

Greenhouse Gas Emission Impacts of Carsharing in North America

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Why did we select this research?

With transportation accounting for 30% of greenhouse gas (GHG) emissions in the U.S. alone, carsharing has been heralded by many as a tool for mitigating pollution and environmental degradation. Using statistical analysis, this study by Martin and Shaheen evaluates just how much carsharing members contribute to GHG emission impacts, within North America.

Key findings

The authors conduct an online survey with members of major carsharing organizations and evaluate the change in annual household emissions (e.g., impact) of respondents that joined carsharing. The results show that a majority of households joining carsharing are increasing their emissions by gaining access to cars. However, individually, these increases are small. In contrast, the remaining households are decreasing their emissions by shedding vehicles and driving less. The collective emission reductions outweigh the collective emission increases, implying that carsharing reduces GHG emissions as a whole. Martin and Shaheen note that, as carsharing continues to thrive, this balance and overall benefits of shared vehicles is likely to change in the near future.

- The average observed vehicle kilometers traveled per year declined by 27%.
- While the majority of carsharing participants show a (small) increase in their annual emissions, the cumulative carsharing emission change is negative, the equivalent of -0.84t GHG/year per household.
- Carsharing appears to enable members to converge to a shared vehicle low-mileage lifestyle. Car-less households converge to this lifestyle by increasing

emissions, and car-holding households converge by decreasing emissions.

Reference

Martin, E. W., & Shaheen, S. A. (2011). Greenhouse gas emission impacts of carsharing in North America. *IEEE Transactions on Intelligent Transportation Systems*, 12(4), 1074-1086. Retrieved from:

<http://ieeexplore.ieee.org/abstract/document/5951778/>
