

Neighbourhood-level cycling mode share of male and female commuters in Montréal and Vancouver: Influence of proximity to bikeways and commute time



Cycle tracks

Painted bike lanes

Residential street bikeways

Off-street bike paths

Abstract

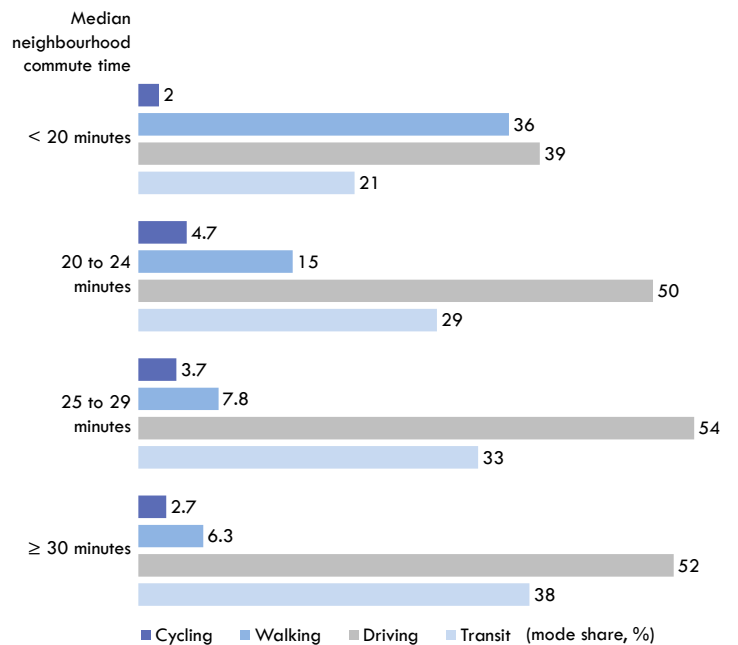
Objective: Montréal and Vancouver have higher than Canadian average cycling mode shares and substantial between-neighbourhood variability in cycling. Both have cycle tracks, painted bike lanes, residential street bikeways, and paved off-street bike paths, but their extent and network patterns differ. We examined the following questions: Are mode shares higher when bikeways are closer to where people live and does bikeway type make a difference? Are associations affected by commute duration or slopes on routes to bikeways? Do associations differ for males and females?

Methods: This study used 2011 National Household Survey data on commuting to work, by census tract (neighbourhood). It used spatial data to calculate distances and slopes along routes from residential parcels to bikeways (ArcGIS), averaged by census tract. Inferential analyses (Poisson regression) examined associations between cycling commute mode share and proximities to any bikeway and to each of four bikeway types, slopes to the nearest bikeway, and commute time.

Results: Cycling mode shares at the neighbourhood level varied from 0 to 20%. The proportion of cycle commuters who were female ranged from 0 to 44% and was positively associated with overall mode share in the neighbourhood. A one-kilometer closer proximity to any bikeway was associated with four times higher mode share. Proximity to cycle tracks was associated with higher mode shares in both cities. Other bikeway types did not have similar associations in the two cities, and the pattern of results suggested that the networks formed were more important than specific bikeway characteristics. Uphill slopes to bikeways were associated with somewhat lower mode shares in bivariate analyses but not in adjusted models. Cycle commuting was most common in neighbourhoods with intermediate commute durations (20 to 29 minutes).

Conclusions: Our results indicate that cycle tracks and bikeways that form a connected network are associated with higher neighbourhood cycling commute mode shares. These features were more important to women, and their cycling (or not) was strongly related to overall mode share in their neighbourhood. Walking was more than twice as common as cycling, even in areas with the longest commute times, likely because sidewalks are more consistently provided than bikeways.

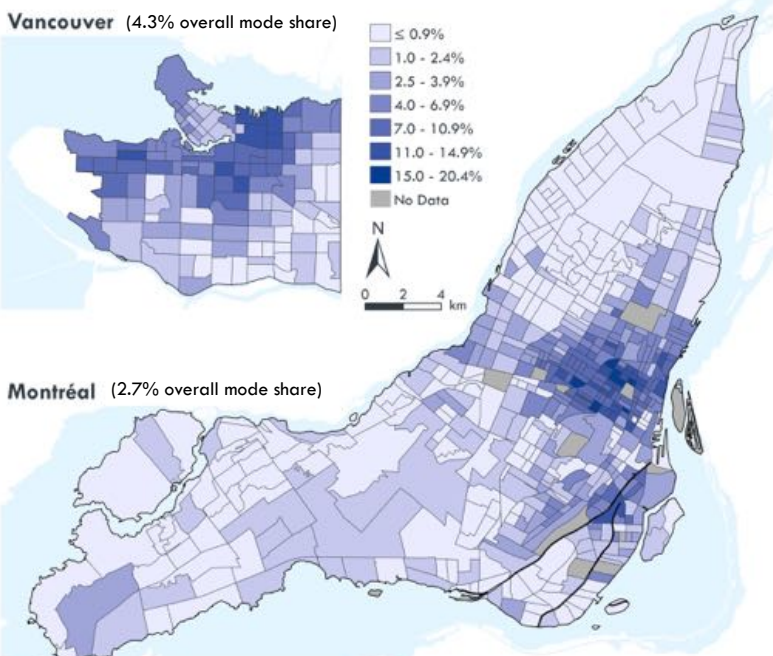
Commute times vs. mode shares



Cycling mode share category vs. % female, bikeway proximity, uphill slope to nearest bikeway

% of bike commuters who were female	Categories of cycling commute mode share (%)			
	0	0.5 to < 2.5	2.5 to < 7	7 to 20.4
Mean distance (km) to Any bikeway	0.63	0.50	0.33	0.30
Cycle tracks	1.41	1.42	1.14	0.79
Painted bike lanes	1.68	1.39	1.06	0.84
Residential street bikeways	1.42	1.24	0.69	0.69
Off-street bike paths	1.35	1.27	1.20	0.94
Mean maximum uphill slope (%) on route to nearest bikeway	0.94	0.94	0.63	0.68

Neighbourhood cycling mode shares



Bikeway distributions

