Travel Behaviour Changes among Post-secondary Students after COVID-19 Pandemic - A Case of Greater Toronto and Hamilton Area, Canada

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Research Context

Transportation patterns around the world have been greatly influenced by the COVID-19-related risks and public health restrictions.

The short-term disruptions in daily mobility patterns observed during COVID-19 pandemic may lead to new habit formation and produce longer-term changes in travel behaviour.

Travel behaviour changes among today's young adults, belonging to Generations Y and Z, are particularly important as they are environmentally more sustainable compared to the previous generations.

A disruption in their travel habits due to COVID-19 pandemic and potential formation of new travel behaviour may have important implications for longer term environmental sustainability and planning of new transportation infrastructure.

Research Objectives

Focusing on Canadian post-secondary students and using longitudinal travel data, two research questions are addressed:

1) How did post-secondary students' travel behaviour change post-COVID 19 pandemic?
2) Are these travel behaviour changes associated with their socio-demographic characteristics and other important life events?

Study Area and Data

Study area: Greater Toronto and Hamilton Area (GTHA), Canada

Data: Longitudinal travel data collected in fall 2019 through StudentMoveTO program (www.studentmoveto.ca):

- Collected online from post-secondary students of 10 universities and community colleges in fall (Nov – Dec) 2019
- 330,000 students were invited for survey and more than 18,500 students completed the survey (response rate - 6%)
- Contact information from volunteering students collected for potential participation in the future studies

2022 travel data collected through a follow-up online survey:

- Email invites were sent in spring (March – April) 2022 to 5,723 individuals who earlier completed 2019 SMTO survey and consented to participate in future studies
- 850 individuals participated in the follow-up survey (response rate - 14.8%)
- Some respondents completed education and joined the workforce since 2019

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Methods

Significant post-pandemic commute mode shifts identified using McNemar-Bowker tests

Differences in post-pandemic commute mode changes explored by socio-demographic characteristics of respondents in 2022 using Fisher's exact test.

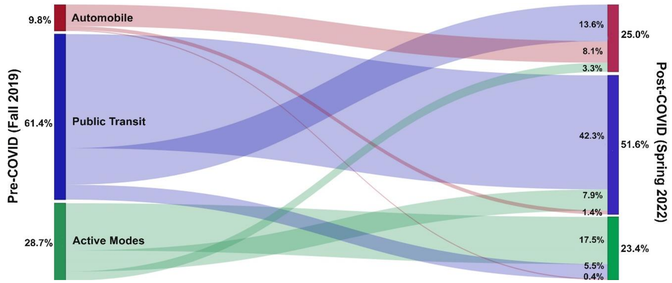
Differences in commute mode changes examined among four groups of respondents who experienced two life events differently since 2019 – i.e. Start of employment after completion of education and change in residential location.

Geographical variations in the post-pandemic commute mode changes explored at the 2022 residential locations of respondents.

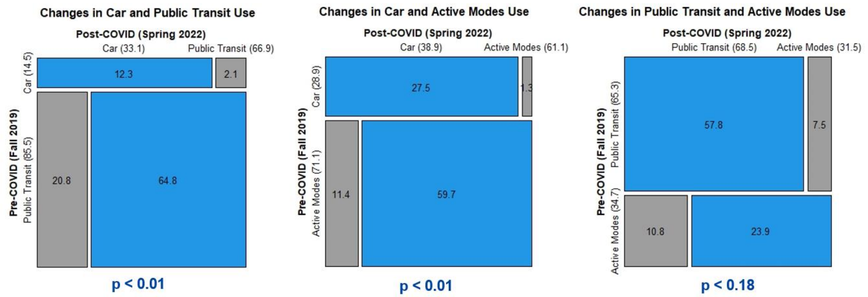
Binomial logistic regressions performed to examine the association between post-pandemic commute mode changes, and socio-demographic characteristics of respondents and life events experienced by them.

Key Findings

Post-pandemic changes in commute mode choice



Pre- and post-pandemic differences in commute mode choice



Differences in Commute Mode Changes

By Socio-demographic Characteristics

Commute mode shift from public transit and active modes to cars was significantly lower among respondents who were living alone.

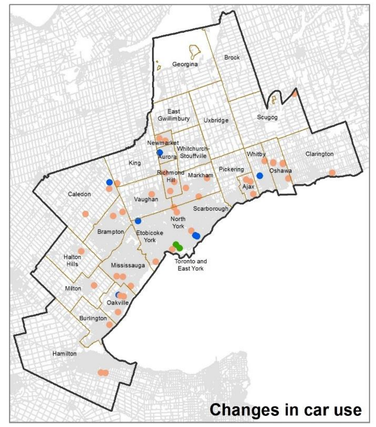
Mode shift from active modes to cars was significantly higher among those who were residing with their families while employed persons shifted significantly from public transit to cars.

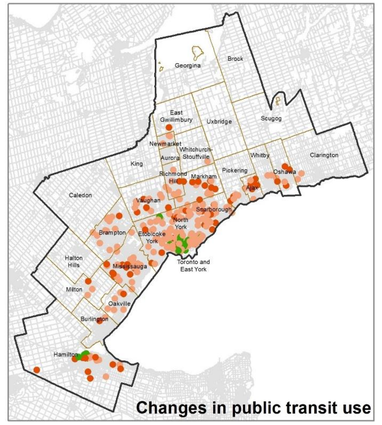
Respondents who confirmed access to cars started using cars after pandemic.

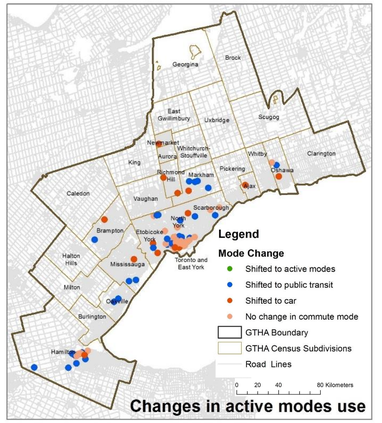
By Life Events

A higher proportion of respondents who graduated since 2019 and continued living on the same locations switched from public transit to cars after pandemic, compared to those who remained students.

Geographical Variations in Commute Mode Changes







Correlates of Commute Mode Changes

Students aged 25 to 30 years were more likely to shift from public transit to cars.

A shift from public transit to cars was more likely among those who were working for more than 20 hours, compared to the those who did not work.

Access to cars was associated with mode shift to cars both from public transit and active modes.

Students who completed their education since 2019 and started employment were more likely to switch their commute mode from public transit to cars.

Implications

Increased dependence on car due to COVID-19 pandemic, may revert more quickly if post-pandemic policies are focused on providing inexpensive, accessible and convenient travel options.

Travel demand management programs can be introduced at workplaces (e.g., public transit subsidy), in collaboration with employers, that discourage car use among employees.

Transit service providers may also consider introducing low-cost public transit passes particularly for those young people who are transitioning to work force after completing their education.

Future transportation plans should provide efficient public transit supply to address the needs of young people residing in suburban areas where an increased use of cars is arguably more prevalent.

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