**Supplementary Information for "Reductions in commuting mobility correlate with geographic differences in SARS-CoV-2 prevalence in New York City" by Kissler *et al.***

| Borough | ZIP3 |
|---|---|
| Bronx | 104 |
| Brooklyn | 112 |
| Manhattan | 100, 101, 102 |
| South Queens | 110, 114, 116 |
| North Queens | 111, 113 |
| Staten Island | 103 |

**Supplementary Table 1. 3-digit ZIP codes corresponding to the New York City boroughs.** Source data are provided as a Source Data file.

| Borough | Week | Number of tests | Number positive | Percent positive |
|---|---|---|---|---|
| Bronx | 16 Mar | 8 | 1 | 12.5 |
| | 23 Mar | 60 | 12 | 20 |
| | 30 Mar | 89 | 19 | 21.3 |
| | 6 Apr | 66 | 11 | 16.7 |
| | 13 Apr | 42 | 9 | 21.4 |
| | 20 Apr | 16 | 0 | 0 |
| | 27 Apr | 28 | 5 | 17.9 |
| Brooklyn | 16 Mar | 3 | 0 | 0 |
| | 23 Mar | 77 | 13 | 16.9 |
| | 30 Mar | 85 | 18 | 21.2 |
| | 6 Apr | 81 | 14 | 17.3 |
| | 13 Apr | 79 | 11 | 13.9 |
| | 20 Apr | 31 | 5 | 16.1 |
| | 27 Apr | 30 | 3 | 10 |
| Manhattan | 16 Mar | 14 | 1 | 7.1 |
| | 23 Mar | 139 | 11 | 7.9 |
| | 30 Mar | 173 | 21 | 12.1 |
| | 6 Apr | 162 | 20 | 12.3 |
| | 13 Apr | 138 | 13 | 9.4 |
| | 20 Apr | 44 | 3 | 6.8 |
| | 27 Apr | 48 | 3 | 6.2 |
| North Queens | 16 Mar | - | - | - |
| | 23 Mar | 59 | 9 | 15.3 |
| | 30 Mar | 78 | 13 | 16.7 |
| | 6 Apr | 62 | 8 | 12.9 |
| | 13 Apr | 46 | 3 | 6.5 |
| | 20 Apr | 19 | 3 | 15.8 |
| | 27 Apr | 11 | 2 | 18.2 |
| South Queens | 16 Mar | - | - | - |
| | 23 Mar | 15 | 3 | 20 |
| | 30 Mar | 17 | 5 | 29.4 |
| | 6 Apr | 12 | 2 | 16.7 |
| | 13 Apr | 8 | 1 | 12.5 |
| | 20 Apr | 3 | 1 | 33.3 |
| | 27 Apr | 3 | 1 | 33.3 |
| Overall | 16 Mar | 25 | 2 | 8 |
| | 23 Mar | 350 | 48 | 13.7 |
| | 30 Mar | 442 | 76 | 17.2 |
| | 6 Apr | 383 | 55 | 14.4 |
| | 13 Apr | 313 | 37 | 11.8 |
| | 20 Apr | 113 | 12 | 10.6 |
| | 27 Apr | 120 | 14 | 11.7 |

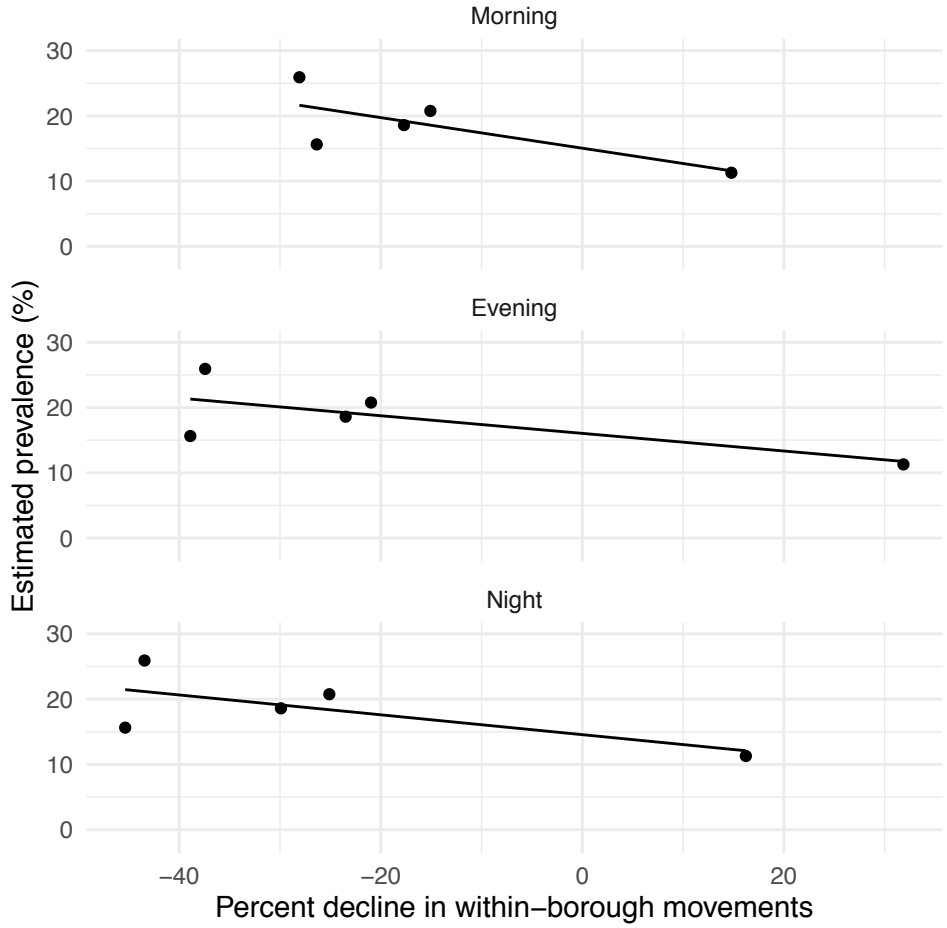
**Supplementary Table 2. Weekly number of SARS-CoV-2 tests (overall and positive) by borough.** Source data are provided as a Source Data file.

| Borough | 70% sensitivity | 80% sensitivity | 90% sensitivity |
|---|---|---|---|
| Bronx | 26.6 (20.8, 33.0) | 23.4 (18.1, 29.1) | 20.8 (16.2, 25.7) |
| Brooklyn | 23.9 (18.8, 29.5) | 20.9 (16.4, 25.7) | 18.6 (14.7, 23.0) |
| Manhattan | 14.5 (11.5, 17.8) | 12.7 (10.1, 15.6) | 11.3 (8.9, 13.9) |
| North Queens | 20.1 (14.7, 26.3) | 17.6 (12.8, 22.9) | 15.7 (11.4, 20.5) |
| South Queens | 33.4 (19.5, 49.7) | 29.2 (17.0, 43.7) | 26.0 (15.3, 38.9) |
| Overall | 20.0 (17.8, 22.4) | 17.5 (15.5, 19.6) | 15.6 (13.9, 17.4) |

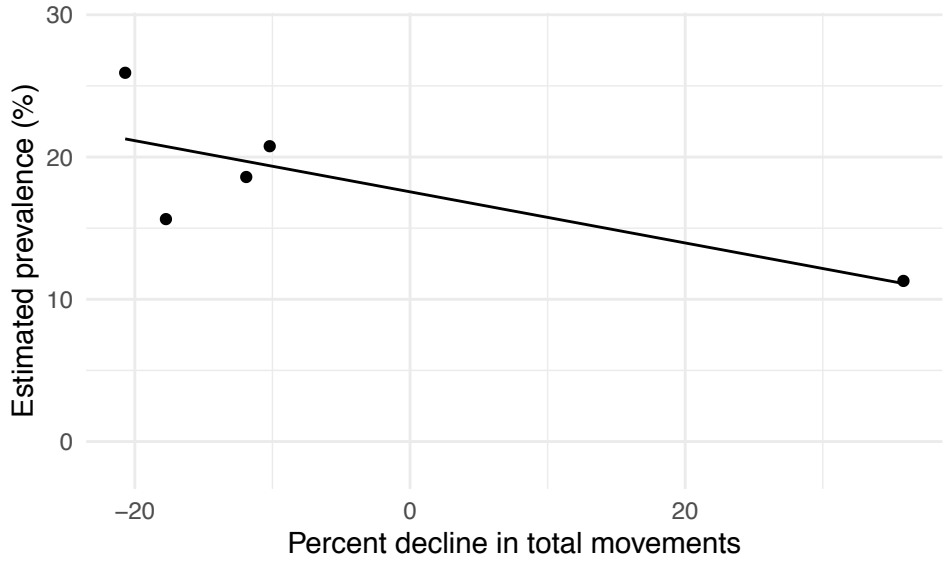
**Supplementary Table 3. Mean posterior percent population prevalence with 95% credible interval of SARS-CoV-2 infection by borough.** The test is assumed to have perfect specificity and either 70%, 80%, or 90% sensitivity. Source data are provided as a Source Data file.

| Borough | Percent decline |
|---|---|
| Bronx | 49.5 |
| Brooklyn | 52.4 |
| Manhattan | 68.7 |
| North Queens | 57.4 |
| South Queens | 41.4 |

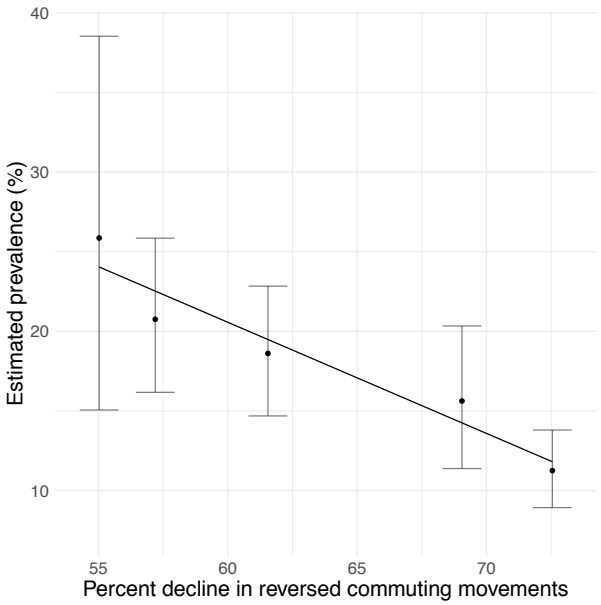
**Supplementary Table 4. Changes in mobility by borough.** The 'percent decline' column captures the reduction in transitions out of and into of each borough in the morning/evening during the study period compared to the 45-day period preceding February 26th, 2020. Aggregated morning trips out of the boroughs and evening trips into the boroughs here act a proxy for commuting to/from work. Source data are provided as a Source Data file.



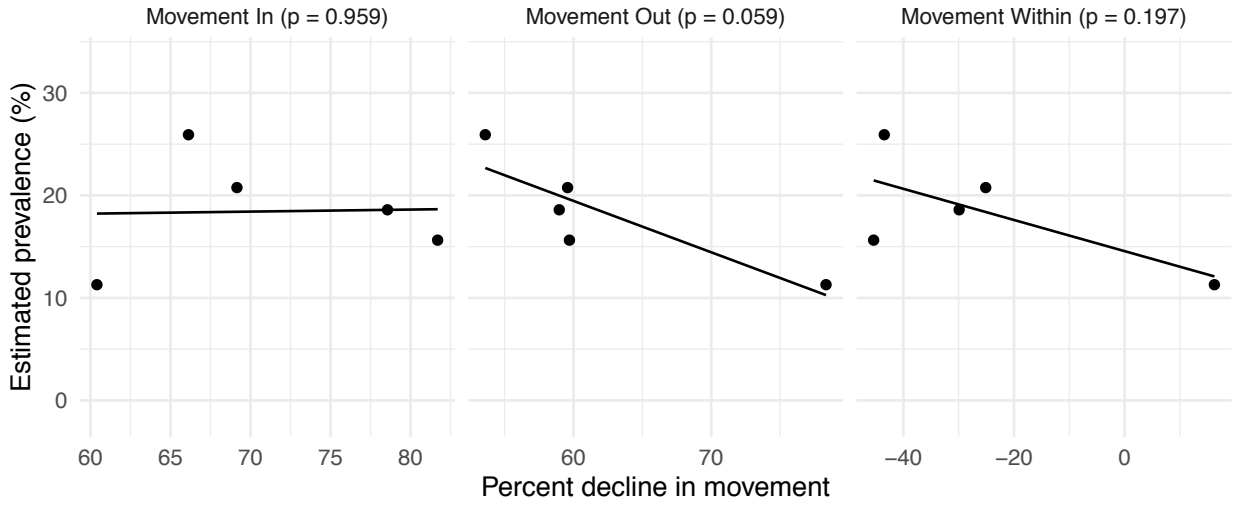

**Supplementary Figure 1. Relationship between changes in within-borough movements and estimated prevalence.** These scatterplots depict the relationship between the estimated posterior prevalence of SARS-CoV-2, assuming a 90% test sensitivity, and the percent decline in the number of within-borough movements during the study period *vs.* the 45 days preceding Feb 26th, 2020. Negative values on the horizontal axis indicate that the number of within-borough movements increased during the study period relative to the pre-pandemic control. The trends are all negative but non-significant according to a two-sided *t*-test for the slope (morning: $p$=0.16; evening: $p$=0.18; night: $p$=0.20).




**Supplementary Figure 2. Relationship between total change in movement and estimated prevalence.** This scatterplot depicts the posterior prevalence of SARS-CoV-2 assuming a 90% test sensitivity as a function of the percent decline in total movements for each borough during the study period compared to the 45 days preceding Feb 26th, 2020. Negative values on the horizontal axis indicate that the total number of movements increased for the borough during the study period relative to the pre-pandemic control. The trend is negative but non-significant according to a two-sided *t*-test for the slope ($p = 0.14$).




**Supplementary Figure 3. Relationship between reverse commuting movements and estimated prevalence.** This scatterplot depicts the posterior prevalence of SARS-CoV-2 assuming a 90% test sensitivity as a function of the percent decline in total morning movements into each borough and evening movements out of each borough during the study period compared to the 45 days preceding Feb 26th, 2020. These movements represent the reverse of the commuting-style movements considered in the main analysis. Error bars represent 95% credible intervals. There is a strong negative relationship (Pearson R = –0.86, [–0.55, -0.99]) indicating that greater declines in reverse commuting movements are also associated with lower prevalence.




**Supplementary Figure 4. Relationship between nighttime changes in movement and estimated prevalence.** These scatterplots depict the posterior prevalence of SARS-CoV-2 assuming a 90% test sensitivity as a function of the percent decline in nighttime movements into, out of, and within each borough during the study period compared to the 45 days preceding Feb 26th, 2020. Negative values on the horizontal axis indicate that the total number of movements increased for the borough during the study period relative to the pre-pandemic control. While there is a negative relationship between the decline in nighttime movements out and nighttime movements within boroughs and the estimated prevalence of SARS-CoV-2, none of the relationships are significant at the $p = 0.05$ level according to a two-sided *t*-test for the slope.