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Title

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Publication Date

2024

DOI

10.7922/G2K935WJ

COVID-19 Vaccination Rates Influenced Bus Ridership Recovery

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January 2024

Issue

COVID-19 has had lasting effects on transit ridership, with the worst declines seen in high-income, better educated, urban neighborhoods. However, declines among immigrant and/or low-income households was well documented prior to the pandemic, as more gained access to private vehicles. This has created a unique challenge for transit agencies to bring riders back to transit in cases where they may have already switched to traveling by car or consciously chose to make fewer trips.

To better understand ridership during the pandemic, we documented the recovery of bus ridership in Los Angeles County and its relationship with COVID-19 vaccinations between April and December 2021, before the Omicron COVID-19 wave. We then developed a statistical model that relates LA Metro bus ridership as a percentage of October 2019 levels with the percent of adults fully vaccinated by ZIP code. We tested whether the relationship between vaccinations and bus ridership varied by two events: first, the full reopening of businesses in California and second, the wave of COVID transmission caused by the subsequent Delta variant.

Key Research Findings

Higher vaccination rates led to stronger bus ridership recovery. After controlling for differences across ZIP codes and trends over time, a one percent increase in the number

of persons fully vaccinated by ZIP code led to a roughly 0.3 percent improvement in bus ridership recovery compared to October 2019 levels.

The effects of reopening transit on ridership recovery were muted. Taking into account seasonal variation, ridership had not recovered more significantly in June 2021 compared to April 2021. This is likely a result of Los Angeles County having already been classified by the state as a county with moderate or low transmission in the months leading to the state's full reopening on June 15, 2021, which already allowed many different types of businesses and establishments to reopen with some restrictions.

Recovery slowed and even reversed during the Omicron wave. In April 2021, weekday Metro bus ridership was at 62 percent of October 2019 levels in LA County ZIP codes that had Metro service both in 2019 and 2021. This figure improved to 89 percent of October 2019 levels by October 2021, but then fell to 72 percent in April 2022, following the Omicron wave. Figure 1 (next page) compares recovery in April and October 2021 by ZIP code.

Bus ridership recovery was predictably higher in areas that were denser and closer to Downtown Los Angeles. Even without accounting for differences in vaccination rates, dense areas of the county close to Downtown Los Angeles and already well-connected by Metro saw the quickest recoveries in bus ridership. Ridership in areas more geographically remote or with poorer transit connections

pre-COVID lagged the most. This is likely a confirmation that many “choice” riders abandoned public transit and made permanent mode choice changes.

More Information

This policy brief is drawn from the chapter titled ‘The Impacts of Bus Use on COVID-19 Dispersion’ included in the book ‘Pandemic in the Metropolis’. The book chapter and this brief are both authored by Henry Bernal and Professor David Brownstone, at the University of California, Irvine. For more information, please contact Professor Brownstone at dbrownst@uci.edu.

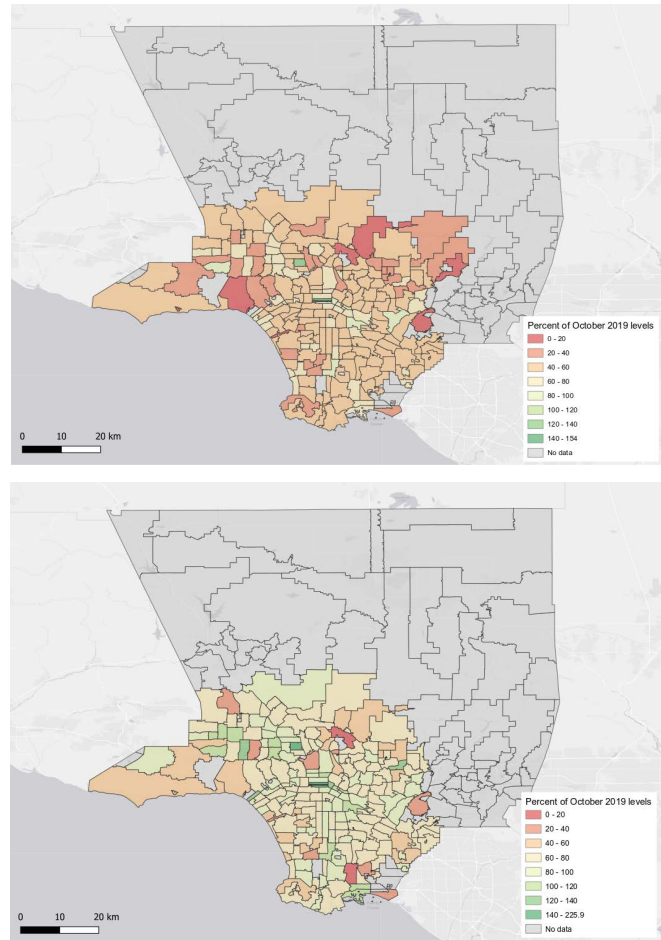


Figure 1. LA Metro bus ridership map by ZIP Code as a percentage of October 2019 levels on April 2021 (top) and October 2021 (bottom)

¹Hu, S., and P. Chen (2021). “Who left riding transit? Examining socioeconomic disparities in the impact of COVID-19 on ridership.” *Journal of Public Transportation*, 90: 102654.

²Manville, M., E. Blumenberg, and B. Taylor (2018). “Falling Transit Ridership: California and Southern California.” *UCLA Institute of Transportation Studies*.

Research presented in this policy brief was made possible through funding received by the University of California Institute of Transportation Studies (UC ITS) from the State of California through the Public Transportation Account and the Road Repair and Accountability Act of 2017 (Senate Bill 1). The UC ITS is a network of faculty, research and administrative staff, and students dedicated to advancing the state of the art in transportation engineering, planning, and policy for the people of California. Established by the Legislature in 1947, the UC ITS has branches at UC Berkeley, UC Davis, UC Irvine, and UCLA.

Project ID UC-ITS-2022-44 | DOI: 10.7922/G2K935WJ