

How working from home works out

By Nicholas Bloom

KEY TAKEAWAYS

- Forty-two percent U.S. workers are now working from home full time, accounting for more than two-thirds of economic activity.
- Policymakers should ensure that broadband service is expanded to ensure more workers can do their jobs away from a traditional office.
- As companies consider relocating from densely populated urban centers in the wake of the COVID-19 crisis, cities may suffer while suburbs and rural areas benefit.
- Working from home is here to stay, but post-pandemic will be optimal at about two days a week.

Working from home (WFH) is dominating our lives. If you haven't experienced the phenomenon directly, you've undoubtedly heard all about it, as U.S. media coverage of working from home jumped 12,000 percent since January¹.

But the trend toward working from home is nothing new. In 2014 I published *a study* of a Chinese travel company, Ctrip, that looked at the benefits of its WFH policies (Bloom et al. 2014). And in the past several months as the coronavirus pandemic has forced millions of workers to set up home offices, I have been advising dozens of firms and analyzing four large surveys covering working from home.²

The recent work has highlighted several recurring themes, each of which carries policy questions — either for businesses or public officials. But the bottom line is clear: Working from home will be very much a part of our post-COVID economy. So the sooner policymakers and business leaders think of the implications of a home-based workforce, the better our firms and communities will be positioned when the pandemic subsides.

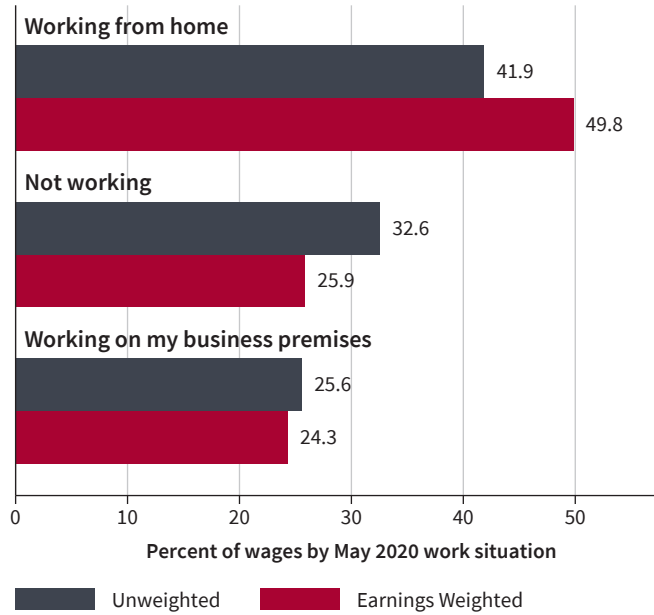
The U.S. economy is now a working from home economy

Figure 1 shows the work status of 2,500 Americans my colleagues and I surveyed May 21-25. The responders were between 20 and 64, had worked full time in 2019, and earned more than \$20,000. The participants were weighted to represent the U.S. by state, industry, and income.

1 Newsbank Access World News collection of approximately 2,000 national and local daily U.S. newspapers showing the percentage of articles mentioning “working from home” or “WFH.”

2 These are the U.S. Bureau of Labor Statistics American Time Use Survey (<https://www.bls.gov/news.release/flex2.htm>); the Survey of Business Uncertainty (<https://www.frbatlanta.org/research/surveys/business-uncertainty>); the Bank of England Decision Maker Panel (<http://decisionmakerpanel.com/>); and the survey I conducted of 2,500 U.S. employees.

Figure 1. Working from home now accounts for over 60% of US Economic Activity



Source: Response to the question “Currently (this week) what is your work status?” Response options were “Working on my business premises,” “Working from home,” “Still employed and paid, but not working,” “Unemployed, but expect to be recalled to my previous job,” “Unemployed, and do not expect to be recalled to my previous job,” and “Not working, and not looking for work.”

Data from a survey of 2,500 US residents aged 20 to 64, earning more than \$20,000 per year in 2019 carried out between May 21-29, by QuestionPro on behalf of Stanford University. Sample reweighted to match current CPS.

Shares shown weighted by earnings and unweighted (share of workers)

We find that 42 percent of the U.S. labor force are now working from home full time, while another 33 percent are not working — a testament to the savage impact of the lockdown recession. The remaining 26 percent are working on their business’s premises, primarily as essential service workers. Almost twice as many employees are working from home as at a workplace.

If we weight these employees by their earnings in 2019 as an indicator of their contribution to the country’s GDP, we see that these at-home workers now account for more than two-thirds of economic activity. In a matter of weeks, we have transformed into a working-from-home economy.

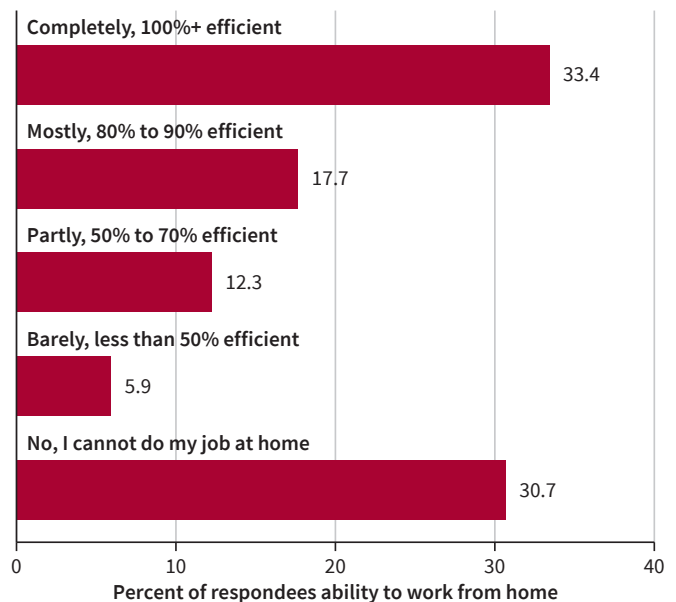
Although the pandemic has battered the economy to a point where we likely won’t see a return to trend until 2022 (Baker et al. 2020), things would have been far worse without the ability to work from home. Remote working has allowed us to maintain social distancing in our fight against COVID-19. So, working from home is a not only economically essential, it is a critical weapon in combating the pandemic.

The inequality time bomb

But it is important to understand the potential downsides of a WFH economy and take steps to mitigate them.

Figure 2 shows not everyone can work from home. Only 51 percent of our survey reported being able to WFH at an efficiency rate of 80 percent or more. These are mostly managers, professionals, and financial workers who can easily carry out their jobs on their computers by videoconference, phone, and email.

Figure 2. Not All Jobs Can be Carried Out Working from Home



Source: Data from a survey of 2,500 US residents aged 20 to 64, earning more than \$20,000 per year in 2019 carried out between May 21-25 2020, by QuestionPro on behalf of Stanford University. Sample reweighted to match the Current Population Survey.

The remaining half of Americans don't benefit from those technological workarounds — many employees in retail, health care, transportation, and business services cannot do their jobs anywhere other than a traditional workplace. They need to see customers or work with products or equipment. As such they face a nasty choice between enduring greater health risks by going to work or forgoing earnings and experience by staying at home.

In Figure 3 we see that many Americans also lack the facilities to effectively work from home. Only 49 percent of responders can work privately in a room other than their bedroom. The figure displays another big challenge — online connectivity. Internet connectivity for video calls has to be 90 percent or greater, which only two-thirds of those surveyed reported having. The remaining third have such poor internet service that it prevents them effectively working from home.

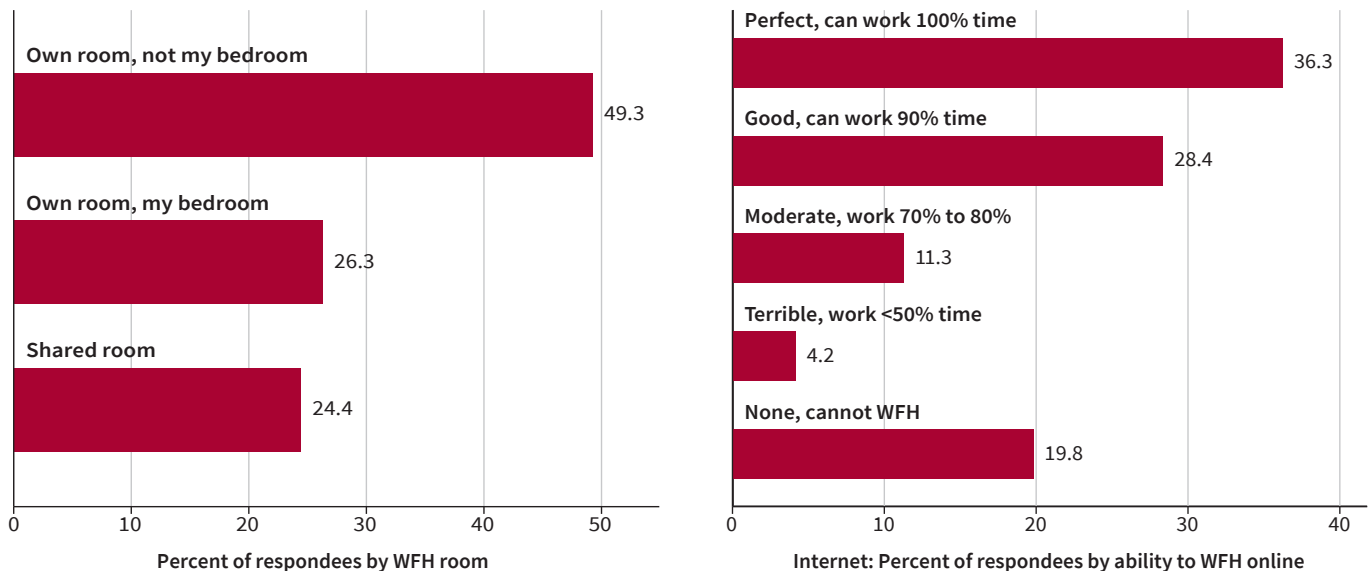
In Figure 4, we see that more educated, higher-earning employees are far more likely to work from home. These employees continue to earn, develop skills, and advance

careers. Those unable to work from home — either because of the nature of their jobs or because they lack suitable space or internet connections — are being left behind. They face bleak prospects if their skills erode during the shutdown.

Taken together, these findings point to a ticking inequality time bomb.

So as we move forward to restart the U.S. economy, investing in broadband expansion should be a major priority. During the last Great Depression, the U.S. government launched one of the great infrastructure projects in American history when it approved the Rural Electrification Act in 1936. Over the following 25 years, access to electricity by rural Americans increased from just 10 percent to nearly 100 percent. The long-term benefits included higher rates of growth in employment, population, income, and property values.

Figure 3. Working From Home Under Covid is Challenging for Many Employees



Source: Pre-COVID data from the BLS ATUS <https://www.bls.gov/news.release/flex2.htm>. During COVID data from a survey of 2,500 US residents aged 20 to 64, earning more than \$20,000 per year in 2019 carried out between May 21-25 2020, by QuestionPro on behalf of Stanford University. Sample reweighted to match the Current Population Survey.

Today, as policymakers consider how to focus stimulus spending to revive growth, a significant increase in broadband spending is crucial to ensuring that all of the United States has a fair chance to bounce back from COVID-19.

Trouble for the cities?

Understanding the lasting impacts of working from home in a post-COVID world requires taking a look back at the pre-pandemic work world. Back when people went to work, they typically commuted to offices in the center of cities. Our survey showed 58 percent of those who are now working from home had worked in a city before the coronavirus shutdown. And 61 percent of respondents said they worked in an office.

Since these employees also tend to be well paid, I estimate this could remove from city centers up to 50 percent of total daily spending in bars, restaurants, and shops. This is already having a depressing impact on the vitality of the downtowns of our major cities. And, as I argue below, this

upsurge in working from home is largely here to stay. So I see a longer-run decline in city centers.

The largest American cities have seen incredible growth since the 1980s as younger, educated Americans have flocked into revitalized downtowns (Glaeser 2011). But it looks like 2020 will reverse that trend, with a flight of economic activity from city centers.

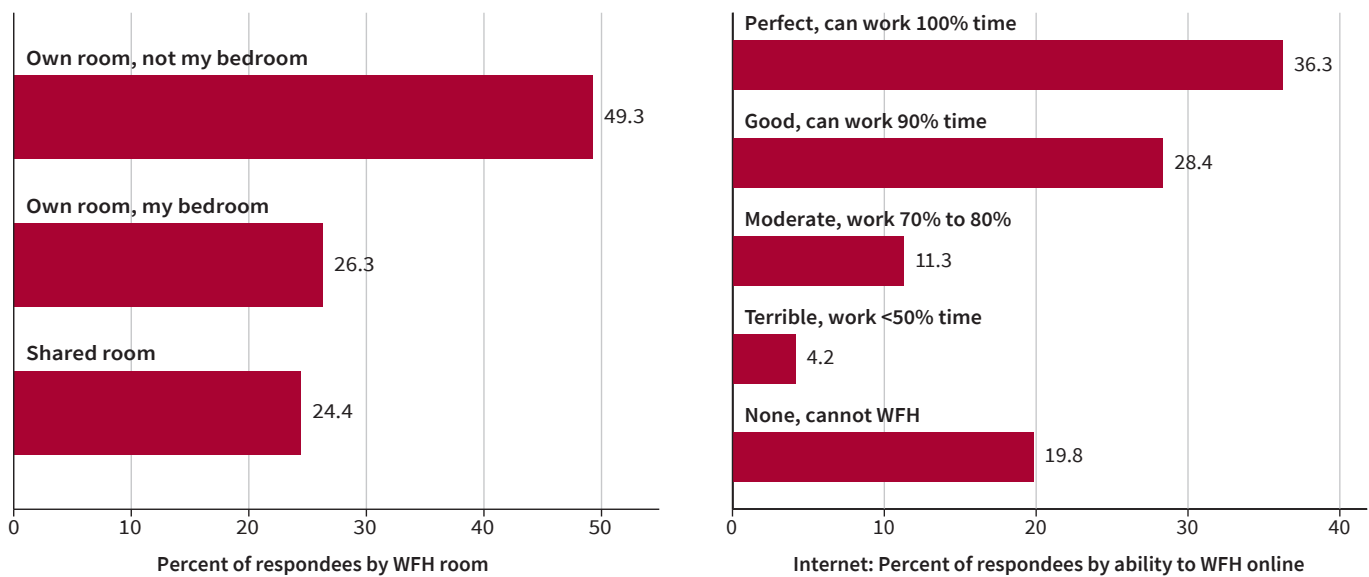
Of course, the upside is this will be a boom for suburbs and rural areas.

Working from home is here to stay

Working from home is a play in three parts, each totally different from the other. The first part is *pre-COVID*. This was an era in which working from home was both rare and stigmatized.

A [survey of 10,000](#) salaried workers conducted by the Bureau of Labor Statistics showed only 15 percent of

Figure 4. Working From Home is much more common among educated higher income employees



2019 carried out between May 21-25 2020, by QuestionPro on behalf of Stanford University. Sample reweighted to match the Current Population Survey. We code a respondent as working from home pre-COVID if they report working from home one day per week or more.

employees ever had a full day working from home.³

Indeed, only 2 percent of workers ever worked from home full time. From talking to hundreds of remote employees for my research projects over the years, I found these are mostly either lower-skilled data entry or tele-sales workers or higher-skilled employees who were able to do their jobs largely online and had often been able to keep a job despite locating to a new area.

Working from home before the pandemic was also hugely stigmatized — often mocked and ridiculed as “shirking from home” or “working remotely, remotely working.”

In a 2017 *TEDx Talk*⁴, I showed the result from an online image search for the words “working from home” which pulled up hundreds of negative images of cartoons, semi-naked people or parents holding a laptop in one hand and a baby in the other.

Working from home *during* the pandemic is very different. It is now extremely common, without the stigma, but under *challenging conditions*. Many workers have kids at home with them. There’s a lack of quiet space, a lack of choice over having to work from home, and no option other than to do this full time. Having four kids myself I have definitely experienced this.

COVID has forced many of us to work from home under the worst circumstances.

But working from home *post*-COVID should be what we look forward to. Of the dozens of firms I have talked to, the typical plan is that employees will work from home between one and three days a week and come into the office the rest of the time. This is supported by our evidence on about 1,000 firms from the *Survey of Business Uncertainty* I run with the Atlanta Fed and the University of Chicago.⁵

Before COVID, 5 percent of working days were spent at home. During the pandemic, this increased eightfold to 40 percent a day. And post-pandemic, the number will likely drop to 20 percent.

But that 20 percent still represents a fourfold increase of the pre-COVID level, highlighting that working from home is here to stay. While few firms are planning to continue full time WFH after the pandemic ends, nearly every firm I have talked to about this has been positively surprised by how well it has worked.

The office will survive but it may look different

“Should we get rid of our office?” I get that question a lot.

The answer is “No. But you might want to move it.”

Although firms plan to reduce the time their employees spend at work, this will not reduce the demand for total office space given the need for social distancing. The firms I talk to are typically thinking about halving the density of offices, which is leading to an increase in the overall demand for office space. That is, the 15 percent drop in working days in the office is more than offset by the 50 percent increase in demand for space per employee.

What is happening, however, is offices are moving from skyscrapers to industrial parks. Another dominant theme of the last 40 years of American cities was the shift of office space into high-rise buildings in city centers. COVID is dramatically reversing this trend as high rises face two massive problems in a post-COVID world.

Just consider mass transit and elevators in a time of mandatory social distancing. How can you get several million workers in and out of major cities like New York, London, or Tokyo every day keeping everyone six feet apart? And think of the last elevator you were in. If we strictly enforce six feet of social distancing, the maximum

3 U.S. Bureau of Labor Statistics, Job Flexibilities and Work Schedules News Release. Sept. 24, 2019 <https://www.bls.gov/news.release/flex2.htm>.

4 TEDx Stanford. 2017 <https://www.youtube.com/watch?v=oiUyyZPIHyY>.

5 *Firms Expect Working from Home to Triple*. May 28, 2020. Federal Reserve Bank of Atlanta <https://www.frbatlanta.org/blogs/macroblog/2020/05/28/firms-expect-working-from-home-to-triple>.

capacity of elevators could fall by 90 percent⁶, making it impossible for employees working in a skyscraper to expediently reach their desks.

Of course, if social distancing disappears post-COVID, this may not matter. But given all the uncertainty, my prediction is that when a vaccine eventually comes out in a year or so, society will have become accustomed to social distancing. And given recent nearly missed pandemics like SARS, Ebola, MERS, and avian flu, many firms and employees may be preparing for another outbreak and another need for social distancing. So my guess is many firms will be reluctant to return to dense offices.

So what is the solution? Firms may be wise to turn their attention from downtown buildings to industrial park offices, or “campuses,” as hi-tech companies in Silicon Valley like to call them. These have the huge benefits of ample parking for all employees and spacious low-rise buildings that are accessible by stairs.

Two types of policies can be explored to address this challenge. First, towns and cities should be flexible on zoning, allowing struggling shopping malls, cinemas, gyms, and hotels to be converted into offices. These are almost all low-rise structures with ample parking, perfect for office development.

Second, we need to think more like economists by introducing airline-style pricing for mass transit and elevators. The challenges with social distancing arise during peak capacity, so we need to cut peak loads.

For public transportation this means steeply increasing peak-time fares and cutting off-peak fares to encourage riders to spread out through the day.

For elevator rides we need to think more radically. For example, office rents per square foot could be cut by 50 percent, but elevator use could be charged heavily

during the morning and evening rush hours. Charging firms, say \$10 per elevator ride between 8:45 a.m. and 9:15 a.m. and 4:45 p.m. and 5:15 p.m., would encourage firms to stagger their working days. This would move elevator traffic to off-peak periods with excess capacity. We are moving from a world where office space is in short supply to one where elevator space is in short supply, and commercial landlords should consider charging their clients accordingly.

Making a smooth transition

From all my conversations and research, I have three pieces of advice for anyone crafting WFH policies.

First, working from home should be part time.

Full-time working from home is problematic for three reasons: It is hard to be creative at a distance, it is hard to be inspired and motivated at home, and employee loyalty is strained without social interaction.

My experiment at Ctrip in China followed 250 employees working from home for four days a week for nine months and saw the challenges of isolation and loneliness this created.

For the first three months employees were happy — it was the euphoric honeymoon period. But by the time the experiment had run its full length, two-thirds of the employees requested to return to the office. They needed human company.

Currently, we are in a similar honeymoon phase of full-time WFH. But as with any relationship, things can get rocky and I see increasing numbers of firms and employees turning against this practice.

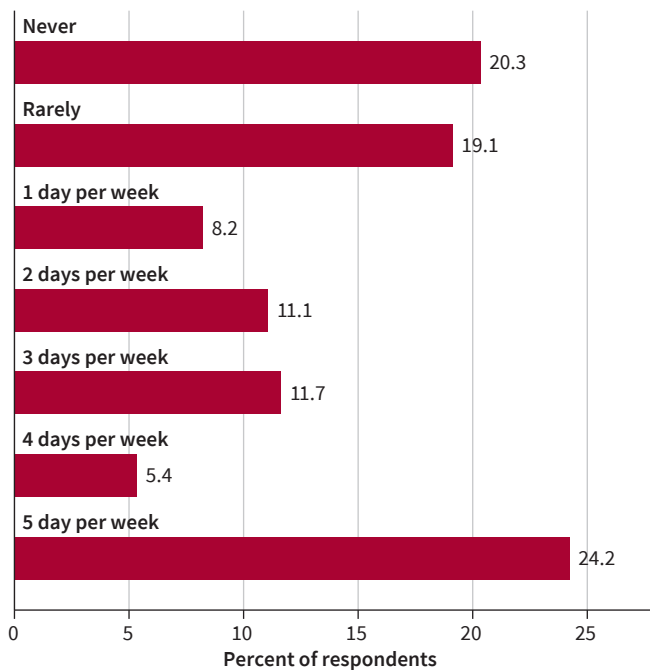
So the best advice is plan to work from home about 1 to 3 days a week. It'll ease the stress of commuting, allow for employees to use their at-home days for quiet, thoughtful work, and let them use their in-office days for meetings and collaborations.

⁶ In a packed elevator each person requires about four square feet. With six-foot spacing we need a circle of radius six-feet around each person, which is over 100 square feet. If an elevator is large enough to fit more than one person, experts have advised riders to stand in corners and face the wall, as explained in this NPR report: <https://tinyurl.com/ybgjg3jc>.

Second, working from home should be optional.

Figure 5 shows the choice of how many days per week our survey of 2,500 American workers preferred. While the median responder wants to work from home two days a week, there is a striking range of views. A full 20 percent of workers never want to do it while another 25 percent want to do it full time.

Figure 5. There is wide variation in employees demand for WFH post-COVID



Source: Response to the questions: “In 2021+ (after COVID) how often would you like to have paid work days at home?”

Data from a survey of 2,500 US residents aged 20 to 64, earning more than \$20,000 per year in 2019 carried out between May 21-25, by QuestionPro on behalf of Stanford University. Sample reweighted to match current working from home ratios in the 2017/2018 American Time Use Survey.

The remaining 55 percent all want some mix of office and home time. I saw similarly large variations in views in my China experiment, which often changed over time. Employees would try WFH and then discover after a few months it was too lonely or fell victim to one of the three enemies of the practice — the fridge, the bed, and the television — and would decide to return to the office.

So the simple advice is to let employees choose, within limits. Nobody should be forced to work from home full time, and nobody should be forced to work in the office full time. Choice is key — let employees pick their schedules and let them change as their views evolve. The two exceptions are new hires, for whom maybe one or two years full time in the office makes sense, and underperformers, who are the subject of my final tip.

Third, working from home is a privilege, not an entitlement.

For WFH to succeed, it is essential to have an effective performance review system. If you can evaluate employees based on output — what they accomplish — they can easily work from home. If they are effective and productive, great; if not, warn them, and if they continue to underperform, haul them back to the office.

This of course requires effective performance management. In firms that do not have effective employee appraisal systems management, I would caution against working from home. This was the lesson of *Yahoo in 2013*. When Marissa Meyer took over, she found there was an ineffective employee evaluation system and working from home was hard to manage. So WFH was paused while Meyer revamped Yahoo’s employee performance evaluation.

The COVID pandemic has challenged and changed our relationships with work and how many of us do our jobs. There’s no real going back, and that means policymakers and business leaders need to plan and prepare so workers and firms are not sidelined by otherwise avoidable problems. With a thoughtful approach to a post-pandemic world, working from home can be a change for good.

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