

## Electronic Supplementary Material

Understanding the demand predictability of bike share systems:

### A station-level analysis

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**Table A1** Significant spatially constant variables and their feature importance in the model for entropy

| <b>Variable</b>      | <b>Feature importance</b> | <b>Variable</b> | <b>Feature importance</b> |
|----------------------|---------------------------|-----------------|---------------------------|
| per capita income    | 0.542                     | band3.75        | 0.003141                  |
| spatial eccentricity | 0.113                     | band1.95        | 0.003107                  |
| parking lot          | 0.107                     | band1.65        | 0.003062                  |
| dpcapacity           | 0.041891                  | band3.85        | 0.002947                  |
| band0.95             | 0.014502                  | band2.05        | 0.002947                  |
| restaurant           | 0.013828                  | band3.35        | 0.002932                  |
| pop_density          | 0.013677                  | band0.25        | 0.002816                  |
| band2.35             | 0.007836                  | band1.05        | 0.002813                  |
| band3.05             | 0.006036                  | band0.65        | 0.002756                  |
| band1.25             | 0.005689                  | band3.95        | 0.002731                  |
| band1.55             | 0.005454                  | band4.25        | 0.002642                  |
| band4.35             | 0.005277                  | band2.55        | 0.002621                  |
| school               | 0.004676                  | band1.85        | 0.002581                  |
| band2.85             | 0.00451                   | band3.25        | 0.002571                  |
| band2.15             | 0.004058                  | band3.55        | 0.002527                  |
| band0.85             | 0.003856                  | museum          | 0.002433                  |
| band3.65             | 0.003722                  | band2.45        | 0.002423                  |
| band0.75             | 0.003685                  | band2.65        | 0.002418                  |
| band1.45             | 0.003671                  | band1.75        | 0.002282                  |
| band1.35             | 0.00367                   | band0.55        | 0.002256                  |
| band4.15             | 0.003601                  | band2.25        | 0.002076                  |
| band2.75             | 0.003585                  | band3.15        | 0.002041                  |
| band3.45             | 0.003465                  | bus             | 0.00186                   |
| band1.15             | 0.003438                  | band0.35        | 0.001817                  |
| band4.05             | 0.003382                  | band0.45        | 0.001514                  |
| band2.95             | 0.003238                  | subway          | 0.000827                  |
| park                 | 0.003185                  | band0.15        | 0.000548                  |
| band4.45             | 0.00315                   | band0.05        | 4.27E-05                  |

**Table A2** Significant spatially constant variables and their feature importance in the model for predictability

| <b>Variable</b>      | <b>Feature importance</b> | <b>Variable</b> | <b>Feature importance</b> |
|----------------------|---------------------------|-----------------|---------------------------|
| per capita income    | 0.494                     | band2.85        | 0.00394                   |
| spatial eccentricity | 0.170                     | band2.45        | 0.003708                  |
| parking lot          | 0.0916                    | band0.75        | 0.003692                  |
| restaurant           | 0.01459                   | band1.85        | 0.003658                  |
| band0.95             | 0.013997                  | band2.65        | 0.003621                  |
| pop_density          | 0.01312                   | park            | 0.003595                  |
| band4.05             | 0.011076                  | band1.75        | 0.003589                  |
| dpcapacity           | 0.009983                  | band2.95        | 0.003531                  |
| band1.05             | 0.00953                   | band2.55        | 0.003512                  |
| band2.35             | 0.008894                  | band2.15        | 0.003366                  |
| band4.35             | 0.008552                  | band3.35        | 0.003017                  |
| band4.15             | 0.006472                  | band3.55        | 0.002893                  |
| band3.05             | 0.006384                  | band4.25        | 0.002877                  |
| band3.75             | 0.006295                  | band1.15        | 0.002795                  |
| school               | 0.005948                  | band1.45        | 0.002442                  |
| band1.25             | 0.005282                  | band3.15        | 0.002372                  |
| band0.85             | 0.005031                  | band0.25        | 0.002123                  |
| band0.65             | 0.005017                  | band1.65        | 0.002118                  |
| band1.35             | 0.004931                  | museum          | 0.002047                  |
| band1.55             | 0.004848                  | band3.25        | 0.001968                  |
| band3.45             | 0.004595                  | band2.25        | 0.001817                  |
| band3.85             | 0.004474                  | band1.95        | 0.001805                  |
| band3.95             | 0.004376                  | band0.35        | 0.001775                  |
| band0.55             | 0.004358                  | band0.45        | 0.001677                  |
| band2.05             | 0.004257                  | bus             | 0.001263                  |
| band3.65             | 0.004243                  | subway          | 0.001256                  |
| band4.45             | 0.004125                  | band0.15        | 0.000174                  |
| band2.75             | 0.004087                  | band0.05        | 4.08E-05                  |