Post-Pandemic Changes in Cycling Frequency Among Young Adults

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Policy Challenge

Many individuals turned to cycling during the COVID-19 pandemic, and many cities in Western countries introduced temporary cycling lanes.

Understanding how cycling habits have evolved over time, and among whom, can inform future active transportation policy.

Young adults, a group often characterized as environmentally conscious and digital natives, are particularly important to study in this context.

To address this gap, we investigated the following research questions:

- How has cycling frequency among young adults changed after the COVID-19 pandemic?, and
- How do socio-demographic factors, travel satisfaction, and life events influence these changes?

Data

We explored data from the **StudentMoveTO** research program (www.studentmoveto.ca) in the Greater Toronto and Hamilton Area, Canada.

Longitudinal data was collected through online survey of 552 students, in fall 2019 (before the COVID-19 pandemic) and spring 2022 (post-pandemic).

All participants were students in a post-secondary institution in 2019, but some completed their education by 2022.

Two-step Modelling

- Bivariate multinomial logistic regression model: to explore bivariate associations between changes in cycling frequency and participant characteristics.
- Discrete choice multinomial logit model: to account for non-linear effects and understand the variables influencing cycling behaviour changes.

Figure 1: Locations of post-secondary institutions and residential locations of respondents within the GTHA, in 2022

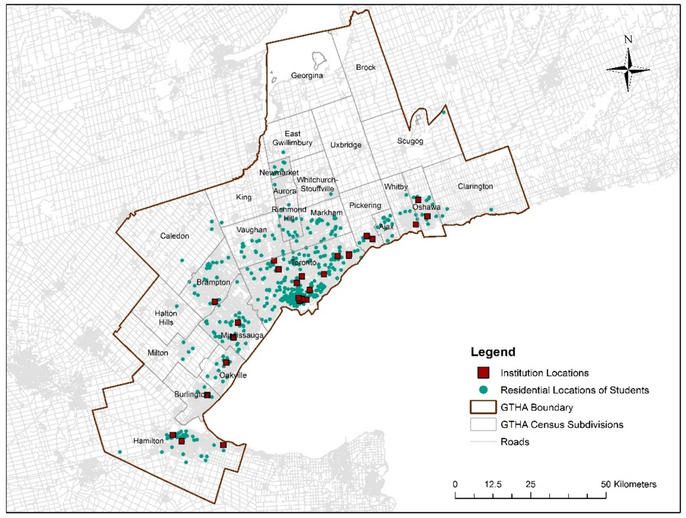

Table 1 - List of Explanatory Variables

Variables	Categories/Levels
Socio-demographic Characteristics	
Age group	Less than 23 years, 23 to 30 years, More than 30 years
Sex	Male and others, Female
Primary commute mode	Automobile, Public transit, Cycle, Walk, Other
Bicycle availability	No bicycle, At least one bicycle
Auto availability	1 or fewer car, 2 or more cars
Travel Characteristics	
Commute-related cycling frequency	Almost daily, Once or more weekly, Less than once weekly, Not at all
Travel Satisfaction	
Travel experience	Worst, Bad, Average, Good, Excellent
Quality of travel	Worst, Bad, Average, Good, Excellent
Travel worked	Worst, Poor, Average, Well, Very well
Life Events	
Change in residential location	No, Moved to more urban area, Moved to less urban area
Start of work	No, Yes

Key outcome variable (cycling behaviour change)

Change in commute-related cycling frequency between the baseline (2019) and follow-up (2022) survey:

1. Unchanged: reported no significant change
2. Increase: increased cycling for commutes in 2022 compared to 2019
3. Decrease: reduced cycling for commutes in 2022 compared to 2019

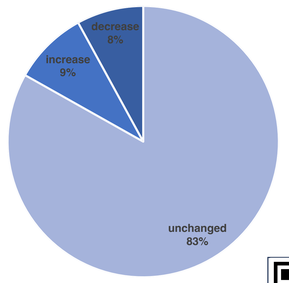

Table 2 - Results from the discrete choice multinomial logit model

Indicators	Utility	Coefficient	Rob. std err	Rob. p-value
Alternative specific constants (ref: Others)				
Increased cycling	Increase	**-2.90**	0.36	< 0.005
Decreased cycling	Decrease	**-4.64**	0.68	< 0.005
Socio-demographic characteristics				
Age less than 23 years	Increase	0.45	0.33	0.181
Age less than 23 years	Decrease	**-0.90**	0.41	< 0.005
Sex female	Increase	-0.48	0.33	0.146
Mobility options				
1 or more cars	Increase	**0.65**	0.33	< 0.005
1 or more cars	Decrease	**-1.26**	0.56	< 0.005
At least one bicycle	Decrease	**2.19**	0.49	< 0.005
Commute characteristics				
High satisfaction * active	Increase	**1.47**	0.34	< 0.005
Active transportation	Decrease	**2.41**	0.43	< 0.005
Life events				
Moved to more urban	Increase	0.47	0.35	0.181
Start of work	Decrease	0.59	0.37	0.114
Performance Indices				
Rho-square bar		0.57		
Akaike Information Criterion (AIC)		525.43		
Bayesian Information Criterion (BIC)		577.19		

Note: The coefficients that are statistically significant at 95% are in bold and at 90% are in italics.

Key Findings

- Younger individuals (under 23) were less likely to decrease commute-related cycling post-pandemic.
- Owning a bicycle in 2019 w as associated with a higher likelihood of reporting decreased commute-related cycling in 2022.
- High satisfaction with active commuting pre-pandemic significantly increased the likelihood of higher cycling frequency post-pandemic.

Policy Implications

- Results show that 9% respondents increased their frequency of cycling, confirming sustained interest in cycling post-pandemic among young adults.
- Strategic programming targeting younger individuals can deliver better success in encouraging commute-related cycling.
- Initiatives aimed at improving commute satisfaction for current bicycle users can encourage continued cycling in the longer term.

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