Supplementary Material: Correlation between the Level of Social Distancing and Activity of Influenza Epidemic or COVID-19 Pandemic: A Subway Use-Based Assessment

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Table S1. Weekly trend of Subway use-based social distancing score (S-SDS), influenza-like illness (ILI) during three flu seasons.

2017–2018 Season

Week	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
S-SDS	1.70	1.78	1.85	1.80	1.81	1.81	1.79	1.79	1.80	1.82	1.96	1.98	1.72	1.78	1.82	1.70	1.77	1.80	1.62	2.00	1.84	1.86	1.88	1.86	1.89	1.86	1.80	1.75	1.83	1.87	1.81	1.85
ILI	3.80	4.20	4.10	5.20	5.30	6.30	7.70	11.40	19.00	30.70	53.60	71.80	72.10	69.00	59.60	43.60	35.30	31.70	30.70	18.80	15.10	11.70	9.80	8.00	7.20	6.20	6.80	5.80	7.60	6.20	6.10	6.00

2018–2019 Season

Week	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
S-SDS	1.80	1.82	1.85	1.83	1.80	1.86	1.84	1.79	1.74	1.83	1.96	1.99	1.71	1.80	1.80	1.84	1.74	1.76	1.90	1.89	1.83	1.85	1.85	1.84	1.82	1.82	1.78	1.73	1.80	1.94	1.82	1.83
ILI	3.70	3.80	4.90	5.70	7.80	10.10	13.20	19.20	34.00	48.70	71.90	73.30	53.10	33.60	23.00	15.30	11.30	10.20	8.00	8.60	8.30	9.10	12.10	20.30	27.20	32.20	42.10	44.20	37.30	23.90	15.10	11.30

2019–2020 Season

Week	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
S-SDS	1.78	1.75	1.83	1.84	1.79	1.77	1.78	1.77	1.76	1.83	1.94	2.02	1.65	1.80	1.80	1.35	1.51	1.45	1.53	1.14	0.82	0.92	0.98	0.86	0.82	0.91	0.90	0.97	1.05	1.06	1.10	1.14
ILI	4.20	4.6	4.50	5.80	7.00	8.20	9.70	12.70	19.50	28.50	37.80	49.80	49.10	47.80	42.40	40.90	28.00	16.40	11.60	8.50	6.30	3.90	2.90	3.20	2.80	2.50	2.70	2.30	2.40	1.70	2.10	2.30

S-SDS, subway use-based social distancing score; ILI, influenza-like illness.

Table S2. Weekly trend of Subway use-based social distancing score (S-SDS) and COVID-19 occurrence between weeks 5 of 2020 and 5 of 2021.

2020 year

Week	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
S-SDS	1.51	1.45	1.53	1.14	0.82	0.92	0.98	0.86	0.82	0.91	0.90	0.97	1.05	1.06	1.10	1.14	1.15	1.15	1.14	1.17	1.18	1.19	1.21	1.22	1.23	1.22
COVID-19	5	5	2	315	2578	3832	1301	639	395	437	187	76	32	11	22	156	84	233	237	291	226	179	217	187	111	168

2020–2021 year

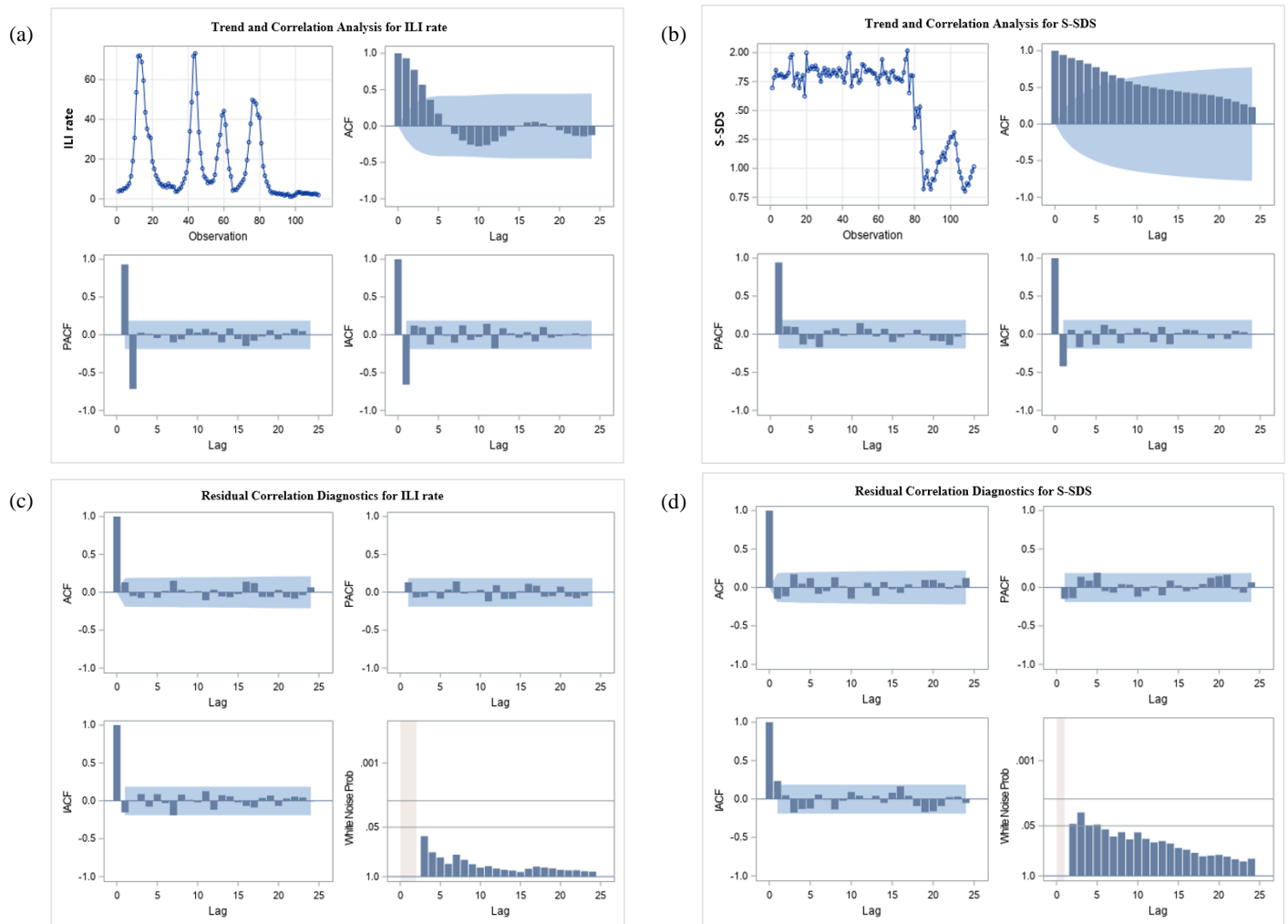| Week	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5
S-SDS	1.25	1.23	1.26	1.03	0.88	0.79	0.85	1.00	1.08	0.79	1.08	1.18	1.22	1.27	1.27	1.31	1.21	1.07	0.97	0.92	0.83	0.80	0.87	0.86	0.92	0.98	1.01
COVID-19	69	101	392	1879	2317	1531	944	753	530	401	430	435	527	607	621	857	1790	2804	3415	4654	6644	7119	6519	5168	3621	2687	2969

S-SDS, subway use-based social distancing score.

Figure S1. Trend and correlation analysis and residual correlation diagnostics of ILI rate and S-SDS are shown. (**a**) Trend and correlation analysis for ILI rate, (**b**) Trend and correlation analysis for S-SDS, (**c**) Residual correlation diagnostics for ILI rate, (**d**) Residual correlation diagnostics for S-SDS. ILI, influenza-like illness; S-SDS, subway use-based social distancing score.
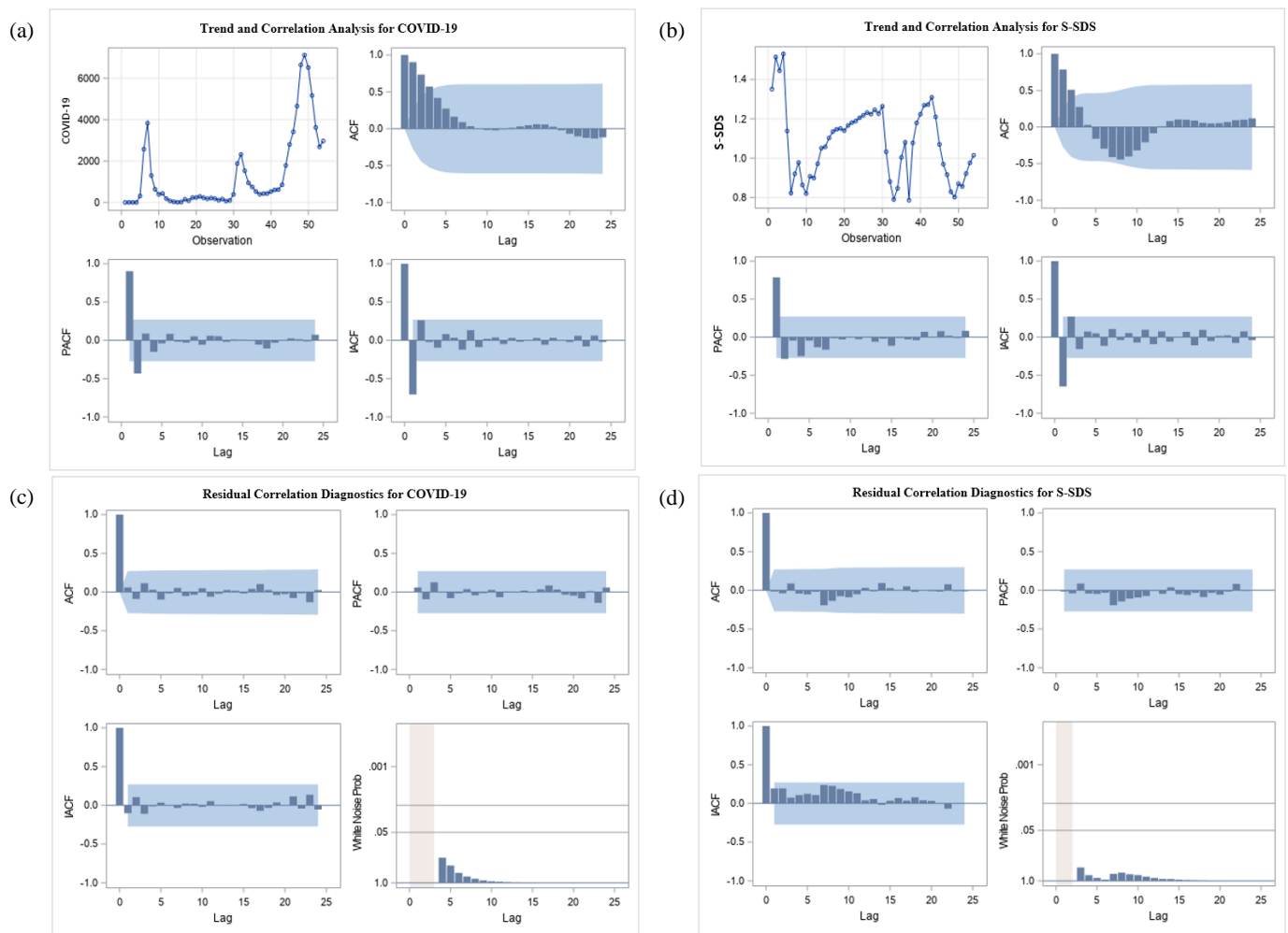
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Figure S2. Trend and correlation analysis and residual correlation diagnostics of COVID-19 and SDS are shown. (**a**) Trend and correlation analysis for COVID-19, (**b**) Trend and correlation analysis for S-SDS, (**c**) Residual correlation diagnostics for COVID-19, (**d**) Residual correlation diagnostics for S-SDS. ILI, influenza-like illness; S-SDS, subway use-based social distancing score.
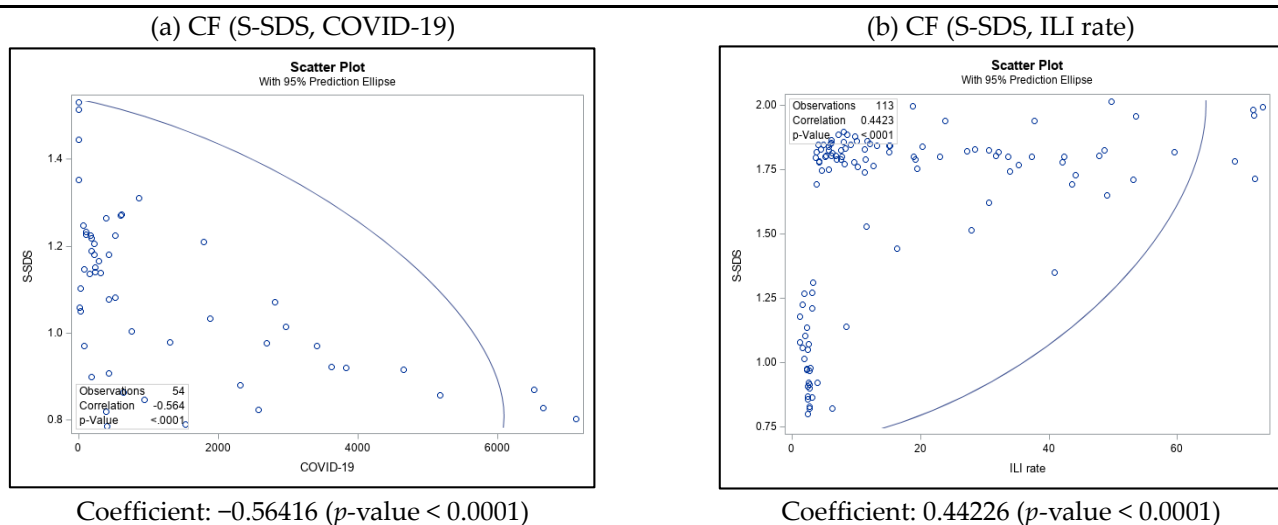

(a) CF (S-SDS, COVID-19)	(b) CF (S-SDS, ILI rate)
Coefficient: −0.56416 (*p*-value < 0.0001)	Coefficient: 0.44226 (*p*-value < 0.0001)

Figure S3. The plot of the correlation functions (CF). The plot of CF for (**a**) S-SDS and COVID-19; and (**b**) S-SDS and ILI rate. S-SDS, subway use-based social distancing score; COCID-19, coronavirus disease 2019; ILI, influenza-like illness.

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(a) ACF (S-SDS, S-SDS)

(b) ACF (COVID-19, COVID-19)

(c) ACF (ILI, ILI)

Figure S4. The plot of the autocorrelation functions (ACF) is presented. The plots of ACF for (**a**) S-SDS; (**b**) COVID-19; and (**c**) ILI rate. S-SDS, subway use-based social distancing score; COCID-19, coronavirus disease 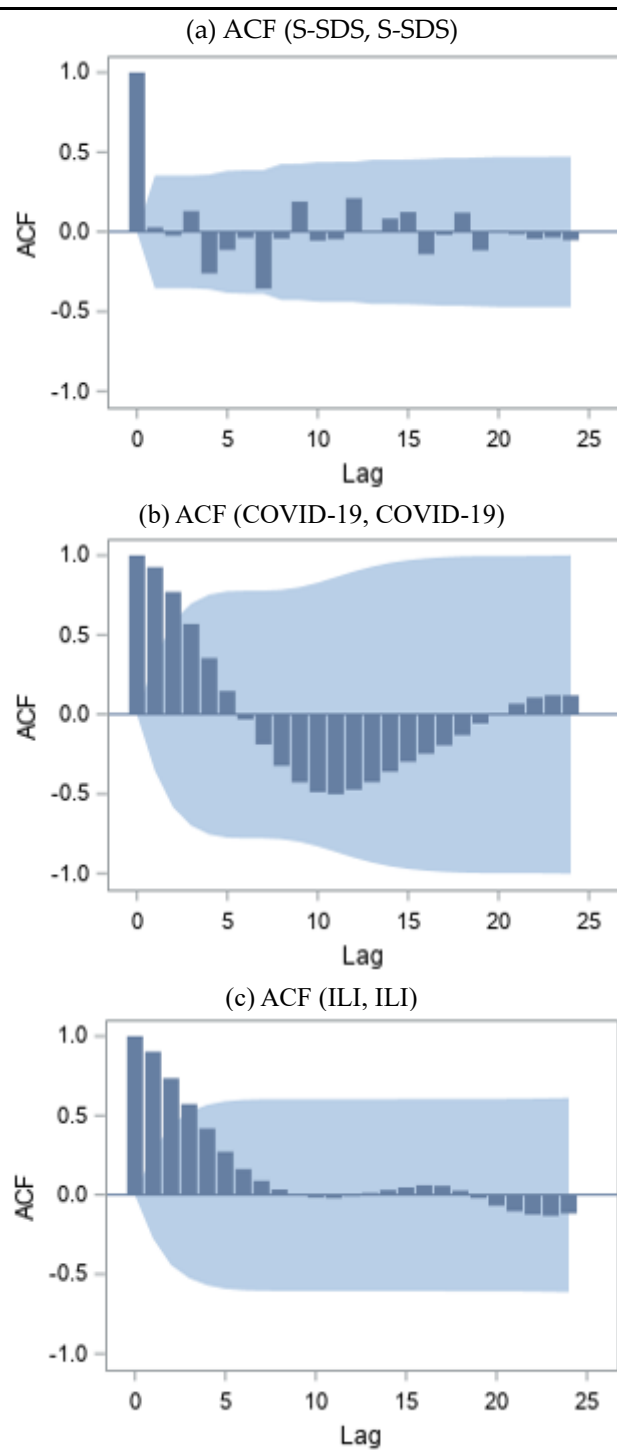2019; ILI, influenza-like illness.