

## Appendix: Reduced model results

The models presented in the body of this paper retained statistically insignificant variables. We made this choice to facilitate comparisons between different demographic groups, some of which may exhibit a significant response to a particular variable, while others do not. In addition, we did not want to bias the results by leaving out potentially important (if insignificant) control variables, or by reporting only positive results. However, in order to ensure the robustness of our results, we re-estimated the models with only the subset of variables that were significant at the  $p < 0.1$  level in the full models presented in Tables 6 and 7. These reduced models are presented below. Table A.1 shows the estimated incidence rate ratios, while table A.2 shows the weighted average marginal effects. The estimated incidence rate ratios for these variables are almost identical to those from the models presented in the body of the paper. All variables remain significant and retain the same sign, with the exception of apartment dwelling for children, spring season for not-employed adults, and regional job access for both employed and not-employed adults. The signs and estimated effect sizes of these variables changed relatively little between the full and reduced model, despite the change in statistical significance.

**Table A.1:** Negative binomial regression IRR estimates of 7-day bicycling frequency, including only significant variables from Table 6

Variable	Schoolchildren			Not-employed Adults		Employed Adults	
	Elementary	Middle	High	Female	Male	Female	Male
Constant	1.03 (0.88, 1.20) 0.37			11.53*** (5.68, 23.39) 6.77		7.28*** (4.09, 12.94) 6.76	
General density <sup>a</sup>	0.94*** (0.92, 0.97) -4.60	0.93*** (0.89, 0.96) -3.92	1.08*** (1.03, 1.13) 3.13	—	1.08** (1.02, 1.14) 2.50	—	
Home vs. work/school <sup>b</sup>	—	—	1.11** (1.00, 1.23) 1.97	—		—	1.06*** (1.02, 1.11) 2.97
Intersection vs. population density <sup>a</sup>	0.92** (0.86, 0.99) -2.24	1.23*** (1.10, 1.36) 3.84	1.22*** (1.07, 1.39) 3.02	1.33*** (1.14, 1.55) 3.64	—	1.20*** (1.08, 1.33) 3.39	—
Home in CBD	0.37*** (0.25, 0.54) -5.20			0.42*** (0.26, 0.68) -3.51		0.55*** (0.42, 0.71) -4.52	
Land-use mix	—	—	0.47*** (0.40, 0.56) -8.76	—	1.63** (1.09, 2.43) 2.40	—	
Ln distance to work/school	—	0.83*** (0.79, 0.87) -6.89	0.84*** (0.78, 0.91) -4.39	—		0.91*** (0.86, 0.96) -3.75	0.87*** (0.84, 0.90) -7.19
Percent nonmotorized commuters, home tract	1.02*** (1.01, 1.03) 3.45			1.02*** (1.01, 1.03) 3.68		1.02*** (1.02, 1.03) 6.03	
Local job access	—			—		—	
Regional job access	—			1.00 (0.99, 1.00) -1.53		1.00 (1.00, 1.00) -0.24	
Proportion park, 1 mile from home	0.59*** (0.40, 0.86) -2.73			—		—	
Bike route km, 1 mile from home (tens of km)	—			—		1.09*** (1.05, 1.14) 4.03	
Bike route available, 75th percentile home and work/school	1.19*** (1.07, 1.32) 3.18			—		—	
Household size	—			0.87*** (0.82, 0.92) -4.85		0.90*** (0.87, 0.94) -4.83	

Children in Household	—			0.82*** (0.70, 0.95) -2.66	0.79*** (0.71, 0.88) -4.32
One car	—			0.51*** (0.39, 0.65) -5.18	0.47*** (0.37, 0.58) -6.86
Two cars	—			0.39*** (0.30, 0.52) -6.82	0.27*** (0.22, 0.34) -11.42
3+ cars	—			0.32*** (0.24, 0.43) -7.53	0.25*** (0.19, 0.31) -11.52
Two bikes	1.21*** (1.07, 1.38) 3.06	—		1.55*** (1.34, 1.79) 6.05	1.57*** (1.40, 1.76) 7.64
3+ bikes	1.66*** (1.47, 1.86) 8.53	—		3.03*** (2.61, 3.52) 14.51	3.42*** (3.06, 3.82) 21.80
Transit user in Household	1.11** (1.02, 1.22) 2.32	—		1.18** (1.04, 1.35) 2.57	1.30*** (1.18, 1.43) 5.51
Income (tens of thousands USD)	0.93*** (0.92, 0.95) -8.05	—		0.97** (0.94, 0.99) -2.35	0.97*** (0.95, 0.99) -2.71
Income squared (millions USD-squared)	1.20*** (1.13, 1.27) 5.90	—		1.08* (0.99, 1.18) 1.71	1.08** (1.02, 1.15) 2.53
Home owner	—			0.86** (0.74, 0.99) -2.04	—
Apartment	0.89 (0.78, 1.02) -1.63	—		—	—
Female	—			—	—
Male	1.26*** (1.18, 1.35) 6.64	1.39*** (1.28, 1.52) 7.51	2.31*** (2.00, 2.66) 11.59	1.83*** (1.29, 2.60) 3.39	2.46*** (2.13, 2.86) 11.95
Driver's license	0.62*** (0.51, 0.75) -4.95			—	0.71*** (0.58, 0.88) -3.22
Scientist, Teacher, Doctor	—			—	1.19*** (1.09, 1.30) 3.75
Ln age	—			0.49*** (0.42, 0.57) -9.38	0.58*** (0.51, 0.65) -8.55
Disabled	0.60*** (0.45, 0.79) -3.62			0.55*** (0.46, 0.66) -6.41	0.62** (0.42, 0.92) -2.38

Transit pass holder	—	—	1.32*** (1.17, 1.48) <i>4.64</i>
Walk Trips in 7 Days	1.07*** (1.06, 1.08) <i>16.83</i>	1.06*** (1.05, 1.07) <i>11.98</i>	1.06*** (1.05, 1.07) <i>14.17</i>
White	—	—	—
Bachelor degree	—	1.13* (1.00, 1.29) <i>1.92</i>	1.17*** (1.07, 1.28) <i>3.53</i>
Spring	1.17*** (1.05, 1.32) <i>2.74</i>	1.15 (0.97, 1.37) <i>1.59</i>	1.18*** (1.05, 1.31) <i>2.87</i>
Summer	1.40*** (1.26, 1.55) <i>6.47</i>	1.25*** (1.08, 1.45) <i>2.98</i>	1.40*** (1.26, 1.55) <i>6.40</i>
Fall	1.16*** (1.05, 1.27) <i>2.97</i>	1.20** (1.04, 1.38) <i>2.55</i>	1.36*** (1.23, 1.50) <i>6.04</i>
Ln alpha <sup>b</sup>	.58	1.73	1.40

Note: 95% confidence intervals are given below point estimates. Asterisks designate statistical significance, where \*\*\* indicates  $p < 0.01$ , \*\* indicates  $p < 0.05$ , \* indicates  $p < 0.10$ . z-statistics are shown in italics.

<sup>a</sup> These are variables created using principal component analysis.

<sup>b</sup> Alpha is the dispersion parameter for negative binomial regression models. If alpha is zero (or Ln alpha is negative infinity), the negative binomial model is equivalent to the Poisson model.

**Table A.2:** Weighted average marginal effects on 7-day bicycling frequency, including only significant variables from Table 6

Variable	Schoolchildren			Not-employed Adults		Employed Adults	
	Elementary	Middle	High	Female	Male	Female	Male
General density <sup>a</sup>	-0.15*** (-0.22, -0.09) -4.55	-0.17*** (-0.25, -0.08) -3.92	0.12*** (0.04, 0.20) 3.01	—	0.12** (0.02, 0.22) 2.42	—	
Home vs. work/school <sup>b</sup>	—	—	0.17* (-0.00, 0.33) 1.95	—		—	0.07*** (0.02, 0.12) 2.93
Intersection vs. population density <sup>a</sup>	-0.20** (-0.38, -0.02) -2.23	0.45*** (0.22, 0.68) 3.83	0.33*** (0.11, 0.54) 2.93	0.14*** (0.06, 0.21) 3.58	—	0.10*** (0.04, 0.16) 3.36	—
Home in CBD	-2.17*** (-3.01, -1.33) -5.08			-0.81*** (-1.27, -0.35) -3.44		-0.53*** (-0.76, -0.30) -4.45	
Land-use mix	—	—	-1.22*** (-1.48, -0.96) -9.12	—	0.79** (0.14, 1.44) 2.38	—	
Ln distance to work/school	—	-0.41*** (-0.54, -0.29) -6.70	-0.28*** (-0.41, -0.15) -4.30	—		-0.05*** (-0.08, -0.02) -3.66	-0.16*** (-0.21, -0.12) -6.95
Percent nonmotorized commuters, home tract	0.04*** (0.02, 0.06) 3.41			0.02*** (0.01, 0.03) 3.60		0.02*** (0.01, 0.03) 5.82	
Local job access	—			—		—	
Regional job access	—			-0.00 (-0.01, 0.00) -1.53		-0.00 (-0.00, 0.00) -0.24	
Proportion park, 1 mile from home	-1.16*** (-1.99, -0.32) -2.72			—		—	
Bike route km, 1 mile from home (tens of km)	—			—		0.08*** (0.04, 0.12) 3.99	
Bike route available, 75th percentile home and work/school	0.37*** (0.14, 0.60) 3.16			—		—	
Household size	—			-0.13*** (-0.18, -0.08) -4.82		-0.09*** (-0.13, -0.05) -4.84	
Children in household	—			-0.19*** (-0.33, -0.05) -2.64		-0.21*** (-0.30, -0.11) -4.26	

One car	—			-1.07*** (-1.60, -0.53) -3.92	-1.45*** (-2.01, -0.88) -5.01
Two cars	—			-1.30*** (-1.85, -0.76) -4.66	-1.97*** (-2.55, -1.40) -6.68
3+ cars	—			-1.46*** (-2.02, -0.89) -5.07	-2.04*** (-2.63, -1.45) -6.82
Two bikes	0.32*** (0.12, 0.53) 3.14			0.30*** (0.20, 0.41) 5.68	0.25*** (0.19, 0.32) 7.50
3+ bikes	0.99*** (0.78, 1.19) 9.52			1.13*** (0.92, 1.33) 10.78	1.07*** (0.97, 1.18) 19.43
Transit user in household	0.24** (0.03, 0.44) 2.27			0.16** (0.04, 0.29) 2.51	0.24*** (0.15, 0.33) 5.25
Income (tens of thousands USD)	-0.08*** (-0.10, -0.06) -8.37			-0.02** (-0.04, -0.00) -2.46	-0.01** (-0.02, -0.00) -2.47
Home owner	—			-0.15** (-0.30, -0.00) -1.98	—
Apartment	-0.23* (-0.50, 0.04) -1.70			—	—
Male	0.60*** (0.41, 0.78) 6.36	0.73*** (0.52, 0.94) 6.77	1.35*** (1.08, 1.63) 9.74	—	—
Driver's license	-0.84*** (-1.11, -0.57) -6.12			—	-0.34*** (-0.58, -0.10) -2.81
Scientist, teacher, doctor	—			—	0.16*** (0.07, 0.25) 3.55
Ln age	—			-0.67*** (-0.84, -0.51) -8.04	-0.49*** (-0.61, -0.37) -7.91
Disabled	-0.88*** (-1.25, -0.51) -4.67			-0.45*** (-0.57, -0.33) -7.58	-0.33*** (-0.55, -0.12) -3.00
Transit pass holder	—			—	0.26*** (0.14, 0.39) 4.25
Walk Trips in 7 Days	0.15*** (0.12, 0.17) 12.08			0.06*** (0.04, 0.07) 7.90	0.05*** (0.04, 0.06) 11.76
White	—			—	—

Bachelor degree	—	0.12* (-0.01, 0.25) <i>1.85</i>	0.14*** (0.06, 0.22) <i>3.51</i>
Spring	0.32*** (0.09, 0.55) <i>2.71</i>	0.12 (-0.03, 0.28) <i>1.56</i>	0.13*** (0.04, 0.21) <i>2.81</i>
Summer	0.73*** (0.51, 0.96) <i>6.44</i>	0.21*** (0.07, 0.34) <i>2.96</i>	0.28*** (0.19, 0.37) <i>6.18</i>
Fall	0.29*** (0.10, 0.48) <i>3.02</i>	0.16** (0.04, 0.29) <i>2.55</i>	0.26*** (0.17, 0.34) <i>5.88</i>

Note: 95% confidence intervals are given below point estimates. Asterisks designate statistical significance, where \*\*\* indicates  $p < 0.01$ , \*\* indicates  $p < 0.05$ , \* indicates  $p < 0.10$ . z-statistics are shown in italics.

<sup>a</sup> These are variables created using principal component analysis.