

# New research casts doubt on environmental benefits of hybrid working

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A permanent post-pandemic switch to hybrid working may do little to reduce carbon emissions as the majority of remote workers travel further each week than their office-based counterparts, new research from the

University of Sussex Business School reveals.

The newly published study finds that, prior to the pandemic, most remote workers in England traveled further each week than office-based workers—despite taking fewer trips. This was partly because remote workers tended to live further from their workplace than non-teleworkers, so had longer, if less frequent, commutes. In addition, remote workers engaged in more travel on the days when they worked from home—for example, by making extra trips to shops and cafes.

The researchers also found that the total weekly travel was greater in households where at least one member was remote working, suggesting that the presence of remote workers in a home encourages greater travel by their flatmates and family members.

The study, published in the journal *Transportation Research Part A*, finds that in the 15 years prior to the COVID-19 pandemic, the growing trend towards remote working had a negligible impact on travel emissions. While regular remote workers traveled slightly less than non-teleworkers, irregular remote workers traveled significantly more.

Steven Sorrell, Professor of Energy Policy in the Science Policy Research Unit (SPRU) at the University of Sussex Business School and Co-Director of the Digital Society theme of the Centre for Research into Energy Demand Solutions, said:

"Our study finds that remote working can have unintended consequences that offset the potential travel and carbon savings. If you only commute a couple of days a week, you may choose to live further from your workplace. And if you work at home during the day, you may choose to take additional trips—perhaps to pick up some shopping or simply to get out of the house. We must consider these possibilities when estimating the contribution of teleworking to carbon targets."

The study used data from the English National Travel Survey to estimate the impact of teleworking on the travel patterns of English households over the period 2005 to 2019, analyzing information on around 3.6 million trips by approximately 269,000 individuals.

The researchers compared the number of trips and distance traveled by remote workers each week with the number of trips and distance traveled by non-teleworkers, controlling for a range of socio-economic, demographic and regional variables.

With these controls, the researchers found that people who worked from home three or more times a week lived an average of 4.2 miles further from their workplace than office-based workers, while those who worked from home once or twice a week lived an average of 7.6 miles further.

Those working at home once or twice a week took 14.9% fewer commute trips but traveled 10.9 % farther (+8 miles) each week than commuters who traveled into work every day. Those who spend the majority of their week working at home took 25.3% fewer trips and traveled 20% less far (-14.69 miles). However, since the first group outnumbered the second group by about four to one, the majority of teleworkers traveled farther each week than non-teleworkers over this period.

In addition, the researchers found that remote workers took around 8% more trips for non-work purposes each week, with infrequent remote workers traveling 12.9% farther (+9 miles) than non-teleworkers. While proportionately more of these additional trips were by public transport and active modes; all remote workers took around 7% more trips by car for non-work purposes, and irregular teleworkers traveled 8% further (+4.4 miles) by car. This additional non-work travel further eroded the travel savings from fewer commutes.

Collectively, households with remote workers traveled 15.9% further (+22 miles) each week than households with no remote workers, although more of that additional travel was by [public transport](#) (+46.5%, i.e. +8.6 miles) than by car (+7.3%, i.e. + 8.4 miles).

Bernardo Caldarola, of the Science Policy Research Unit (SPRU) at the University of Sussex Business School and lead author of the study, said:

"Overall our study results suggest that, for the majority of remote workers in England, a combination of residential relocation, induced non-work travel and the influence on the travel patterns of other household members offset the benefits of fewer commutes.

"While we have found significant associations between remote working and travel patterns, we have not demonstrated a causal relationship. The differences in travel patterns between teleworkers and non-teleworkers may arise from unobserved differences between the two groups, rather than from teleworking per se and we need more research to explore this issue.

"The outcomes we observed are not inevitable. Public policy can encourage more sustainable residential and travel patterns and these in turn can enable teleworking to make a bigger contribution to reducing emissions. However, this will not happen on its own—it needs to be actively encouraged."

**More information:** Bernardo Caldarola et al, Do teleworkers travel less? Evidence from the English National Travel Survey, *Transportation Research Part A: Policy and Practice* (2022). [DOI: 10.1016/j.tra.2022.03.026](https://doi.org/10.1016/j.tra.2022.03.026)

Provided by University of Sussex

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