



Temporary and Longer-term Impacts of the COVID-19 Pandemic on Mobility in the SCAG Region

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Since 2020, the COVID-19 pandemic has caused huge impacts on society through...



...modifications in activity organization



...impacts on employment and travel



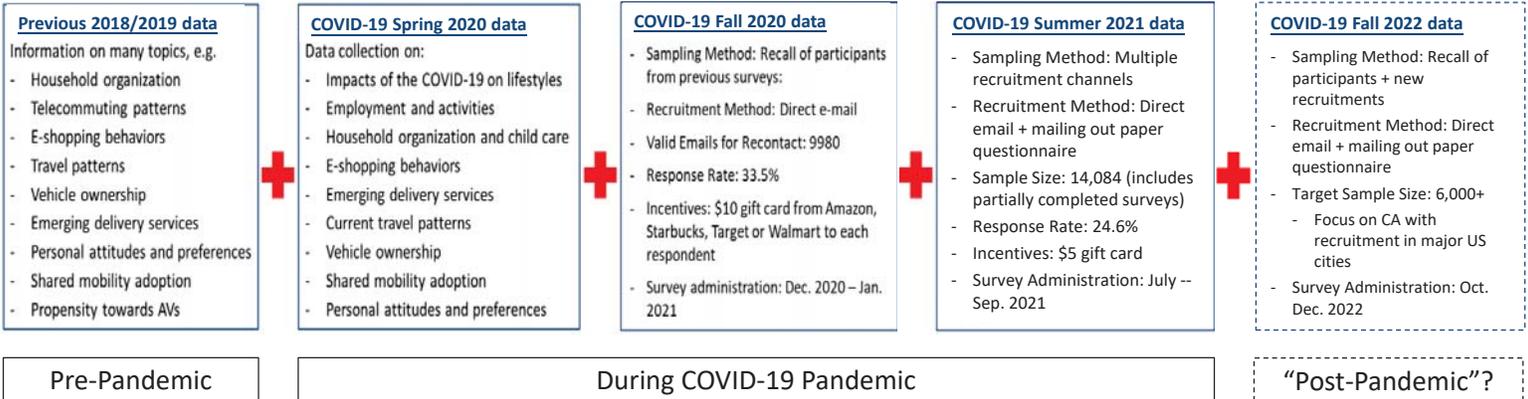
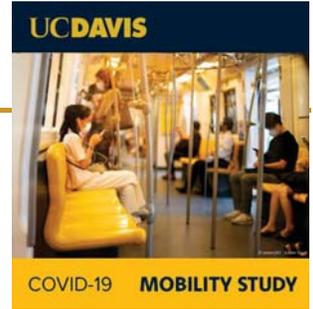
...the increased reliance on ICT solutions, including e-shopping

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UC Davis COVID-19 Mobility Study

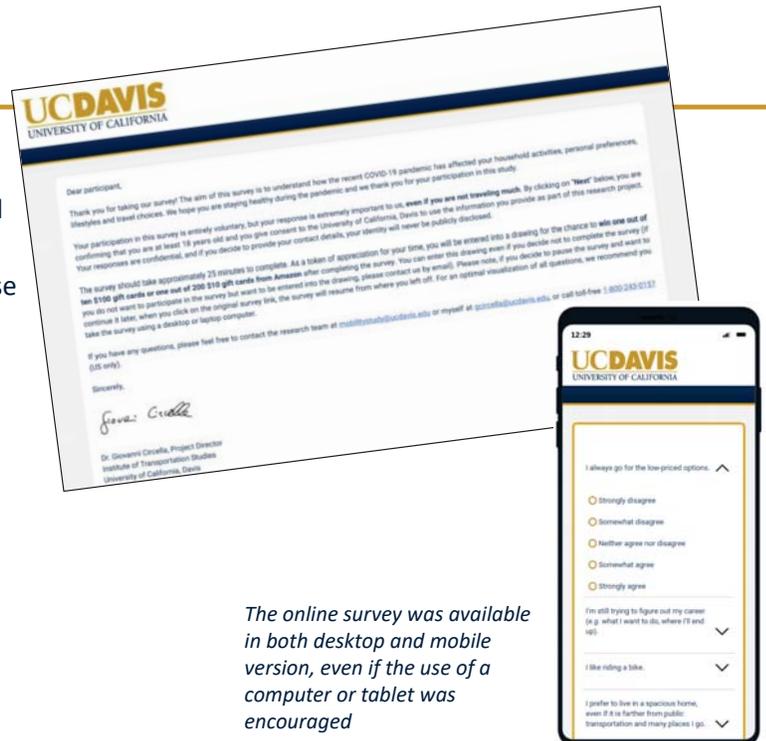
- Research on temporary vs. longer-term impacts of the pandemic
- Targeted data collections in 15 regions of the United States and two regions in Canada
- Starting in Fall 2020, special focus on SCAG region



COVID-19 Survey Content

All survey versions collected information on:

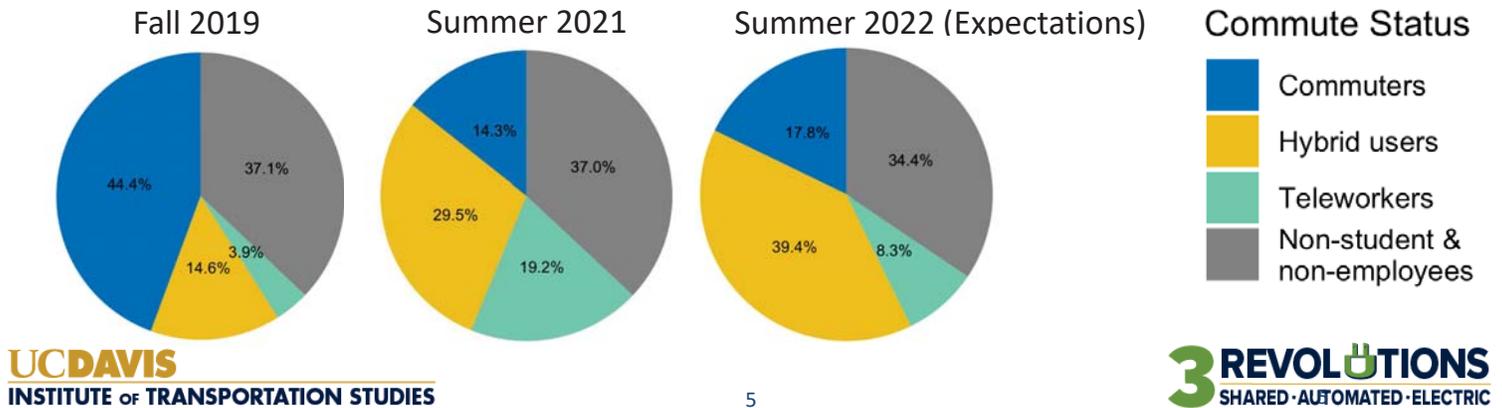
1. Attitudes and preferences on transportation, residential location, environmental topics, etc.
2. Impacts of COVID-19 pandemic on lifestyle, including use of technology
3. Employment status, work and study activities
4. Household organization and child care
5. Online and in-person shopping patterns (for groceries, food delivery services, visits to restaurants, etc.)
6. Current travel choices (by trip purposes and modes)
7. Use of emerging transportation services
8. Household vehicle ownership and eventual plans for vehicle purchase
9. Household and individual sociodemographics



The online survey was available in both desktop and mobile version, even if the use of a computer or tablet was encouraged

A Large Shift to Teleworking and Hybrid Work

- As of Summer 2021, the percentage of respondents who adopted hybrid work to some degree was approximately double than in the pre-pandemic period.
- Conversely, the proportion of respondents that worked entirely at the workplace was much lower than before the pandemic.
- A significant portion of respondents expect to continue to engage in hybrid work.

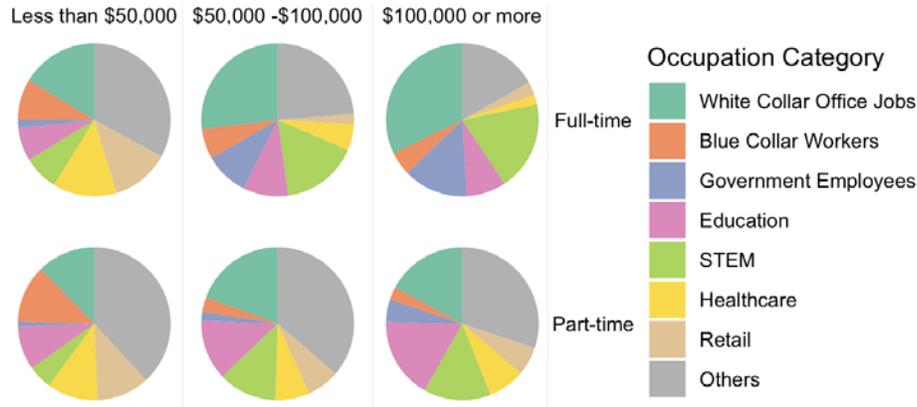


The transition to remote work differs across population segments

- Certain population segments, e.g. higher-income, better-educated individuals, full-time workers and urban residents, were more likely to adopt telework and flexible work schedules.
 - The share of teleworkers among high-income individuals increased from 2.5% in fall 2019 to 27.7% in fall 2020, to then decline to 23.8% in summer 2021 and was expected to reach 8.8% in summer 2022. They also had a higher share of hybrid workers at all timepoints which also kept increasing during the pandemic.
 - Among better-educated individuals, those who engaged in hybrid work increased from 19.4% in fall 2019 to 28.5% in fall 2020, 34.7% in summer 2021, and was expected to reach 44.0% in summer 2022.

The transition to remote work differs across population segments

- Full-time high-income workers had the highest share of individuals working white-collar office jobs, STEM, and government jobs which have a higher potential of supporting remote work.
- On the other hand, low-income workers had the highest share of individuals working in blue-collar and retail sector jobs.

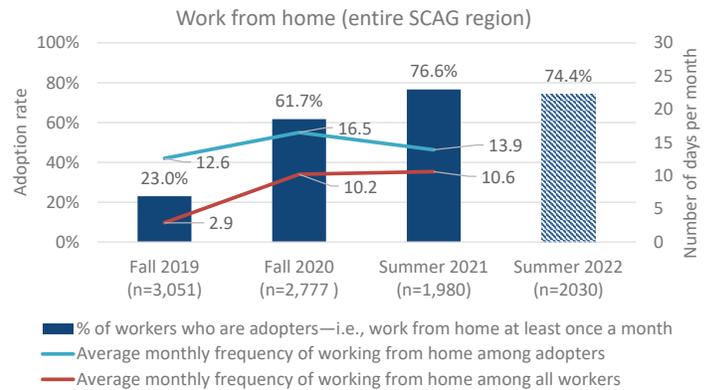
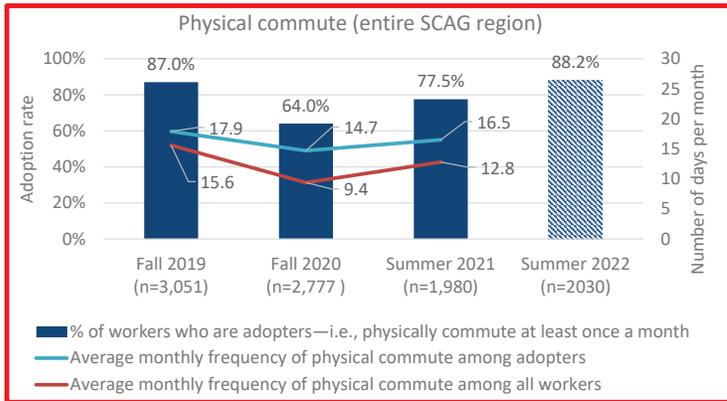


Characteristics of Prevalent Transition Groups

- From Fall 2019 to Fall 2020:
 - **“Commuters” → “Remote Workers” (14.1%) or “Commuters” → “Hybrid Workers” (12.2%):** predominantly aged 35 to 64, better-educated, highest household income level, living in suburban or areas with low employment entropy.
 - **Those that continued to be “Commuters” (14.0%):** lower education level, earned medium household income, yet had highest vehicle ownership.
- From Fall 2020 to Summer 2021:
 - **“Remote Workers” → “Hybrid Workers” (14.4%) or those who remained “Hybrid Workers” (11.8%):** aged 35 to 64, non-Hispanic Whites, better-educated, high household income level, full-time workers, homeowners in urban areas.
 - **Continuing “Remote Workers” (13.2%):** predominantly younger age group, often with low education level and low household income level, suburban residents while with the lowest vehicle ownership. They were also more likely to be self-employed than other groups.

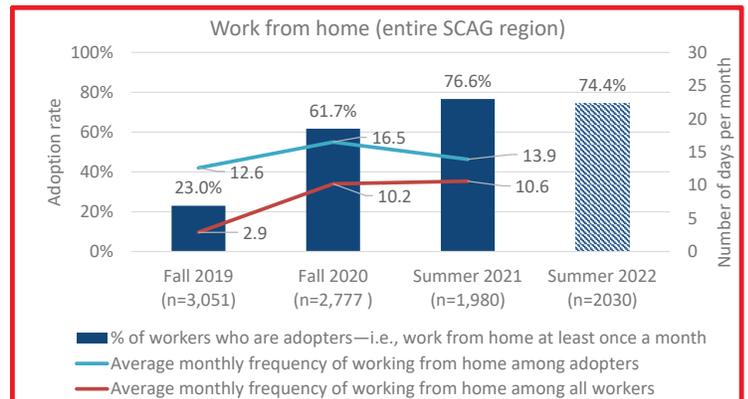
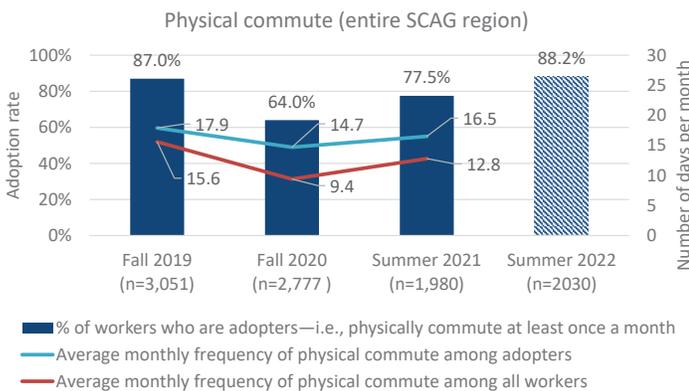
Changes in the Frequency of Physical Commutes and Remote Work

- The percentage of those who commute at least once a month decreased during the pandemic but bounced back by 2021.
- However, the average number of days on which workers commuted to their workplace (**16.5 commuting days per month** in summer 2021) remained below pre-pandemic levels (**17.9 commuting days**).
- This translates in an average of approximately **12.8 commuting days per month** among all workers in summer 2021 vs. **15.6 commuting days per month** before the pandemic.



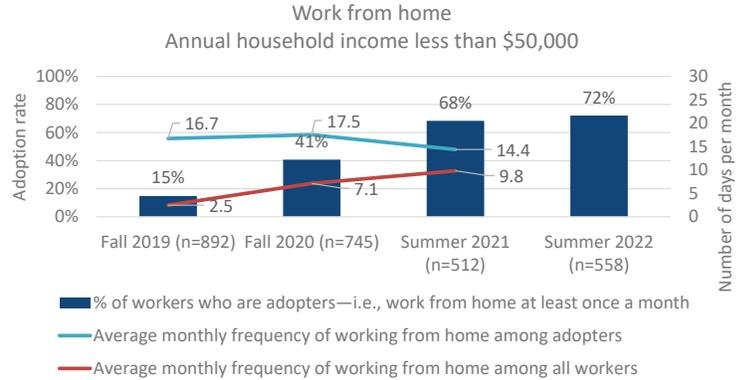
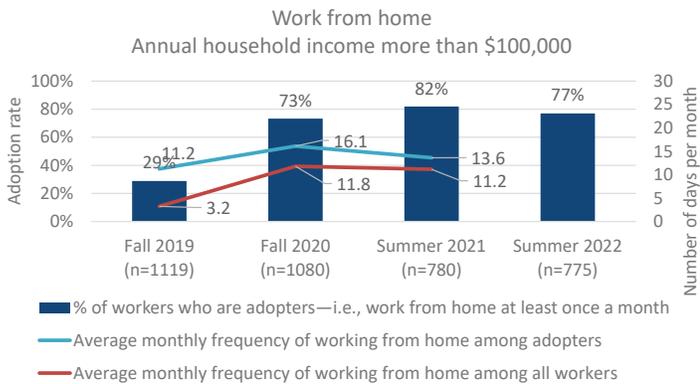
Changes in the Frequency of Physical Commutes and Remote Work

- The percentage of those who work from home at least once a month continued to increase during the various stages of the pandemic.
- Among those who worked remotely at least once a month, the frequency of working from home increased during the pandemic to about **16.5 days/month** in Fall 2020, later declining to **13.9 days/month** by Summer 2021.
- The average number of “teleworked days” remained high at about **10 days/month** per worker.

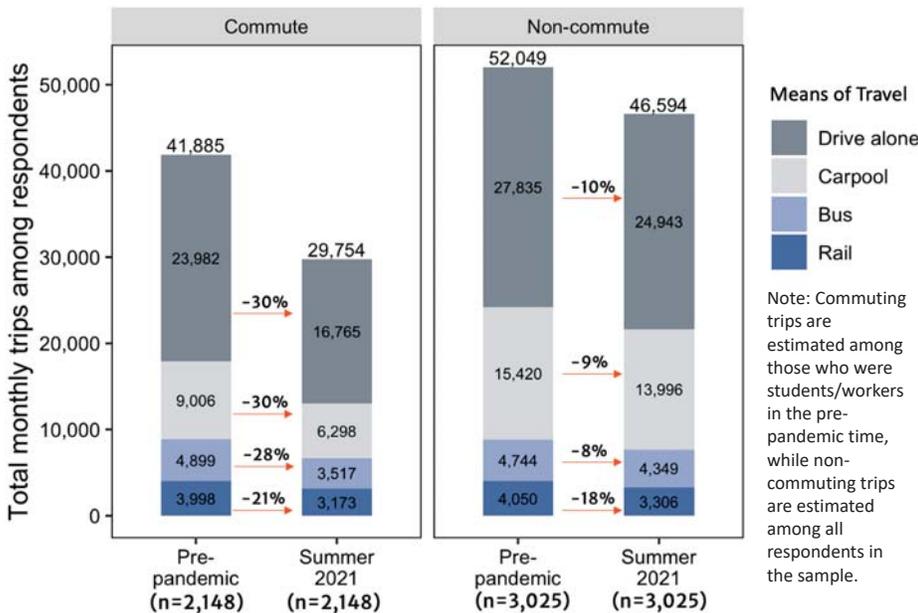


Higher-income workers are more likely to work remotely

- Rates of adoption of remote work were the highest in the high-income group and the lowest in the low-income group before the pandemic.
- These rates of adoption also increased, from fall 2019 to fall 2020, by the most and least, respectively, in the high- and low-income groups: +44 vs. +26 percentage points.

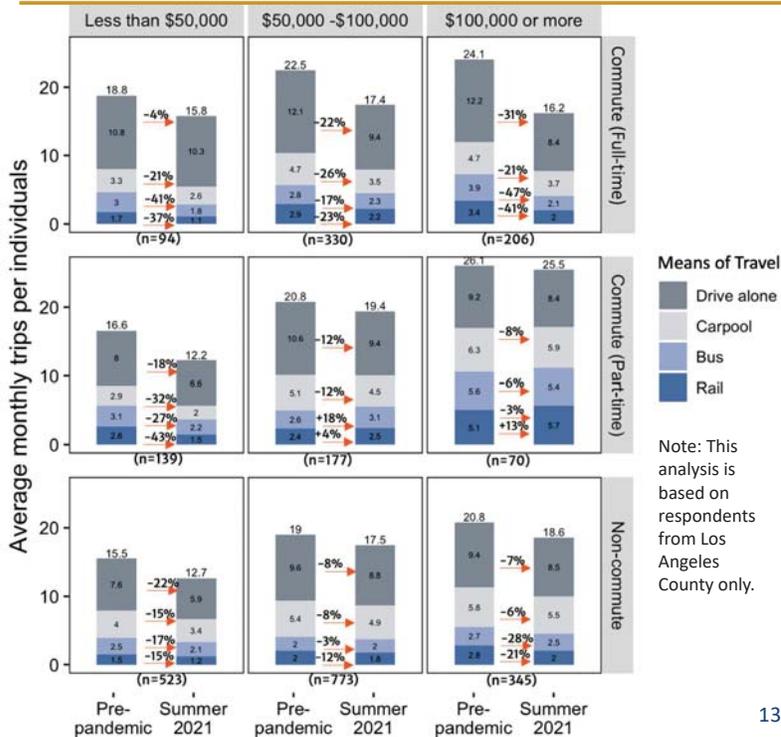


Changes in Trip Generation by Means of Travel



- By summer 2021, the average number of monthly commuting trips was still **29% lower** compared to the months before the pandemic.
- The reduction in non-commuting trips was much more limited.

Changes in Trip Generation across Population Segments



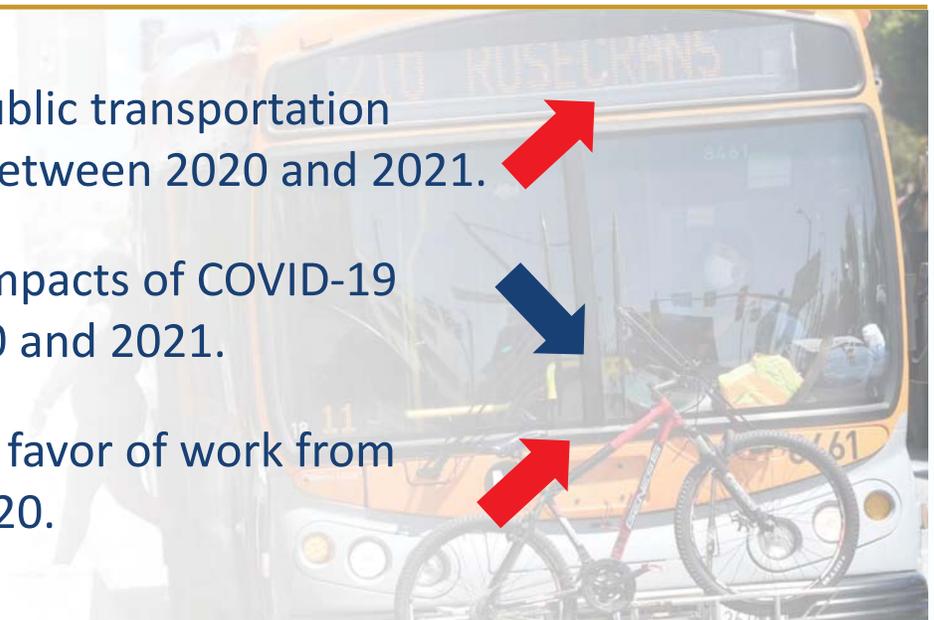
- Before the pandemic, high-income individuals generated more commuting and non-commuting trips than low-income individuals.
- Among full-time workers, high-income individuals reduced commuting trips the most (-32.8%) by summer 2021, while low-income individuals reduced them the least (-16.0%).
- Full-time workers at the high-income level had the largest percentage reduction in transit trips.
- Low-income individuals reduced non-commuting trips the most for car-based travel but showed more modest reductions in the use of transit modes compared to high-income individuals.

13



Changes in Individual Attitudes

- Comfort with riding in public transportation increased considerably between 2020 and 2021.
- Concerns about health impacts of COVID-19 decreased between 2020 and 2021.
- Individuals were more in favor of work from home in 2021 than in 2020.

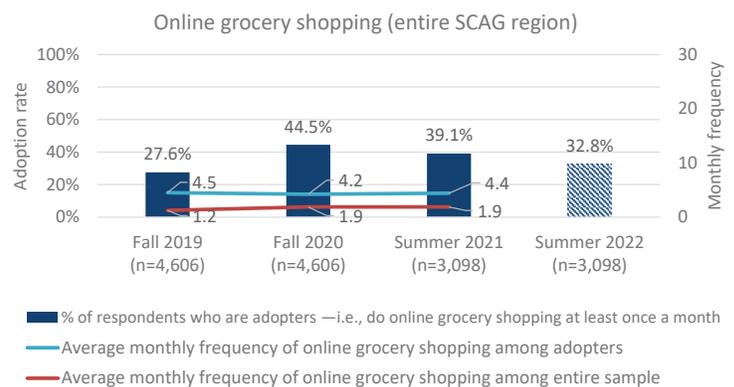
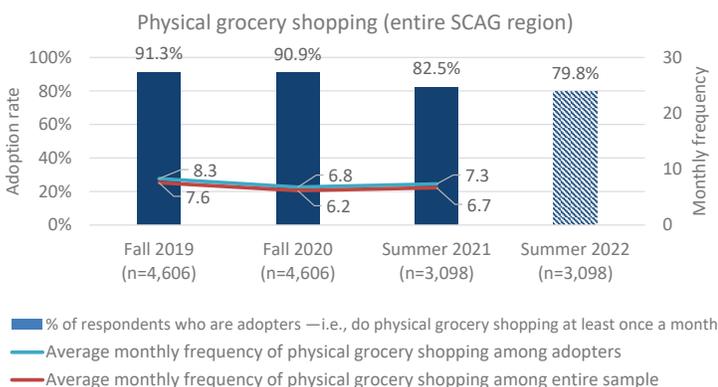


Public Transportation Use and Mode Switch

- A large proportion of respondents (**58% in the total sample**) **strongly agreed or somewhat agreed** that they still felt uncomfortable using public transportation due to concerns about pathogens in summer 2021, though this percentage declined compared to 2020.
- **1.3% (n=77)** and **2.7% (n=160)** of respondents who decreased their use of public transit modes (combining bus and rail) had increased their use of cars (combining driving alone and carpooling), for commuting and non-commuting purposes, respectively, by summer 2021, compared to the pre-pandemic time.
- These are more likely to be younger, better educated, workers, vehicle owners, homeowners and urban residents.

Changes in In-person and Online Grocery Shopping

- The majority of individuals (80% or above) continued to shop in-person for groceries at least once per month across all four timepoints, even though this proportion kept declining across four timepoints.
- The adoption rate of online grocery shopping changes from 27.6% in fall 2019 to 44.5% in fall 2020, and then 39.1% in summer 2021. The rate was expected to decline further to 32.8% by summer 2022.



Policy Implications: How to Build Back Better

- During the pandemic, a major shift to remote work has occurred, in particular among higher-income and higher-education workers.
- A sizable portion of workers expects to engage in some forms of remote work also after the pandemic is over, and hybrid work schedules will likely remain common.
- A portion of multimodal users have increased their driving while they reduced their transit use. At least in the US, rail ridership in particular remains below pre-pandemic levels.
- Online surveys tend to over-represent workers that are able to work remotely. We use weights but these cannot fully correct for lack of data for those with no internet access or not represented in online studies. New rounds of data collections in UC Davis COVID-19 study include the administration of paper questionnaires among a stratified random sample of households to help quantify this potential bias.
- The pandemic seems to be “buying us some time” to address congestion – it has been reducing car traffic (but also demand for public transit) during peak time. But it is not leading to lower overall VMT. Policy can reverse this trend.

Policy Implications: How to Build Back Better (cont.)

- In addition to studying worker’ preferences towards remote or hybrid work, understanding employers’ perspectives would be essential to study the evolution of work organization.
- Government should consider effective policies to make remote and hybrid work more effective (e.g., expanding broadband network).
- Transportation agencies need to adjust transportation options and improve accessibility for various groups, e.g. those who have transitioned to hybrid work who commute more rarely and need different fare systems, vs. those that continue to depend on physical commutes.
- With the reduced commuting trips and peak-hour travel, transportation agencies should consider how to redistribute their planning efforts, services and resources, eventually with more balance between peak and non-peak time, and between regional and local services.
- Policy makers should try to encourage new trips made by single-occupant vehicles to be only a temporary change, and not a longer-lasting behavior.
- Current infrastructure and services may not be able to meet the demand for the sudden increase in demand for good delivery. The emerging e-commerce requires policies for better freight infrastructure, goods delivery services, and curb management.



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

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