

Investigating the Temporary vs. Longer-Term Impacts of the COVID-19 Pandemic on Mobility

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Car Travel Declined in the US (Less Than Transit) and It Is Rebounding



Changes in routing requests since January 2020 in Minneapolis, MN. Source: *Apple mobility trends*

UCDAVIS INSTITUTE OF TRANSPORTATION STUDIES During the pandemic, the United States experienced:

- Steep decline in air travel
- Steep decline in use of public transportation
- Sharp reduction in use of shared mobility
- Suspension of pooled rides (e.g. UberPOOL, Lyft Share)
- Temporary reductions in vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions
- Increase in adoption of teleworking
- Devastating impacts on employment
- Recovery in car travel after reopening of activities

UC Davis blog on impacts of pandemic on transportation: <u>https://its.ucdavis.edu/blog-post/what-the-present-pandemic-means-for-the-future-of-transportation/</u>



UC Davis COVID-19 Mobility Study

- Research on temporary vs. longer-term impacts of the pandemic
- Targeted data collections in 15 regions of the United States and two regions in Canada (+ convenience sample internationally)
- Information collected from more than 11,000 survey respondents

Previous 2018-2019 data COVID-19 Spring 2020 data Information on many topics, e.g. Data collection on: Household organization Impacts of the COVID-19 on lifestyles Telecommuting patterns Employment and activities Household organization and child care E-shopping behaviors E-shopping behaviors Travel patterns Emerging delivery services Vehicle ownership Emerging delivery services Current travel patterns Vehicle ownership Personal attitudes and preferences Shared mobility adoption Shared mobility adoption Personal attitudes and preferences Propensity towards AVs

COVID-19 Fall 2020 data

New round of data collection launched in December 2020

Increased focus in the greater Los Angeles region to support SCAG planning and policy efforts

Interest in evolution of changes over time

Integration with passively-collected (i.e. cell phone) data

- Future waves of data collection planned for Spring 2021 and beyond
- More information at <u>postcovid19mobility.ucdavis.edu</u>

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COVID-19 MOBILITY STUDY



Impacts of COVID-19 Pandemic on Jobs and Financial Situation



- Individuals in lower-income households are more likely to report they are financially struggling.
- Lower-income workers are more likely to have been furloughed without pay, to have lost their job or to have place of employment go out business.
- Lower-income workers are more likely to be considered essential workers and to have continued to physically commute during the pandemic.

	Household Income		
	Less than \$50,000	\$50,000 to \$99,999	\$100,000 or more
Total sample (n=8,834)	31.82%	31.12%	37.06%
I'm furloughed with pay from my previous job (n=136)	33.10%	41.90%	25.00%
I'm furloughed without pay from my previous job (n=425)	37.20%	30.60%	32.20%
I was let go from my job during the COVID-19 pandemic (n=340)	49.70%	28.20%	22.10%
My place of employment went out of business during the COVID-19 pandemic (n=115)	55.70%	28.70%	15.70%



Commuting and Telecommuting

- Remote work and telecommuting more broadly accepted by employers and employee during the pandemic
- Home improvements (set up of home offices, upgrade of internet connection) might encourage continuation of remote working in the future (to some extent)
- Changes in self-reported number of telecommuting days in a week:







Dataset L (N = 586)

- Higher-income and white-collar office workers are much more likely to be able to work remotely.
- Almost 46% of low-income respondents in our sample reported they never telecommute, while only 11.5% of high-income respondents reported they never telecommute.



How did the pandemic affect shopping behaviors?

Online Shopping:

- "Democratization of e-shopping", with increased adoption among broader population segments, including elderly and those concerned about health impacts of the pandemic, with low-income households still lagging behind
- Large impacts on goods movement for the delivery of purchased products
- The pandemic accelerated an existing trend in growth of e-shopping, with likely permanent changes on transportation

Food Delivery Apps:

- Higher adoption among younger, urban, dynamic segments of population
- Increase in food delivery highly correlated with reduction in restaurant visits
- Eventual (at least partial) reversal of this trend when patrons return to restaurants







Increase in Car-dependence of Society?

- A portion of survey respondents report an interest in increasing vehicle ownership:
 - The percentage of those planning to increase vehicle ownership is slightly higher among those living in lower-income households and in zero-vehicle households.
- The reported intentions match car sales data from dealers during 2020.



category, and (b) vehicle ownership status

- Dataset O (*N* = 8,285)
- The interest in adopting a *car-light* and multimodal lifestyle is found to be lower than in the 2018 and 2019 data collections.





The Pandemic is Increasing Equity Gaps, and Might Worsen Environmental Challenges

Equity Issues:

- Lower-income individuals are more likely to have lost their job during the pandemic and to be financially struggling.
- A larger proportion of lower-income workers are essential workers and have continued to physically commute to work.
- Technological solutions are more often adopted by younger and tech-savvy individuals with senior citizens, less-educated individuals and minorities more likely to be left behind.

Traffic Congestion and Environmental Impacts:

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- Discretionary trips (often made by car) at least partially compensate for reduced volume of commuting trips.
- Our survey data show that a considerable portion (35-40%) of those that reduced use of public transit during the pandemic are now driving more.
- Increased car dependence, higher vehicle ownership and substitution of airplane trips with car travel might contribute to increasing traffic congestion.
- Trends might be exacerbated by reduced transit revenues and (eventual) reductions in service.







Changes in transportation supply and business models

- Changes in supply side (e.g., JUMP-Lime merger) will affect demand.
- Potentially affected sectors include shared mobility, airline sectors, etc.





Source: Lime UCDAVIS INSTITUTE OF TRANSPORTATION STUDIES

Cities Have Reclaimed (Some) Space from Cars

 "Small window of opportunity to transform short-term responses into long-term change—and to create livable, breathable cities for all"
[World Bank Blog, August 2020]



- City level policies have promoted walking and bicycling.
- Some temporary changes are being converted into permanent.



New York City (Sources: 6sqft.com)



Source: Elizabeth Conley, Houston Chronicle



Will we go back to our previous life...?

- There are reasons to believe that after a large disruption, individuals will (to a certain extent) go back to their behaviors and habits from before the pandemic.
- However, the longer the disruption, the more likely longer-term impacts might derive (and modifications in lifestyles might persist). Among other effects...
 - (Part-time) telecommuting might persist at levels somewhere in-between the pre-pandemic levels and the increased telecommuting rates during COVID-19 pandemic.
 - Increase in e-shopping will largely persist, as the pandemic mainly accelerated and reinforced a pre-existing trend.
 - Retail space will likely be modified forever, with some stores shutting down and that will not reopen.
 - Economic activities will need time to recover (a long transition will follow).
- The analysis of longitudinal data will allow investigating changes in lifestyles and which individuals might continue to engage in activity and travel patterns established during the pandemic.





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More info on the UC Davis COVID-19 Mobility Study available at: postcovid19mobility.ucdavis.edu

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