

## Supplementary information

### **Inferences about spatiotemporal variation in dengue virus transmission are sensitive to assumptions about human mobility: a case study using geolocated tweets from Lahore, Pakistan**

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Table S1: Human mobility metric as per gravity model.

	Iqbal.Town	Gulberg.Tow	Shalimar.Tov	Ravi.Town	Data.Gunj.Be	Samanabad.	Nishtar.Tow	Cantonment	Aziz.Bhatti.T	Wagha.Towr
Iqbal Town	0.95071151	0.00553099	0.00552735	0.00540811	0.00535359	0.00548256	0.00563958	0.00549486	0.00540688	0.00544458
Gulberg Tow	0.01798011	0.84055491	0.01789719	0.01746902	0.01736762	0.01777666	0.01808941	0.01782643	0.01748305	0.01755561
Shalimar Tov	0.00698087	0.00695325	0.93801586	0.00684688	0.00675732	0.00687344	0.00701365	0.00690607	0.00681309	0.00683956
Ravi Town	0.01169284	0.01161859	0.01172127	0.89608667	0.01133526	0.01151933	0.01172971	0.01152367	0.0113571	0.01141554
Data Gunj Be	0.01503785	0.01500693	0.01502876	0.01472645	0.86610123	0.01490343	0.01509262	0.01483634	0.0145989	0.0146675
Samanabad	0.00771717	0.00769725	0.00766048	0.00749942	0.00746827	0.9316431	0.0077417	0.00759779	0.00746824	0.00750658
Nishtar Towr	0.01117074	0.01102224	0.01099984	0.01074603	0.01064287	0.01089423	0.90188411	0.01098066	0.0107906	0.01086868
Cantonment	0.0054531	0.00544205	0.00542657	0.00528937	0.00524171	0.00535673	0.0055015	0.9515885	0.00534334	0.00535714
Aziz Bhatti T	0.00364477	0.00362536	0.00363642	0.00354092	0.0035035	0.00357657	0.00367226	0.00362951	0.96756191	0.00360877
Wagha Towr	0.01343995	0.01333092	0.01336808	0.01303334	0.01288987	0.01316439	0.01354489	0.01332537	0.01321507	0.88068812

Table S2: Human mobility metric as per radiation model.

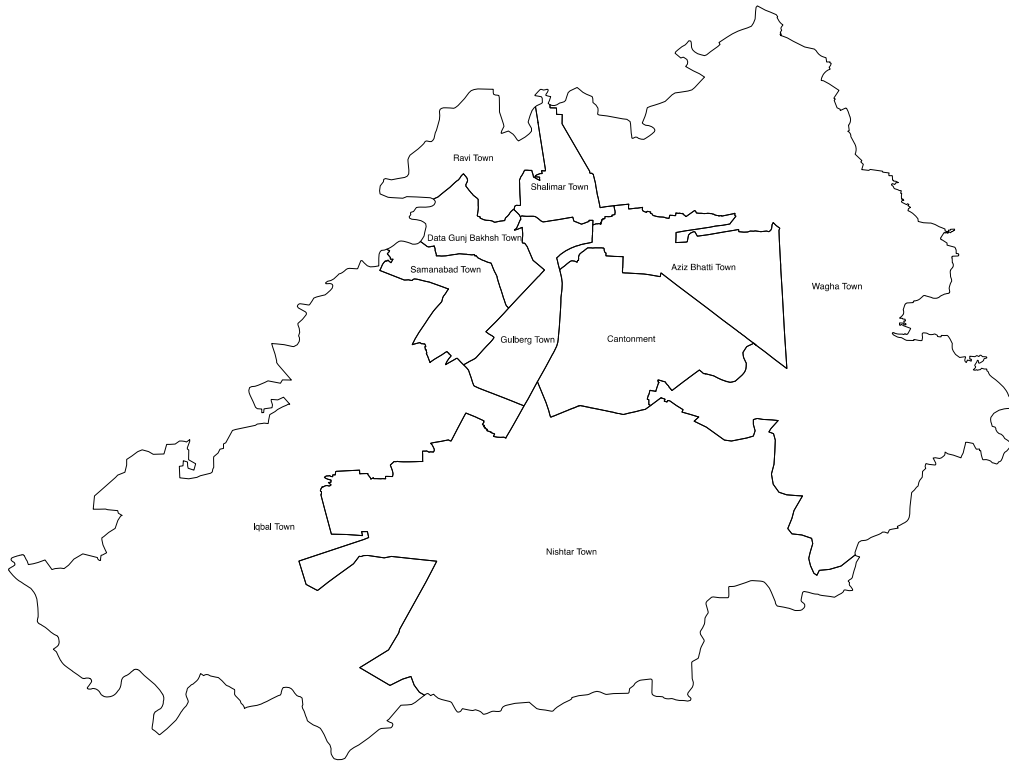
	Iqbal.Town	Gulberg.Tow	Shalimar.Tov	Ravi.Town	Data.Gunj.Be	Samanabad.	Nishtar.Tow	Cantonment	Aziz.Bhatti.T	Wagha.Towr
Iqbal Town	0.95071151	0.00464972	0.00200325	0.00117877	0.00121689	0.01829407	0.01878077	0.00246325	0.00042652	0.00027527
Gulberg Tow	0.00424727	0.84055491	0.01661344	0.00506369	0.01748131	0.07435086	0.00946928	0.02556011	0.00422534	0.00243381
Shalimar Tov	0.00180863	0.01333619	0.93801586	0.02248866	0.00847237	0.00504835	0.00320064	0.0030844	0.00267679	0.00186811
Ravi Town	0.00133662	0.00580199	0.03670333	0.89608667	0.04428317	0.00778463	0.00236535	0.00292794	0.00132972	0.00138058
Data Gunj Be	0.00113956	0.01189648	0.00553933	0.01477773	0.86610123	0.09372208	0.00254065	0.00249626	0.00113368	0.000653
Samanabad	0.00149959	0.02425299	0.00609667	0.00510505	0.02413782	0.9316431	0.00279628	0.00274742	0.00124774	0.00047334
Nishtar Towr	0.01410225	0.02256662	0.00362631	0.00141646	0.00168172	0.00984524	0.90188411	0.03886225	0.00300866	0.00300639
Cantonment	0.00108793	0.01367122	0.00594785	0.00043325	0.00118476	0.00187855	0.00226485	0.9515885	0.02057106	0.00137202
Aziz Bhatti T	0.00044094	0.00138345	0.00298071	0.00031324	0.00033569	0.00055426	0.00078032	0.0211542	0.96756191	0.00449528
Wagha Towr	0.00219591	0.00688961	0.01484398	0.00155993	0.00167172	0.0027602	0.00388598	0.0299518	0.05555274	0.88068812

Table S3: Human mobility metric as per Twitter.

	Iqbal Town	Gulberg Tow	Shalimar Tov	Ravi Town	Data Gunj Be	Samanabad	Nishtar Towr	Cantonment	Aziz Bhatti T	Wagha Towr
Iqbal Town	0.95071151	0.00923713	0.00160491	0.005849	0.00415493	0.01242912	0.00896965	0.00608082	0.00037448	0.00058847
Gulberg Tow	0.02893194	0.84055491	0.010473	0.0045634	0.02464234	0.02411755	0.01473977	0.04581651	0.00419833	0.00196226
Shalimar Tov	0.00712089	0.00954847	0.93801586	0.01650753	0.02168636	0.00161838	0.00064735	0.00113287	0.00226574	0.00145655
Ravi Town	0.02785762	0.00630113	0.01746628	0.89608667	0.03526421	0.01249171	0.00055273	0.00243201	0.00121601	0.00033164
Data Gunj Be	0.0237955	0.0249735	0.02041858	0.01821966	0.86610123	0.02352063	0.00192406	0.01390034	0.00290572	0.00424078
Samanabad	0.01270553	0.04004254	0.00054617	0.0016385	0.00787628	0.9316431	0.00077613	0.00419685	0.00051742	5.75E-05
Nishtar Towr	0.02230715	0.02186278	0.00053324	0.00017775	0.00071098	0.02292926	0.90188411	0.02701742	0.00106648	0.00151084
Cantonment	0.00987561	0.01019079	0.00552614	0.00027316	0.00542108	0.00552614	0.0042234	0.9515885	0.00487477	0.00250042
Aziz Bhatti T	0.00435996	0.00331357	0.00261597	0.0001744	0.00697593	0.00069759	0.0001744	0.0104639	0.96756191	0.00366236
Wagha Towr	0.00055494	0.04883463	0.00527192	0	0.00388457	0.02219756	0.00305216	0.0099889	0.02552719	0.88068812

Table S4: Human mobility metric assuming ideal free movement.





Supplementary Figure 1. Map of towns in Lahore.