|  |  |
| --- | --- |
| **Mobility index** | **included Points Of Interest (POIs)**  |
| Retail & Recreation | Restaurants, cafes, shopping centers, theme parks, museums, libraries, and movie theaters· |
| Grocery & Pharmacy | Grocery markets, food warehouses, farmers markets, specialty food shops, drug stores, and pharmacies· |
| Parks | National parks, public beaches, marinas, dog parks, plazas, and public gardens· |
| Transit Stations | Public transport hubs such as subway, bus, and train stations |
| Workplaces | Places of work |
| Residential Areas | Places of residence |

**Supplementary Table 1: Google mobility indices and corresponding Points Of Interests (POIs).** Insights are based on data from users who have opted-in to Location History for their Google Account.



**Supplementary figure 1: Histogram of Lombardy Rt frequency distribution.** Available samplings display a non- normal, positively skewed distribution of Rt frequency.



**Supplementary figure 2: Autocorrelation of Rt time series.** Vertical lines represent autocorrelation at different time lags (weeks). Dashed lines represent level of significance at 95%. Autocorrelation function (ACF) displayed a significant correlation in Rt time series.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | UV-index | Retail & Recreation | Grocery & Pharmacy | Workplaces | Transit Stations | Parks |
| UV-index | 1·00 | 0·51\* | -0·35 | 0·61 | 0·21 | 0·84\* |
| Retail & Recreation | ·· | 1·00 | 0·55\* | 0·63\* | 0·92\* | 0·76\* |
| Grocery & Pharmacy | ·· | ·· | 1·00 | 0·76\* | 0·74\* | -0·06 |
| Workplaces | ·· | ·· | ·· | 1·00 | 0·71 | 0·16 |
| Transit Stations | ·· | ·· | ·· | ·· | 1·00 | 0·54\* |
| Parks | ·· | ·· | ·· | ·· | ·· | 1·00 |

**Supplementary Table 2: Comparison of R (Pearson correlation coefficient) among the explanatory variables.** Asterisk (\*) indicates significant correlation at the probability level of 0·01.

0.50

**A**

0.25

0.00

f(Workplaces)

−0.25

−0.50

−0.75

−50 −40 −30 −20

Workplaces

0.8

**B**

0.4

0.0

f(Grocery and Pharmacy)

−0.4

−0.8

−25 −20 −15 −10 −5

Grocery and Pharmacy

0.5

**C**

0.0

−0.5

f(Transit stations)

−1.0

−60 −50 −40 −30 −20

Transit stations

**Supplementary figure 3: Smoothing component plots for log(Rt) associated with mobility indices, accounting for UV-index.** The smooth terms for *Workplaces* (A), *Grocery & Pharmacy* (B), and *Transit stations* (C) show an effect of mobility indices reduction in curbing Rt, irrespective of environmental seasonality. Y-axis is the partial effect of the variable and shadow section is the standard-error confidence intervals. An apparent Rt increase is observable for extreme levels of reduction of *Workplaces* and *Grocery & Pharmacy* mobility indices. Left parts of the smoothing components plots were built by the model fitting on a small number of observations, limiting the predictive value of the models in these sections, as shown by the enlargement of confidence intervals.