{\alpha}$ and $\hat{\beta}$ represent the regression estimates. In sample, the regression has an R-squared of 0.53, so we are confident of the predictive power of $WFH_{old\ question}$ for our purposes. We

experimented with a quadratic regression in $WFH_{old\ question}$ and with group-specific regressions for a given age-sex-education cell and obtained very similar estimates.

Starting with June 2022, the Excel file on our website publishes the updated series shown in Figure 2 on the first tab. Both the figure and the relevant tab in the Excel file omit the post-COVID estimate, since as of mid-2022 we believe the United States is approaching the long-term post-pandemic norm for working arrangements. The June 2022 and later versions of the Excel file will continue to include the data for old time series figure shown in Figure 1 in the third tab of the Excel file. As before, the second tab of the Excel file shows the three-month moving average of employer plans for post-pandemic working from home, expressed in terms of days per week.

References

Barrero, Jose Maria, Nicholas Bloom, and Steven J. Davis, 2021. "Why Working From Home Will Stick." NBER Working Paper 28731. 28 April.

Figure 1: Time series of the extent of working from home before, during, and after COVID – legacy methodology used prior to June 2022

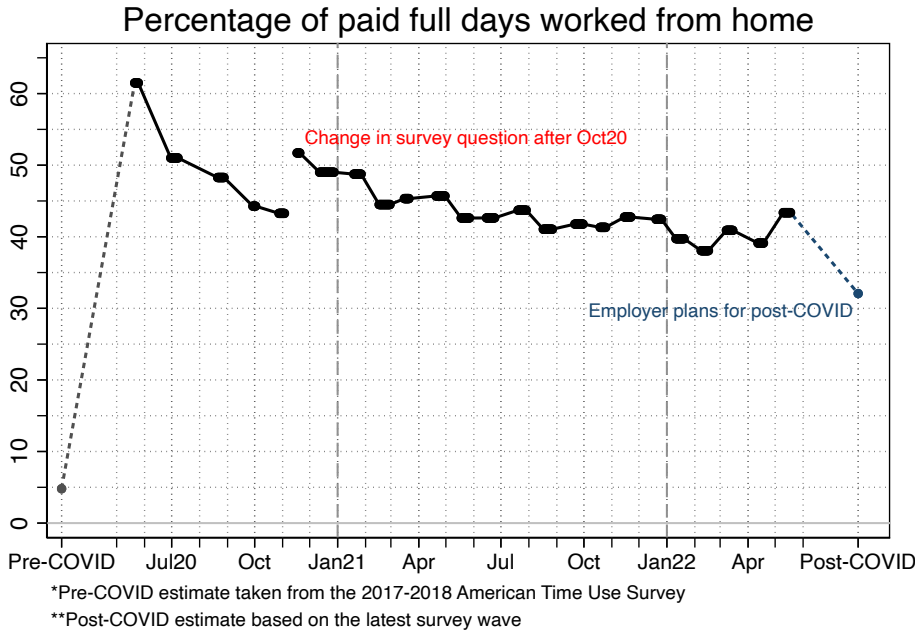
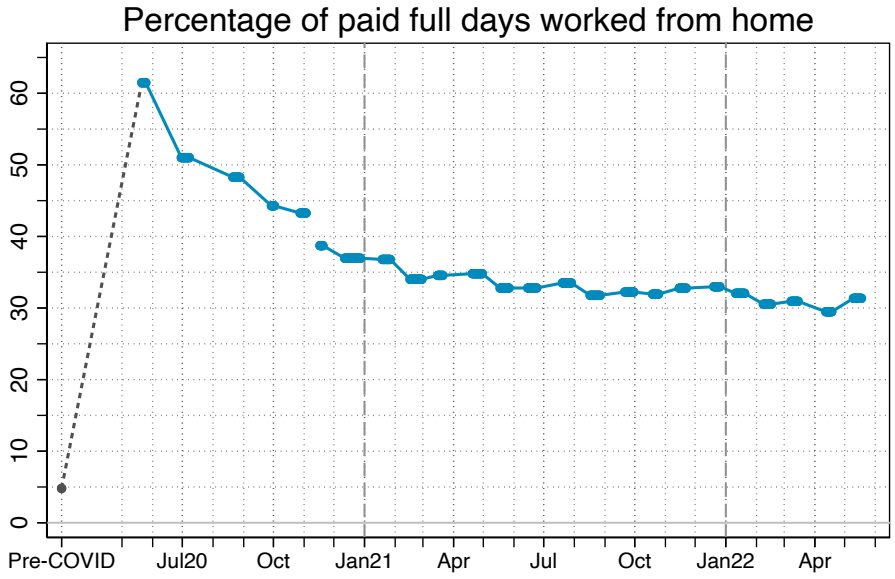


Figure 2: Time series of the extent of working from home before and during COVID – NEW methodology used from June 2022



*Pre-COVID estimate taken from the 2017-2018 American Time Use Survey

*The break in the series in November 2020 reflects a change in the survey question.

Figure 3: New question asked in November 2021 and later waves of the Survey of Working Arrangements and Attitudes

For each day ***last week***, did you ***work a full day (6 or more hours)***, and if so ***where?***

Day of the week	Did not work 6 or more hours	Worked ***from home***	Worked at ***employer or client site***
Monday	○	○	○
Tuesday	○	○	○
Wednesday	○	○	○
Thursday	○	○	○
Friday	○	○	○
Saturday	○	○	○
Sunday	○	○	○
	Did not work 6 or more hours	**Worked *from home***	**Worked at *employer or client site***