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The Future of Work: Consider the Changing Climate

The latest entry in a special project in which business and labor leaders, social scientists, technology visionaries, activists, and journalists weigh in on the most consequential changes in the workplace.

JULIET B. SCHOR · 5 HOURS AGO

Over the last year or two I've noticed that conversations about the future of work are now mostly about machines—how smart ones will do fantastic things to make our lives better, or how they'll make human labor redundant and create a jobless dystopia. My training in economics has led me to be skeptical of both sides in this debate. After all, during the Industrial Revolution extraordinary labor-saving technological change had both good (cheaper products) and bad (pollution) effects. It also resulted in a tremendous increase in hours of work. The lesson from this historical episode, and plenty of others, is that technology doesn't determine incomes, distribution, employment, or quality of life. It's one factor in a much larger context.

Today, that context must include consideration of climate change, which has been almost totally missing from discussions about the future of work. The most obvious reason climate change matters is that it promises to be extremely disruptive. Even if the global community can pull off the equivalent of a Hail Mary

pass and [limit warming to two degrees](#) Celsius, plenty of climate chaos is still in store. At this point, [a future](#) of four degrees of warming is more likely, given current national pledges for emissions reductions and considerable uncertainty about them.

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This implies catastrophic sea level rise, drought, plummeting agricultural yields, frequent extreme weather, and human migrations on a large scale. These will lead to some predictable changes in the world of work: more need for first responders, health professionals, civil engineers, and aid workers, among other occupations. Climate chaos will also have large macroeconomic effects, reducing investment, consumption, and employment. A [just-published study in *Nature*](#) found that more than a fifth of GDP will be lost by the end of this century, much more than previous models have predicted. Another increasingly likely scenario is the bursting of the [carbon bubble](#), once reserves already priced into fossil fuel company valuations are recognized to be unburnable and these companies' assets collapse. Climate mayhem leads to economic mayhem. The operative word for the future of work would be shrinkage.

But this apocalyptic future is not our only option. Acting forcefully on emissions today could dramatically increase the likelihood of not only containing warming, but also making work more sustainable, satisfying, and productive. To see how, we need to consider the connection between working hours and carbon emissions, a key link that has been absent from all climate models and the climate change conversation.

[In my research](#) I have found that countries with higher average annual hours of work have higher carbon emissions after accounting for other factors. The converse is also true: lower hours are associated with lower emissions. The main reason is that opting for shorter schedules puts a country on a trajectory in which production, with its associated energy use, is not maximized. There's a leisure/GDP trade-off, and short-hour countries are opting for more free time. A second dynamic is at the micro level—households who are time stressed (due to long hours of work) tend to use more energy and have higher consumption. By contrast, acting sustainably typically requires more time. An obvious example is transportation. The faster one wants to travel, the more energy one must use. There's an energy ladder from walking, through buses, trains, and planes. Existing models suggest the effect of hours on emissions is large. [One study](#) estimates that a modest 0.5 percent annual reduction in working hours through 2100 could eliminate between a quarter and a half of the projected warming that is not already locked into the system. My research also finds that shorter hours should be a key component of emissions-reduction strategies.

Right now this approach may seem infeasible. Employer-paid health insurance is a major barrier to shorter hours. When benefits are high, employers prefer a smaller number of long-hours workers. We are also in a political moment when working less cuts against a conservative, pro-work ethic. But if we could open our imaginations to a society in which good jobs did not come with killer schedules, we'd reap many benefits. In addition to reducing carbon pollution, both men and women could achieve that elusive "work/family balance." Social and family life would improve, stress would be reduced. People would have time for hobbies and passions and to participate in political life.

How could we pay for it? Partly by the gains in lower pollution and less climate damage, and partly by slowing the upward ratchet of consumer goods and services.

There would also be a benefit in the labor market—shorter hours will help alleviate unemployment. When jobs are structured with shorter schedules employers need to do more hiring. (The effect isn't one to one. Reduced worktime leads to higher hourly productivity. But that's a good thing, and one more way a policy to decrease hours can be paid for.)

This brings us back to the machines. If it's true that computers will increasingly do the work of humans, and I think it is, then both sides of this debate are probably right. There will be enormous benefits. And jobs will become scarcer and scarcer. Unless of course there's a way to equitably share the work that does exist, by asking each of us to toil only as many hours as production requires. In the digital future, that may be only a few.

For the [Future of Work](#), a special project from the [Center for Advanced Study in the Behavioral Sciences](#) at Stanford University, business and labor leaders, social scientists, technology visionaries, activists, and journalists weigh in on the most consequential changes in the workplace, and what anxieties and possibilities they might produce.