

Cevat Giray Aksoy, Jose Maria Barrero, Nicholas Bloom, Steven J. Davis, Mathias Dolls and Pablo Zarate

Working from Home Around the World

KEY MESSAGES

- **Most workers were favorably surprised by their productivity in work from home (WFH) mode during the pandemic.**
- **Employer plans for WFH levels after the pandemic rise strongly with these individual-level productivity surprises.**
- **Planned WFH levels also rise with the cumulative stringency of government-mandated lockdowns during the pandemic.**
- **Employees value the option to WFH 2-3 days per week at 5 percent of pay, on average, with higher valuations for women, people with children, highly-educated workers, and those with longer commutes.**

The COVID-19 pandemic triggered a huge, sudden up-take in work from home, as individuals and organizations responded to contagion fears and government restrictions on commercial and social activities (Adams-Prassl et al. 2020; Bartik et al. 2020; Barrero et al. 2020; De Fraja et al. 2021). Over time, it has become evident that the big shift to work from home will endure after the pandemic ends (Barrero et al. 2021). No other episode in modern history involves such a pronounced and widespread shift in working arrangements in such a compressed time frame. The Industrial Revolution and the later shift away from factory jobs brought greater changes in skill requirements and business operations, but they unfolded over many decades.

* This article was published first as a VoxEU column.

These facts prompt some questions: What explains the pandemic's role as catalyst for a lasting up-take in work from home (WFH)? When looking across countries and regions, have differences in pandemic severity and the stringency of government lockdowns had lasting effects on WFH levels? What does a large, lasting shift to remote work portend for workers? Finally, how might the big shift to remote work affect the pace of innovation and the fortunes of cities?

THE GLOBAL SURVEY OF WORKING ARRANGEMENTS (G-SWA)

To tackle these and related questions, we field a new Global Survey of Working Arrangements across 27 countries. The survey yields individual-level data on demographics, WFH levels, employer plans for WFH levels after the pandemic, commute times, and more. Thus far, we have fielded the survey online in two waves, one in late July/early August 2021 and one in late January/early February 2022. In our new paper, Aksoy, Barrero, Bloom, Davis, Dolls and Zarate (2022), we study full-time workers, aged 20-59, who finished primary school and investigate how outcomes, plans, desires and perceptions around WFH vary across persons and countries.

Our G-SWA samples are highly skewed to well-educated persons in most countries. Thus, in making comparisons across countries, we consider conditional mean outcomes that control for gender, age, education and industry at the individual level, treating the raw US mean as the baseline value. These values should not be understood as averages for the working-age populations or overall workforces in each country. Rather, they are conditional sample means for relatively well-educated full-time workers who have enough facility with smartphones, computers, tablets and the like to take an online survey.



Cevat Giray Aksoy

is Associate Director of Research at European Bank for Reconstruction and Development, Research Associate at Institute for the Study of Labor, and Assistant Professor of Economics at King's College London.



Jose Maria Barrero

is Assistant Professor of Finance at Instituto Tecnológico Autónomo de México.



Nicholas Bloom

is Professor of Economics at Stanford University.

WFH LEVELS AROUND THE WORLD

Figure 1 highlights the global nature of WFH among well-educated workers as of mid-2021 and early 2022. It reflects responses to the question, “How many full paid days are you working from home this week?” Response options range from 0 to 5+ days per week. “HE” next to a country’s name indicates that its G-SWA sample greatly overrepresents highly educated persons.

Full WFH days average 1.5 per week across the countries in our sample. We compute this average as the simple mean of the country-level conditional means. These conditional mean values range widely from 0.5 days in South Korea, 0.7 in Egypt and 0.8 in Serbia and Taiwan at the low end to 2.4 in Singapore and 2.6 in India at the high end.

WFH LEVELS WILL PERSIST BEYOND THE PANDEMIC

Figure 2 provides direct evidence that high WFH levels will persist beyond the pandemic. The underlying question is “After COVID, in 2022 and later, how often is your employer planning for you to work full days at home?” If the worker says his or her employer has neither discussed the matter nor announced a policy regarding WFH, we assign a zero value. Employers plan an average of 0.7 WFH days per week after the pandemic, ranging from 0.3 days in Greece, Serbia, and Taiwan to 0.4 in South Korea and Ukraine to 1.0 in Australia and the UK and 1.8 in India. As in Figure 1, there is a wide dispersion in the country-level conditional mean values.

MANY WORKERS WILL QUIT IF REQUIRED TO RETURN TO THE EMPLOYER’S WORKSITE 5+ DAYS PER WEEK

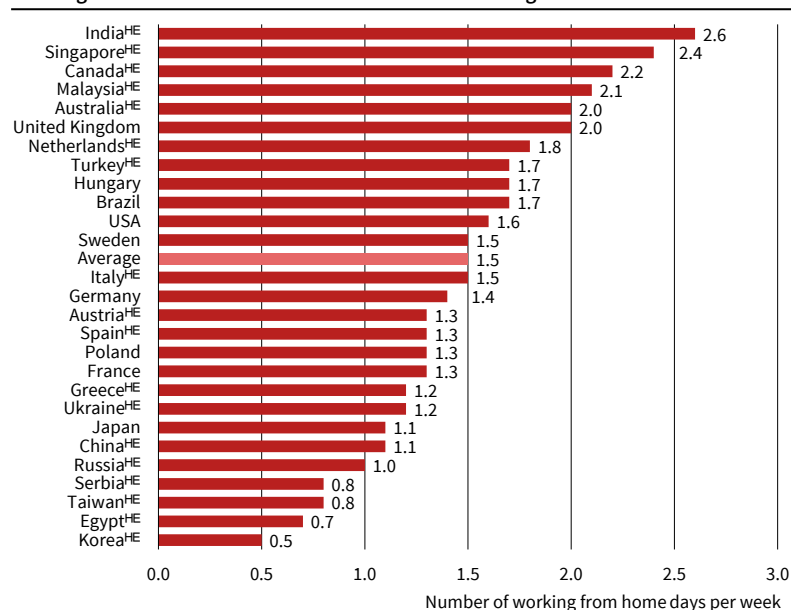
We also find that 26 percent of employees who currently WFH one or more days per week would quit or seek a job that allows WFH, if their employers require a return to 5+ days per week onsite. Using SWAA data for US workers, Barrero et al. (2021a) find that more than 40 percent of those who currently WFH one or more days per week would quit or seek a new job if their employers require a full return to the company worksite.

These patterns are in line with other recent empirical evidence. Bloom, Han and Liang (2022) conduct a randomized control trial of engineers, marketing and finance employees in a large technology firm, letting some of them WFH on Wednesday and Friday. This hybrid WFH arrangement cut quits by 35 percent and raised self-reported work satisfaction. After Spotify adopted a “work from anywhere” policy, attrition rates fell 15 percent in 2022 Q2 relative to 2019 Q2 (Kidwai 2022). This fall coincided with sharply increased quit rates for the overall economy.

THE IMPACT OF PANDEMIC-INDUCED EXPERIMENTATION ON PERCEPTIONS ABOUT WFH PRODUCTIVITY

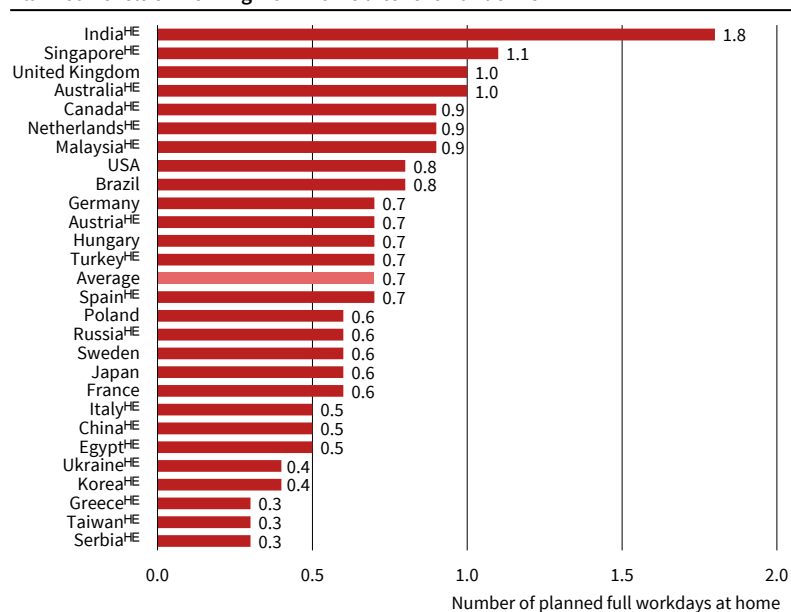
If the survey respondent had WFH experience at some point during the pandemic, we asked “Compared to your expectations before COVID (in 2019) how has working from home turned out for you?” Responses

Figure 1
Working from Home is Now a Global Phenomenon Among the Well Educated



Note: HE: Respondents with high educational attainment greatly overrepresented in the sample. This figure shows country-level conditional means for full WFH days in the survey week. We obtain these conditional means from OLS regressions that control for gender, age (20–29, 30–39, 40–49, 50–59), education (Secondary, Tertiary, Graduate), 18 industry sectors and survey wave, treating the raw U.S. mean as the baseline value. We fit the regression to data for 33,091 G-SWA respondents surveyed in mid 2021 and early 2022. The “Average” value is the simple mean of the country-level conditional means.
Source: Aksoy et al. (2022) and G-SWA. © ifo Institute

Figure 2
Planned Levels of Working from Home after the Pandemic



Note: HE: Respondents with high educational attainment greatly overrepresented in the sample. This figure shows country-level conditional means, as in Figure 1. We fit the regression to data for 34,875 G-SWA respondents who were surveyed in mid-2021 and early 2022. We limit the sample to persons with an employer in the survey week. The “Average” value is the simple mean of the country-level conditional means.
Source: Aksoy et al. (2022) and G-SWA. © ifo Institute



Steven Davis

is Senior Fellow at the Hoover Institution at Stanford University.



Mathias Dolls

is Deputy Director of the Center for Macroeconomics and Surveys at Ifo Institute.



Pablo Zarate

is a PhD student in Economics at Princeton University.

options are expressed in terms of WFH productivity relative to pre-pandemic expectations. Figure 3 shows the raw response distribution in the pooled G-SWA data.

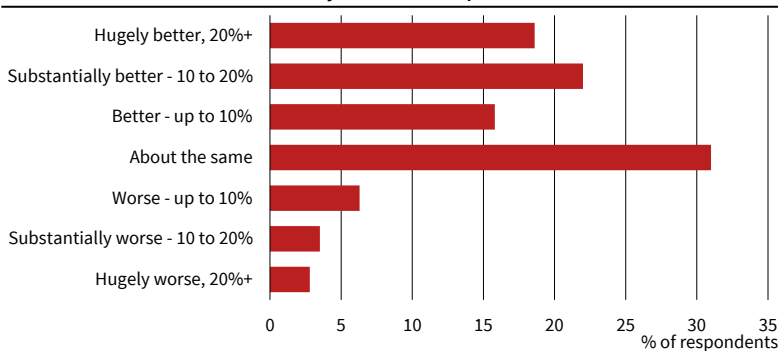
This response distribution has two important features. First, it is highly dispersed. Since WFH levels were quite low before the pandemic – about 0.25 full days per week, according to the American Time Use Survey – wide dispersion in productivity surprises leads to persistently higher WFH levels after the pandemic. Why? Because favorable surprises lead to more WFH in jobs and tasks on the margin, while unfavorable surprises lead to a continuation of near-zero WFH. Second, Figure 3 says that pre-pandemic WFH expec-

tations were overly negative for most workers before the pandemic. That is, pandemic-induced experimentation caused most workers to upwardly revise their self-assessed WFH productivity.

Additional analysis of our survey data shows that the conditional mean WFH productivity surprise is positive in all 27 countries – ranging up to 8 percent or more in Brazil, India, Italy, Spain, Sweden, Turkey, and the United States. Supposing that employer and worker assessments are aligned, these revisions in average perceived WFH productivity drive a re-optimization of working arrangements in jobs and tasks on the margin, contributing to a lasting increase in WFH levels.

Figure 3

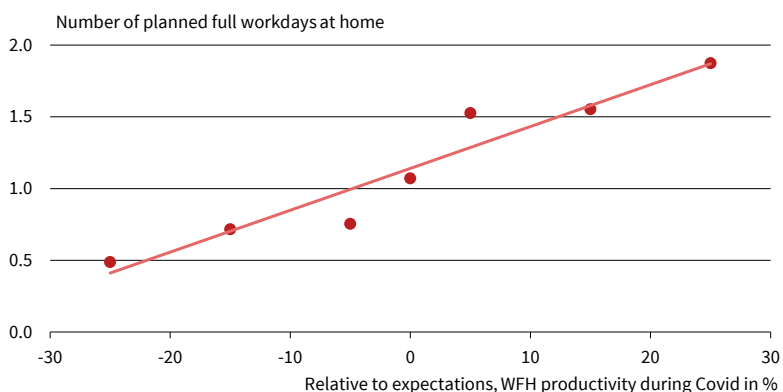
The Distribution of WFH Productivity Relative to Expectations



Note: This figure shows the distribution of WFH productivity relative to pre-pandemic expectations in a pooled sample of 19,027 respondents who worked from home at some point during the Covid-19 pandemic. Source: Aksoy et al. (2022) and G-SWA. © Ifo Institute

Figure 4

The Relationship Between Employer Plans and Productivity Surprises



Note: This figure shows the cross-sectional relationship between employer plans and worker-level productivity surprises in the pooled G-SWA data. The underlying survey questions are, first, "Compared to your expectations before Covid, how has working from home turned out for you?" and, second, "After Covid, in 2022 and later, how often is your employer planning for you to work full days at home? The sample contains 19,027 G-SWA respondents in early 2021 and mid 2022 who worked from home at some point during the Covid-19 pandemic. Source: Aksoy et al. (2022) and G-SWA. © Ifo Institute

PLANNED WFH LEVELS AFTER THE PANDEMIC RISE WITH WFH PRODUCTIVITY SURPRISES DURING THE PANDEMIC

Figure 4 shows the cross-sectional relationship between employer plans and worker-level productivity surprises in the pooled G-SWA data. Planned levels after the pandemic strongly increase with WFH productivity surprises during the pandemic. Moving from the bottom to the top of the surprise distribution involves an increase of about 1.3 days per week in the planned WFH level. This strong positive relationship between WFH productivity surprises and planned WFH levels holds in all 27 countries.

IMPLICATIONS AND POLICY CONCLUSIONS

We also develop evidence that the shift to WFH benefits workers. The reason is simple: Most workers value the opportunity to WFH part of the week, and some value it a lot. It's easy to see why. WFH saves on time and money costs of commuting and grooming, offers greater flexibility in time management, and expands personal freedom. Few people could WFH before the pandemic. Many can do so now. This dramatic expansion in choice sets benefits millions of workers and their families. Women, people living with children, workers with longer commutes, and highly-educated workers tend to put higher values on the opportunity to WFH. Previous studies also document preference heterogeneity around WFH in various settings and using a range of empirical methods. See, Bloom et al. (2015); Mas and Pallais (2017); Wiswall and Zafar

(2020); Barrero et al. (2021); He et al. (2021); and Lewandowski et al. (2022)).

That does not mean everyone benefits. Some people dislike remote work and miss the daily interactions with coworkers. Over time, people who feel that way will gravitate to organizations that stick with pre-pandemic working arrangements. Another concern is that younger workers, in particular, will lose out on valuable mentoring, networking, and on-the-job learning opportunities. We regard this concern as a serious one but have diffuse priors over whether, and how fully, it will materialize. Firms have strong incentives to develop practices that facilitate human capital investments. Individual workers who value those investment opportunities have strong incentives to seek out firms that provide them. If older and richer workers decamp for suburbs, exurbs and amenity-rich consumer cities, the resulting fall in urban land rents will make it easier for young workers to live in and benefit from the networking opportunities offered by major cities.

Many observers also express concerns about what the rise of remote work means for the pace of innovation. In this regard, we stress that the scope for positive agglomeration spillovers in virtual space is expanding, even as the shift to WFH diminishes agglomeration spillovers in physical space. How these countervailing forces will affect the overall pace of innovation remains to be seen, but our paper sets forth several reasons for optimism.

The implications for cities are more worrisome. The shift to WFH reduces the tax base in dense urban areas and raises the elasticity of the local tax base with respect to the quality of urban amenities and local governance. These developments warrant both hope and apprehension. On the hopeful side, they intensify incentives for cities to offer an attractive mix of taxes and local public goods. Cities that respond with efficient management and sound policies will

benefit – more so now than before the pandemic. On the apprehensive side, the economic and social downsides of poor city-level governance are also greater now than before the pandemic. For poorly governed cities, in particular, the larger tax-base elasticity raises the risk of a downward spiral in tax revenues, urban amenities, workers, and residents.

This column only scratches the surface of the evidence and analysis in our paper. All G-SWA data are freely available for use by researchers at <https://wfhresearch.com/gswadata/>.

REFERENCES

- Adams-Prassl, A., T. Boneva, M. Golin and C. Rauh (2020), “Working from Home: The Polarizing Workplace?” *VoxEU.org*, 2 September.
- Aksoy, C. G., J. M. Barrero, N. Bloom, S. J. Davis, M. Dolls and P. Zarate (2022), “Working from Home Around the World”, *Brookings Papers on Economic Activity*, Fall.
- Barrero, J. M., B. Nicholas and S. J. Davis (2020), “COVID-19 Is Also a Reallocation Shock”, *Brookings Papers on Economic Activity*, Summer.
- Barrero, J. M., N. Bloom and S. J. Davis (2021), “Why Working from Home Will Stick”, *NBER Working Paper 28731*.
- Bartik, A. W., Z. B. Cullen, E. L. Glaeser, M. Luca and C. T. Stanton (2020), “How the COVID-19 Crisis is Reshaping Remote Working”, *VoxEU.org*, 19 July.
- Bloom, N., R. Han and J. Liang (2022), “How Hybrid Working from Home Works Out”, *NBER Working Paper 30292*.
- Bloom, N., J. Liang, J. Roberts and Z. J. Ying (2015), “Does Working from Home Work? Evidence from a Chinese Experiment”, *Quarterly Journal of Economics* 130, 165-218.
- De Fraja, G., J. Matheson, J. Rockey and D. Times (2021), “The Geography of Working from Home and the Implications for the Service Industry”, *VoxEU.org*, 11 February.
- He, H., D. Neumark and Q. Weng (2021), “Do Workers Value Flexible Jobs? A Field Experiment”, *Journal of Labor Economics* 39, 709-738.
- Kidwai, A. (2022), “Spotify Allowed Its 6,500 Employees to Work from Anywhere in the World”, *Fortune*, 2 August.
- Lewandowski, P., K. Lipowski and M. Smoter (2022), “Working from Home during the Pandemic: A Discrete Choice Experiment in Poland”, *IZA Discussion Paper 15251*.
- Mas, A. and A. Pallais (2017), “Valuing Alternative Work Arrangements”, *American Economic Review* 107, 3722-3759.
- Wiswall, M. and B. Zafar (2018), “Preference for the Workplace, Investment in Human Capital, and Gender”, *Quarterly Journal of Economics* 133, 457-507.