

The Shifting Expectations for Work from Home

By Jason P. Brown and Colton Tousey

The COVID-19 pandemic shifted expectations of work from home for both employees and employers. Prior to the pandemic, only about 15 percent of workers over the course of a year performed any full workdays from home. The early stages of the pandemic led a much higher percentage of workers—nearly 40 percent—to work from home when businesses shifted toward remote work to slow the spread of the virus. Workers are returning to the office as COVID-19 moves to an endemic state, but many prefer to continue working from home a portion of time. In a tight labor market, employers may feel pressure to provide greater worker flexibility while wrestling with concerns about productivity and employee engagement, resulting in a gap between employee preferences for work from home and employer plans. Knowing who currently works from home a larger share of time and where this gap is narrowest across worker characteristics and locations helps explain where and for whom work from home is most likely to remain a permanent feature in the labor market.

We investigate who works from home more frequently and how expectations for work from home have changed for workers and their employers using a relatively new data source, the Survey of Working Arrangements and Attitudes (SWAA). We find that the share of paid working days from home is higher for workers with higher income, those

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who live in more densely populated areas, and those with faster internet connections. We show that workers report a desire to work from home “after COVID” a larger fraction of time compared with their expectations (or understanding) of their employers’ plans for permitting work from home. Despite this difference, we show that over time, employer plans on average have moved closer to workers’ expectations.

Although the gap in work from home expectations has narrowed, it is not the same for all workers and in all locations. We show that the gap varies with workers’ income, age, urban environment, industry, occupation, and internet infrastructure. We find that the gap is the narrowest among higher income workers in more densely populated areas—that is, preferences are more likely to match employer work from home plans for these workers. We interpret these results as suggesting that a narrower gap in expectations correlates with a lower likelihood that employers will pull back on their work from home plans. Because higher population density, higher incomes, and better internet connectivity are associated with larger urban areas, our findings suggest that workers in larger urban areas will likely have a narrower gap in expectations and will be more likely to maintain the flexibility provided by work from home.

Section I investigates how work from home has changed over time and for which workers it is most prevalent. Section II documents where the gap between worker and employer expectations after COVID is the narrowest and estimates the relationship and robustness between key factors explaining the gap in expectations at the worker level.

I. Trends in Work from Home over Time and across Worker Characteristics

Prior to the COVID-19 pandemic, work from home was far less common for most U.S. workers in terms of both frequency and percentage of time spent at home. According to 2017–18 data from the American Time Use Survey, 29 percent of wage and salary jobs could be performed from home, and 25 percent of workers occasionally worked from home for a portion of the day. Although 15 percent of workers reported working a full day at home over the course of a year, only 14.5 percent of those workers reported working from home five days a week

or more. Thus, only around 2 percent of U.S. workers (14.5 percent of the 15 percent) worked from home full time.

The trends in work from home shifted abruptly with the onset of the pandemic. On March 13, 2020, the U.S. federal government issued a national emergency declaration in response to COVID-19. Many “nonessential” workers were told to work at home, and those working from home on an average day increased to 42 percent of U.S. workers in 2020. The percentage fell slightly to 38 percent in 2021 but remained well above pre-pandemic levels.

In the early stages of the pandemic, the plausibility of work from home was highly uncertain, as it was new for many workers; accordingly, much of the research from that time focuses on the feasibility of work from home. Dingel and Neiman (2020) use occupational data to estimate that 37 percent of U.S. jobs could be done entirely from home, which they call “teleworkable” jobs. However, they note significant variation across industries and cities. They also report that jobs that can be done at home pay more than those that cannot. Dingel and Neiman characterize their results as an upper bound on what might be feasible in the near term, as their estimates exceed the share of jobs that had been performed entirely at home in the years leading up to the pandemic.

Other research uses surveys to produce more timely measures of work from home. Brynjolfsson and others (2020) indicate that approximately 50 percent of the U.S. workers they surveyed were working from home during the first week of April 2020. Similarly, Bick, Blandin, and Mertens (2020) report that 35 percent of their U.S. respondents worked entirely from home in May 2020. One limitation of this earlier work is that it offers only a snapshot in time on the nature of work from home. Moreover, these measures were constructed in the early stages of the pandemic when more businesses were shut down or not allowing workers to come on site. In addition, the samples in these studies tend to provide limited socioeconomic information.

The SWAA has helped overcome the limited temporal and worker information of earlier data and provided an opportunity for more robust analysis of work from home trends. The SWAA is a collaboration by Barrero, Bloom, and Davis (2021), who have fielded the survey in the United States about once a month since May 2020. The target sur-

vey population is U.S. residents age 20–64 who earned at least \$20,000 in 2019, with over 141,000 responses collected across waves of the survey through December 2022. The survey asks workers about working arrangements during the pandemic, personal experiences with work from home, and worker preferences and employer plans about the extent of work from home after the pandemic ends. Moreover, the survey collects a rich set of workers’ demographic information related to their industry, occupation, annual income, location (state), and the population density of their home and work locations.¹

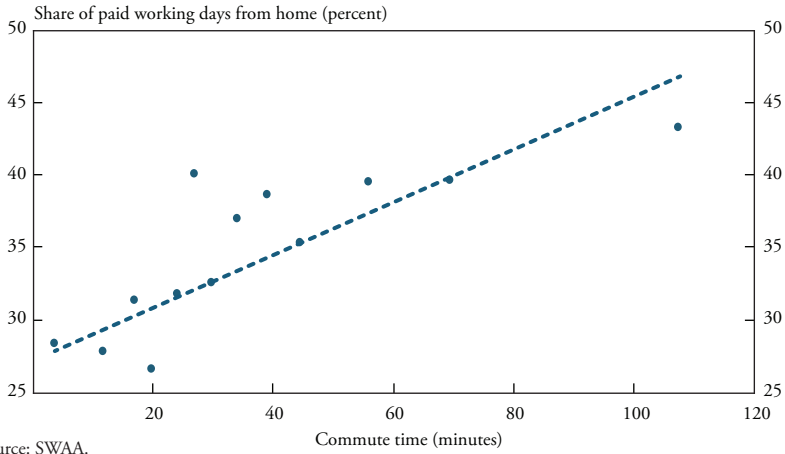
We analyze work from home practices across all workers in the SWAA to better understand the recent prevalence of working from home. Our sample includes both people who report working from home and those who do not.

Unsurprisingly, we find that work from home was more prevalent in the earlier stages of the pandemic. Chart 1 shows that workers’ share of paid working days from home in the week they were surveyed was around 35 percent in mid-2020 and around 27 percent by December 2022.

Although it is too early to determine whether these trends have fully stabilized, workers will likely continue to work a larger percentage of days from home than they did before the pandemic. Although the SWAA does not contain information on work from home practices pre-pandemic to help serve as a benchmark, the general trend seems to follow data from the less timely measures in the American Time Use Survey.

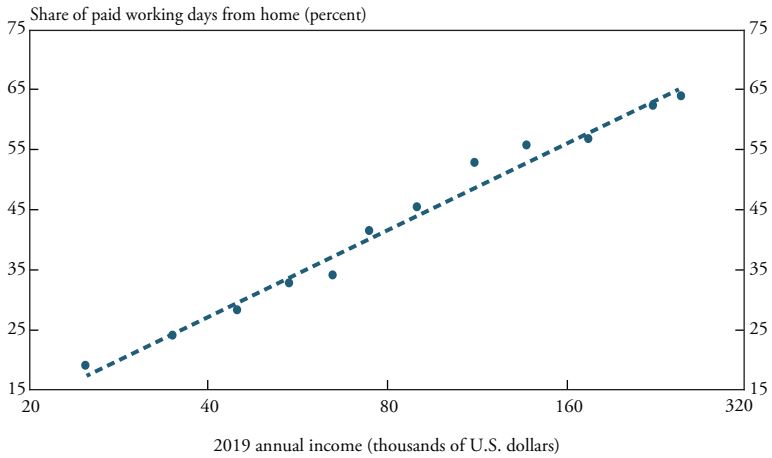
Even though people are more frequently working at home now than before the pandemic, higher income workers tend to report a higher share of days worked from home. Grouping observations by income quantiles between May 2020 and December 2022, Chart 2 shows that less than 25 percent of the paid working days are worked at home by individuals earning less than \$40,000. In contrast, over 50 percent of paid working days are worked at home by those earning \$100,000 or more. This finding is consistent with Dingel and Neiman (2020), who show that teleworkable jobs on average pay more compared with jobs that cannot be performed remotely a portion of the time. Similarly, Bick, Blandin, and Mertens (2020) argue that many more workers—especially those with higher incomes—expect to work from home in the future, consistent with increased work from home adoption. Felstead and Reuschke (2020) also find that the shift to work from home in the UK has been the largest among the highest paid and higher skilled workers.

Chart 1
Work from Home Was More Prevalent Earlier in the Pandemic



Source: SWAA.

Chart 2
Workers with Higher Income Work More Days at Home



Note: Chart summarizes SWAA data from May 2020 to December 2022.
 Source: SWAA.

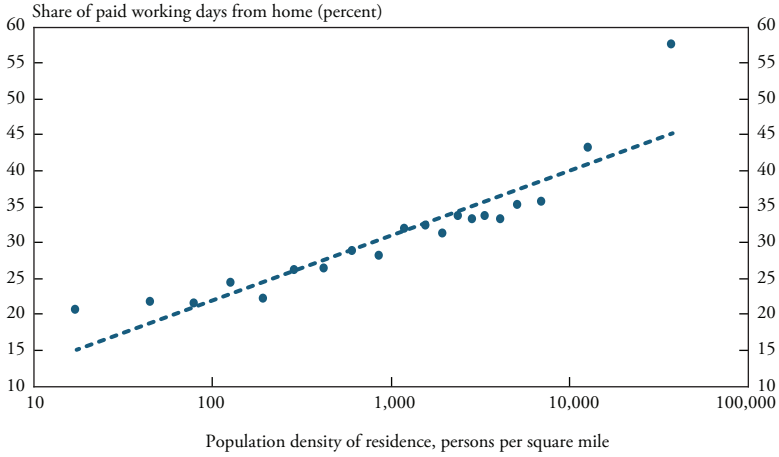
Workers who live in more densely populated areas and those with longer commute times also report higher shares of time worked at home. Chart 3 shows the relationship between population density and workers' reported share of days worked from home from August 2020 to December 2022.² Workers in relatively less dense areas report working from home around 30 percent of the time, while those in the most densely populated areas report working from home between 50 and 60 percent of the time.

One explanation for the positive relationship between population density and work-from-home may be that more dense areas also tend to have a higher share of teleworkable jobs (Dingel and Neiman 2020). We calculate the average population density for the set of metropolitan statistical areas for which Dingel and Neiman provide the share of teleworkable jobs. We find a high positive correlation (0.4) between an urban area's share of teleworkable jobs and its average population density, suggesting that as population density increases in an area, the fraction of jobs that are possible to work from home in that area also tends to increase.³

Because population density is positively correlated with urban area size (see Rappaport 2008, 2018), larger urban areas likely have more workers in general who work from home some percentage of the time compared with smaller urban areas. Alipour, Langer, and O'Kane (2021) have documented this phenomenon in Germany, showing that the share of job ads with a work from home option since the onset of the pandemic has increased in both urban and rural areas but is much more pronounced in urban areas. Longer commute times are also associated with larger urban areas, potentially strengthening this correlation (Shen 2000). Although the relationship between commuting time and work from home varies somewhat, Chart 4 shows that between May 2020 and December 2022, workers who reported a longer commute time on average tended to work from home more often. In the largest U.S. metro areas, the time savings from a hybrid work model with fewer commutes have been estimated at between 100–400 hours per year (Rappaport 2022). Moreover, Bachelet, Kalkuhl, and Koch (2021) investigate the effect of work from home on energy and transportation costs in Germany and find that workers with higher income who live farther from their workplace benefit the most from work from home through reduced commute time and cost.

Chart 3

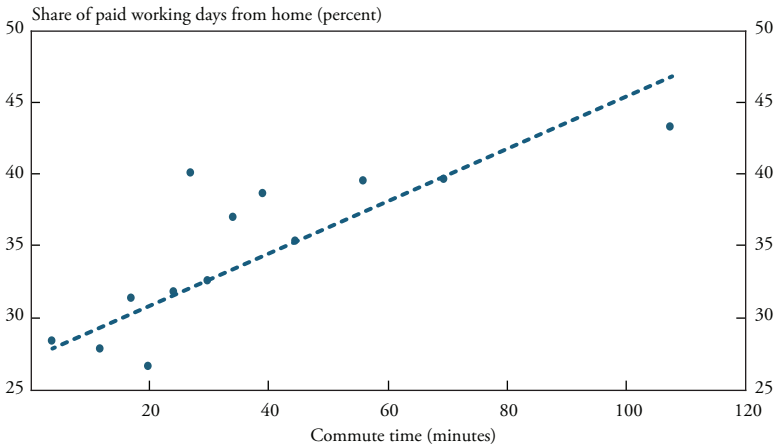
Workers Living in More Densely Populated Areas Work More Days from Home



Note: Chart summarizes SWAA data from August 2020 to December 2022.
Source: SWAA.

Chart 4

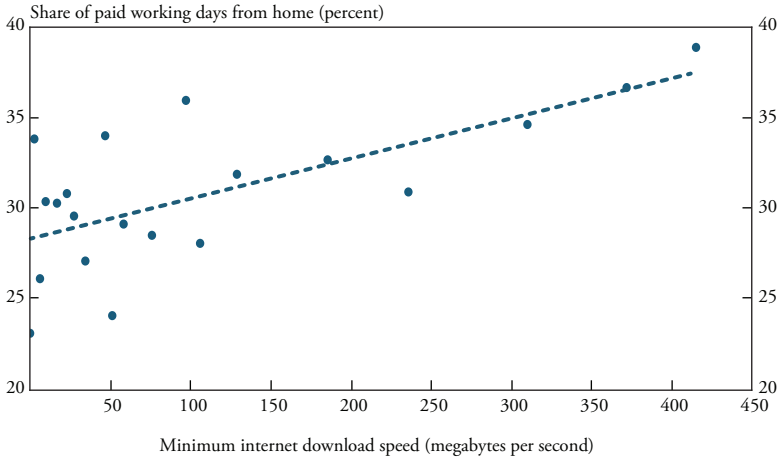
Workers with Longer Commutes Work More Days at Home



Note: Chart summarizes SWAA data from May 2020 to December 2022.
Source: SWAA.

Chart 5

Workers with Faster Internet Work More Days from Home



Note: Chart summarizes SWAA data from July 2021 to December 2022.

Source: SWAA.

Finally, workers in areas with faster internet speeds also report more time working at home. Beginning in July 2021, respondents to the SWAA were asked to report their internet speed at home. Chart 5 shows the average fraction of days worked at home between July 2021 and December 2022 grouped by reported minimum internet download speeds in megabytes per second. Workers with faster internet connections on average reported working from home a larger fraction of the time. Consistent with this result, McArthur and Hong (2022) find that faster internet connections are associated with an increase in the frequency of working from home and a decrease in traveling for work. In addition, Andreason and others (2020) suggest that areas without fast internet connections will likely fall further behind in terms of overall growth given the propensity for remote work accelerated by the pandemic.

Because worker income, population density, commuting time, and internet speeds are higher in larger urban areas, our findings suggest that work from home is also more prevalent in larger versus smaller urban areas. To explore whether work from home will remain more prevalent in larger urban areas over time, we next measure differences between employee preferences and their understanding about their employer's

plans—which we call the gap in work from home expectations—across the same worker and location characteristics.

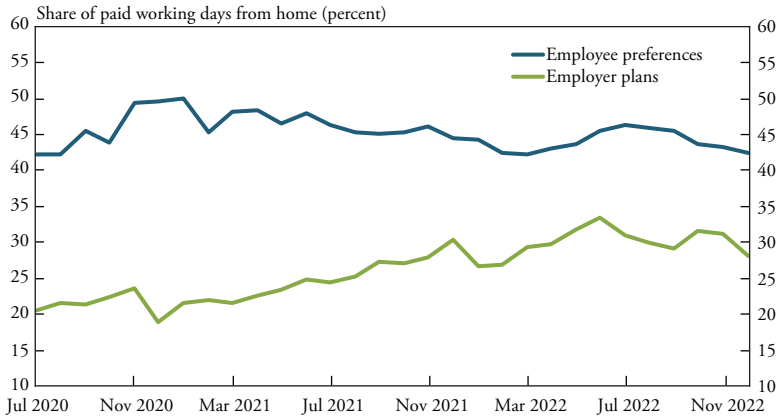
II. Factors Influencing the Gap in Work from Home Expectations

The SWAA is unique in that it asks workers about their preferences for work from home “after COVID” as well as their employer’s plans for work from home after COVID, allowing us to measure changes in this gap in expectations over time.⁴ Although the SWAA does not define what “after COVID” means, it is reasonable to assume that workers interpret this as when COVID-19 moves from pandemic to endemic status. Chart 6 shows that the average reported share of days that employees prefer to work from home after COVID (blue line) has held steady at around 45 percent over the entire sample. The chart also shows that workers believe their employers have increased the fraction of time they expect to allow employees to work from home after COVID (green line), from allowing work from home about 20 percent of the time in 2020 to around 28 percent as of December 2022. Although employer plans are interpreted and reported by the employees, the upward trend of employers’ plans suggests three factors may be at play: employers may be becoming more comfortable with the idea of work from home, employees may be learning more about their employers’ plans, or workers may have sufficient bargaining power to move employer plans closer to their preferences. This narrowing in the gap between employee preferences and employer plans offers additional evidence that work from home will likely continue to a greater degree once COVID-19 enters an endemic state.⁵

To examine where and for whom work from home is more likely to remain prevalent, we investigate which factors across individuals and locations have more influence in explaining employee preferences for work from home, employer plans for work from home, and the gap between them. The analysis in the previous section showed average tabulations of work from home over time or across various factors such as worker income, population density, commuting time, and internet connectivity. Although those comparisons are informative, they do not account for or control for other factors that might also influence work from home, such as the worker’s industry and occupation, age, or

Chart 6

Average Gap between Employee Preferences for Work from Home and Employer Plans Has Narrowed



Source: SWAA.

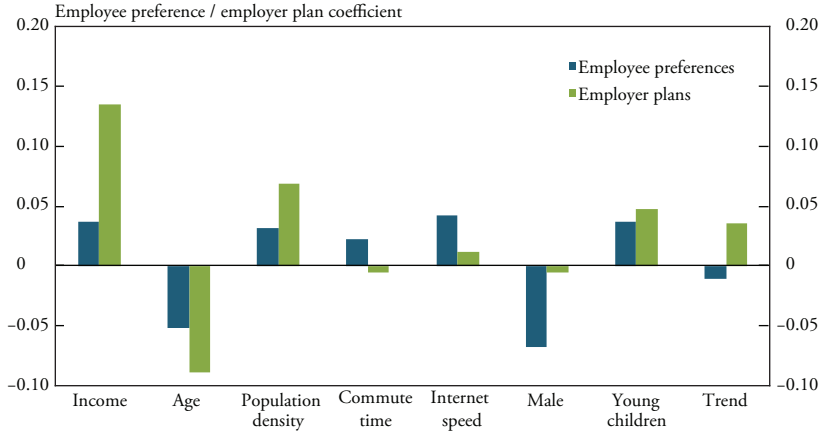
educational attainment. Moreover, previous research has shown considerable variation in work from home across industries and occupations (Bick, Blandin, and Mertens 2020).

We test whether controlling for job characteristics such as industry and occupation is sufficient to explain trends in work from home or whether income, age, presence of children, gender, and the urban environment are also important. We separate the results for worker preferences and employer plans, as the factors that help explain them may differ. In addition, we test whether our job and demographic factors influence trends in 1) the fraction of time workers prefer to work from home after COVID, 2) the fraction of time they believe their employers plan to allow them to work from home after COVID, and 3) the difference in fraction of days (employee less employer). Descriptive statistics of these measures are provided in Table A-1 of the appendix, as are details of the econometric model.

Chart 7 shows our estimation results for the relationship between each factor and employee preferences (blue bars) versus employer plans (green bars) over the SWAA sample between May 2020 and December 2022. We report standardized coefficients to make the results more comparable across factors. Each bar illustrates the correlation between a one standard deviation change in each factor and a one standard

Chart 7

Differences in Work from Home Coefficients, Employee Preferences versus Employer Plans



Notes: Chart shows standardized coefficients, which are reported in appendix Table A-3. Models include worker industry, occupation, and educational fixed effects.
Sources: SWAA and authors' calculations.

deviation change in employee preferences or employer plans for the share of work from home days. Positive coefficients indicate preferences or plans for more work from home, while negative coefficients indicate preferences or plans for less work from home. As such, a larger bar in the positive or negative direction in Chart 7 corresponds to a more important factor in explaining work from home preferences and plans.

Overall, our results are consistent with previous findings on the determinants of work from home. First, an increase in worker annual income is associated with increases in employee preference for share of days worked from home and an increase in their expectations of their employer's plans for days worked from home. Second, older workers prefer to work fewer hours from home, similar to their employer's expectations. One reason for this preference may be that older workers have more experience and may be in managerial roles that require more in-office work on the margin. Third, men prefer to work fewer hours from home compared with women, though employees do not believe their employers' plans differ for men and women. The difference in preference between men and women could be due to differences in time spent caring for children, as the presence of young children is associated with a higher share of worker preference for work from home.

We also find that factors in the urban environment help explain variation in work for home preferences and plans even when controlling for worker characteristics. An increase in population density is associated with a higher desired fraction of days working from home after COVID for workers in that location. The correlation is stronger for employers' plans, with a nearly one-for-one increase in standard deviations between population density and employers' plans for work from home. Additionally, commuting time and internet speed are also positively correlated with employees' preferences for work from home.

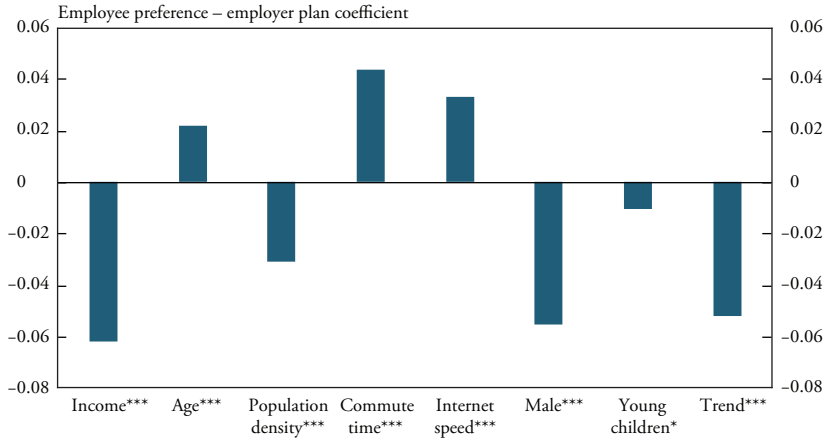
Finally, we find a small, positive, and significant coefficient on time trend, but only for employers' plans. This result indicates that employees' assessment of their employers' plans for the share of paid working days worked from home has steadily increased over time. This finding is consistent with the results previously illustrated in Chart 6, in which employees average preferred share of work from home after COVID remains stable over all waves of the sample, while the share of employer plans for work from home increases. Moreover, the positive trend coefficient on employer plans indicates that the planned share of days worked at home has increased over time. This increase might reflect employees becoming more knowledgeable of their employers' plans over time, employers being more willing to consider work from home in the face of a tight labor market, or a combination of the two.

Chart 8 shows which factors help explain variation in the gap between workers' preference for work from home and their employers' plans. We interpret the factors that are negatively (positively) correlated with the difference between employee preferences and employer plans as helping to close (widen) the gap. In particular, the negative measure of trend shows that the difference between preferences and plans is declining over time. We find that with each month, the gap in employees' preferred and employers' planned share of days worked at home decreases by 0.4 percentage points (see third column of Table A-2). The average gap in employee preferences and employer plans in December 2022 was 14.4 percentage points. If these trends continue, we expect this gap to close in about 36 months ($14.4/0.4$).

Our results highlight that the gap between employee plans and employer preferences varies widely based on worker and location characteristics. Higher income workers have a narrower gap between their

Chart 8

Factors Explaining the Gap between Employee Preferences and Employer Plans



- * Significant at the 10 percent level
- ** Significant at the 5 percent level
- *** Significant at the 1 percent level

Notes: Chart shows standardized coefficients, which are reported in appendix Table A-3. The model includes worker industry, occupation, and educational fixed effects.

Sources: SWAA and authors' calculations.

preferences for work from home and their expectations of their employers' plans. Workers in more densely populated areas also appear to have a smaller gap between their preferences and their employers' plans. Previous research has shown that remote work is adding to labor market tightness (Greene and Sly 2022). Although we do not have measures of labor market tightness or turnover in the SWAA respondents' locations, the labor market dynamics in more densely populated areas likely offer workers higher bargaining power compared with areas with less dynamic labor markets. Research has shown that smaller areas are less dynamic than larger areas in terms of business formation and population turnover (Brown 2018; Brown and Tousey 2020). We find that older workers, those with longer commute times, and those with faster internet have slightly larger gaps between their preferences and employer plans for work from home. We interpret these results as factors by which employers are less likely to shift their work from home plans. Moreover, these differences do not appear to be as economically significant relative to worker income. In contrast, we find that men

have a slightly narrower gap between their preferences and their employers' plans for work from home because on average, men prefer to work fewer hours at home (see Chart 7 and Table A-3).

Although Barrero, Bloom, and Davis (2021) argue that work from home will “stick,” our findings suggest that it will likely not stick to the same degree for all workers in all places. These differences have important implications for the business cycle. To the extent that work from home offers greater worker flexibility, a narrower gap in preferences relative to employers' plans symbolizes less friction for those workers in the labor market. In the event of a labor market downturn, those who work from home more often may find it easier to shift to other jobs if necessary, as work from home relaxes the connection between workers' and employers' locations. Because more densely populated urban areas have a greater prevalence of work from home and a smaller gap in worker preferences and employer plans, it also stands to reason that larger urban areas will likely benefit more from the shift in preferences for work from home. It seems that work from home is yet another structural force playing out in the economy that offers greater advantage in larger versus smaller urban areas.

Conclusion

Prior to the COVID-19 pandemic, occasional work from home was common for some workers. However, with the onset of the pandemic, many workers were initially forced to work from home. This shift, along with additional investments employers made in technology, has accelerated the trend in work from home. We find that on average, workers in December 2022 worked from home around 27 percent of time, nearly double the pre-pandemic estimate. Moreover, the gap between workers' preferences for work from home and their expectations of their employers' plans has declined over the past two years. The gap appears to be closing due to upward movement in employers' plans. Our estimates suggest that if the trends in work from home continue, this gap may nearly close in the next three years.

Despite this shift in preferences towards work from home, our findings suggest that higher income workers in more densely populated areas are most likely to be affected by this shift. Although it is too early

to tell where work from home trends will settle, it is likely that workers with this flexibility and areas with a higher concentration of remote work will stand a better chance of weathering an economic downturn. Our findings suggest that work from home is more likely to stick in larger urban areas, potentially providing more economic flexibility and resiliency to these areas relative to smaller urban and rural areas.

Appendix

Estimating the Relationship between Urban Area Characteristics and Net Migration

We estimate the relationship between worker preferences for work from home, their employer's plans for work from home, and the gap between them using a repeated cross-section of sample waves from the SWAA. Specifically, we use the measures of the fraction of days workers prefer to work from home after COVID and their employers' plans for the share of paid working days from home after COVID. We also use information in the SWAA regarding worker industry and occupation, age, income, gender, presence of young children, population density of their home location, commuting time, and minimum internet download speed. Descriptive statistics of these measures, which we calculate using sample weights provided in the SWAA, are reported in Table A-1.

For each worker, we construct three dependent variables: the fraction of days workers prefer to work from home, the fraction of days they believe their employer plans for them to work from home, and the difference between the two. Let y_i represent one of these three measures for individual i such that:

$$y_i = \alpha + \beta_1 \text{Log Income} + \beta_2 \text{Age} + \beta_3 \text{Log Population Density} + \beta_4 \text{Commute Time} \\ + \beta_5 \text{Internet Speed} + \beta_6 \text{Male} + \beta_7 \text{Children} + \boldsymbol{\gamma}_s \text{State}_s + \boldsymbol{\gamma}_o \text{Occupation}_o \\ + \boldsymbol{\gamma}_j \text{Industry}_j + \boldsymbol{\gamma}_e \text{Educational Attainment}_e + \gamma t + \varepsilon_i,$$

where $\boldsymbol{\gamma}_{s,o,j,e}$ contains state, occupation, industry, and educational attainment fixed effects and γ captures the time trend in work from home preferences, employer plans, or the gap between them. The beta coefficients measure the average correlation between those factors and the work from home measures. We use a high dimensional fixed effect estimator, where we absorb the state, occupation, industry, and educational attainment effects, as we want to control for them but are not interested in recovering the coefficients from them. Sample weights provided in the SWAA data are used in the econometric estimation. Additionally, we cluster standard errors at the state level.

Table A-1

Sample Individual Descriptive Statistics, May 2020 to December 2022

Work from home preferences, plans, and gaps	Mean	Standard deviation
Employee preferences	49.447	40.843
Employer plans	34.525	40.025
Preference – plans	14.693	38.386
Log(income)	4.140	0.716
Age	41.477	11.014
Log(population density)	7.162	2.021
Commuting time	26.425	25.562
Internet speed	109.564	125.576
Male	0.466	0.499
Young children	0.346	0.476

Note: Calculations are based on 127,181 observations.

Source: SWAA.

We estimate the above relationship over multiple waves of the survey from May 2020 to December 2022. After estimating the model, we report the results of standardized coefficients in Chart 8. We standardize them to make more of a direct comparison between the factors. For example, β_1 measures the relationship between a one standard deviation change in annual worker income measured in logs and their preference for work from home, their employer's plans, or the difference between preferences and plans. The full set of results are reported in Table A-2, and standardized coefficients of the same models are reported in Table A-3.

Table A-2

Determinants of Work from Home Preferences, Plans, and Gaps

Variable	Employee preferences	Employer plans	Preference – plans
Log(income)	2.332*** (0.561)	7.994*** (0.504)	-3.659*** (0.356)
Age	-0.185*** (0.023)	-0.298*** (0.022)	0.073*** (0.021)
Log(population density)	0.652** (0.279)	1.366*** (0.360)	-0.602*** (0.169)
Commute time	0.0412*** (0.009)	-0.0106 (0.012)	0.0743*** (0.012)
Internet speed	0.0142*** (0.002)	0.00387 (0.003)	0.0104*** (0.001)
Male	-5.575*** (0.572)	-0.479 (0.458)	-4.262*** (0.538)
Young children	3.500*** (0.529)	4.137*** (0.765)	-0.893* (0.519)
Trend	-0.0848* (0.044)	0.255*** (0.049)	-0.380*** (0.053)
Intercept	103.3*** (33.167)	-189.8*** (37.607)	313.6*** (39.511)
N	67999	60775	60775
Adjusted R ²	0.06	0.15	0.03

* Significant at the 10 percent level

** Significant at the 5 percent level

*** Significant at the 1 percent level

Notes: Robust standard errors are in parentheses. Models include worker industry, occupation, and educational fixed effects.

Table A-3

Determinants of Work from Home Preferences, Plans, and Gaps
(Standardized Coefficients)

Variable	Employee preferences	Employer plans	Preference – plans
Log(income)	0.037*** (0.009)	0.135 *** (0.009)	-0.062*** (0.009)
Age	-0.052*** (0.006)	-0.089*** (0.007)	0.022*** (0.006)
Log(population density)	0.031** (0.013)	0.069*** (0.018)	-0.031*** (0.009)
Commute time	0.022*** (0.005)	-0.006 (0.007)	0.044*** (0.007)
Internet speed	0.042*** (0.007)	0.012 (0.009)	0.033*** (0.005)
Male	-0.067*** (0.007)	-0.006 (0.006)	-0.055*** (0.007)
Young children	0.037*** (0.006)	0.048*** (0.009)	-0.010* (0.006)
Trend	-0.011* (0.006)	0.035*** (0.007)	-0.052*** (0.007)
Intercept	103.3*** (33.167)	-189.8*** (37.607)	313.6*** (39.511)
N	67999	60775	60775
Adjusted R ²	0.06	0.15	0.03

* Significant at the 10 percent level

** Significant at the 5 percent level

*** Significant at the 1 percent level

Notes: Robust standard errors are in parentheses. Models include worker industry, occupation, and educational fixed effects.

Endnotes

¹The SWAA also contains population weights to calculate how many workers each respondent represents in the worker population. Individuals that represent more workers, meaning they are in more common occupations, have a larger weight, while individuals in less common occupations have a smaller weight. We use the sample weights in our analysis to construct more accurate sample means.

²The population density is recorded by Barrero, Bloom, and Davis (2021) in log scale at the zip-code level of residence beginning with the August 2020 survey.

³We use 2020 tract-level population density measures from the U.S. Census Bureau to calculate the average population density in Metropolitan Statistical Areas, following methodology described in Rappaport (2008).

⁴One question asks the desired share of paid working days to work from home after COVID (percent), while the other asks their employer's planned share of paid working days to work from home after COVID (percent).

⁵The likelihood of work from home remaining more prevalent is also supported by trends in office occupancy, which were below 50 percent compared with pre-pandemic levels as of early November 2022 (Kastle 2022).

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