



## Covid-19 in Illinois Counties: Effectiveness of Mitigation Effects

Adee Athiyaman<sup>1</sup>

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This paper addresses the question, how effective is the state’s mitigation effort in arresting the spread of Covid-19 in Illinois counties. To address this question, we use county data on number of Covid-19 cases; specifically, we compute the daily growth rate of infections as at April 11, 2020, estimate the likely number of cases as at April 23, 2020, and compare the estimate to the actual number of Covid-19 infections as at April 23, 2020. The differences in number of cases, from projected to actual number of Covid-19 infections, are used to rank the counties in terms of their effectiveness in mitigating the spread of the virus.

### Results

Table 1 presents the score for the top five metro and nonmetro counties that have been effective in mitigating the spread of Covid-19; Appendix 1 provides information for all the counties.

**Table 1: Top Five Metro and Nonmetro Counties, Effectiveness in Mitigating Virus Spread**

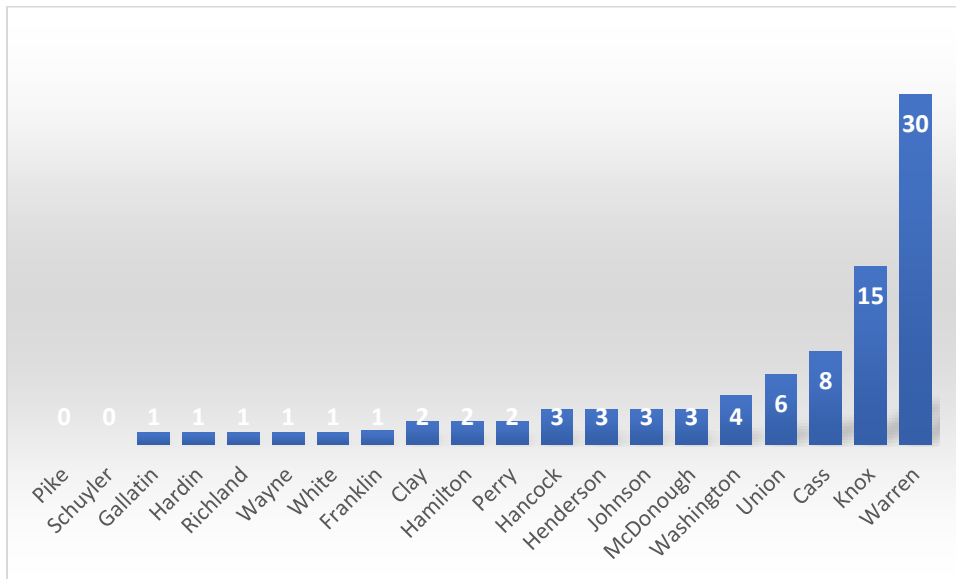
<b>Metro County</b>	<b>Growth Rate, 4/11/20</b>	<b>Cases, as at 4/11/20</b>	<b>Projection to 4/23/20</b>	<b>Actual Cases as at 4/23/20</b>	<b>Deviation Score</b>
Cook	12.18%	13417	57900	25811	-32089
Will	27.02%	1126	28836	1885	-26951
Lake	23.21%	1331	21554	2540	-19014
DuPage	24.84%	1048	20644	2047	-18597
Kane	18.53%	376	3474	863	-2611
<b>Nonmetro County</b>					
Pulaski	69.31%	4	16384	13	-16371
Fulton	69.31%	2	8192	2	-8190
Greene	69.31%	2	8192	2	-8190
Randolph	30.09%	37	1369	68	-1301
Lee	35.50%	12	850	18	-832

<sup>1</sup> Professor, Illinois Institute for Rural Affairs, Western Illinois University.

Metro counties Mercer and Marshall had very few cases of Covid-19 infections as at April 11, 2020, two and one respectively. Using these low numbers, we project Mercer County to have no more than five infections as at April 23, 2020, but the actual number of infections was six. The actual number of infections for Marshall County was four, exceeds projection number by three cases. Still, these are very low numbers compared to the median number of infections (53 to 54 cases in the metro regions), and we intend to monitor the infection rate of these counties on a regular basis.

In the nonmetro, Covid-19 infections are growing at an alarming rate in Warren and Knox counties; the actual number of infections in these counties exceed projections manifolds, from four to 30 times the expected number (Figure 1). Some of these counties like Warren and Cass have numerous workplace infections, mostly at meat processing plants. For others such as Knox County, the spread could be from neighboring counties; for example, residents from Warren County shopping at the Walmart Super Center in Galesburg.

**Figure 1: Worsening Covid-19 Situation, Deviations from Expected Numbers: Nonmetro Counties**



**Conclusion**

Covid-19 mitigation relies on nonpharmaceutical interventions such as social distancing, and travel restrictions. In the absence of a vaccine, the spread of the virus should be contained. The most affected areas in Illinois are the metros, the dense population centers. Given this, nonmetro counties should avoid hosting events, for example, county fair, that could cause population influxes. Similarly, businesses should consider limiting work schedules, and space-out workspace.

## Appendix 1: Effectiveness in Mitigating Covid-19

Metro	Growth Rate, 4/11/20	Cases, as at 4/11/20	Projection to 4/23/20	Actual Cases as at 4/23/20	Deviation Score
Cook	12.18%	13417	57900	25811	-32089
Will	27.02%	1126	28836	1885	-26951
Lake	23.21%	1331	21554	2540	-19014
DuPage	24.84%	1048	20644	2047	-18597
Kane	18.53%	376	3474	863	-2611
Kankakee	21.75%	185	2516	289	-2227
St. Clair	18.40%	173	1575	330	-1245
McHenry	16.86%	220	1663	419	-1244
Champaign	22.21%	85	1222	99	-1123
Rock Island	22.15%	84	1199	247	-952
Kendall	19.31%	103	1045	171	-874
Madison	19.31%	103	1045	235	-810
McLean	19.62%	75	790	87	-703
Macoupin	29.32%	14	472	24	-448
Monroe	19.80%	43	463	60	-403
Winnebago	16.23%	80	561	252	-309
Boone	32.43%	7	343	54	-289
Macon	22.40%	23	338	96	-242
Henry	20.61%	22	261	33	-228
DeKalb	16.65%	33	243	56	-187
Sangamon	13.43%	43	216	76	-140
Clinton	13.37%	37	184	51	-133
Tazewell	18.06%	18	157	41	-116
Jackson	14.17%	30	164	53	-111
Grundy	15.74%	17	112	26	-86
Jersey	22.40%	6	88	11	-77
Vermilion	19.46%	7	72	10	-62
Piatt	19.91%	6	65	7	-58
Peoria	12.06%	23	98	54	-44
Ford	14.63%	5	29	8	-21
Williamson	9.59%	10	32	19	-13
DeWitt	13.73%	3	16	3	-13
Bond	10.66%	4	14	4	-10
Woodford	6.95%	7	16	11	-5
Calhoun	0.00%	1	1	1	0
Stark	0.00%	1	1	1	0
Menard	5.33%	2	4	4	0
Mercer	7.70%	2	5	6	1
Marshall	0.00%	1	1	4	3

## Nonmetro Counties

Nonmetro	Growth Rate, 4/11/20	Cases, as at 4/11/20	Projection to 4/23/20	Actual Cases as at 4/23/20	Deviation Score
Pulaski	69.31%	4	16384	13	-16371
Fulton	69.31%	2	8192	2	-8190
Greene	69.31%	2	8192	2	-8190
Randolph	30.09%	37	1369	68	-1301
Lee	35.50%	12	850	18	-832
Coles	40.24%	5	625	18	-607
Jefferson	35.84%	6	442	77	-365
Ogle	25.21%	16	329	71	-258
Marion	21.37%	13	169	25	-144
Adams	14.63%	25	145	34	-111
Christian	14.45%	24	136	27	-109
Shelby	27.47%	3	81	5	-76
Livingston	13.54%	15	76	18	-58
Whiteside	11.92%	25	105	49	-56
Douglas	14.11%	11	60	12	-48
Fayette	15.69%	9	59	15	-44
LaSalle	12.27%	19	83	39	-44
Morgan	13.54%	10	51	14	-37
Montgomery	16.00%	8	55	21	-34
Iroquois	13.86%	8	42	14	-28
Jo Daviess	11.51%	10	40	12	-28
Crawford	13.41%	5	25	10	-15
Stephenson	10.40%	8	28	13	-15
Lawrence	17.33%	2	16	2	-14
Carroll	11.50%	5	20	7	-13
Clark	11.55%	4	16	4	-12
Effingham	13.73%	3	16	5	-11
Bureau	10.73%	5	18	8	-10
Moultrie	12.21%	3	13	3	-10
Wabash	13.86%	2	11	2	-9
Saline	9.16%	3	9	3	-6
Mason	9.99%	3	10	6	-4
Jasper	19.80%	4	43	40	-3
Logan	6.46%	3	7	5	-2
Cumberland	2.48%	2	3	2	-1
Massac	6.93%	2	5	4	-1
Pike	0.00%	1	1	1	0
Schuyler	0.00%	1	1	1	0
Gallatin	0.00%	1	1	2	1
Hardin			0	1	1
Richland	0.00%	1	1	2	1
Wayne			0	1	1
White			0	1	1

<b>Nonmetro</b>	<b>Growth Rate, 4/11/20</b>	<b>Cases, as at 4/11/20</b>	<b>Projection to 4/23/20</b>	<b>Actual Cases as at 4/23/20</b>	<b>Deviation Score</b>
Franklin	6.87%	3	7	8	1
Clay			0	2	2
Hamilton			0	2	2
Perry		1	1	3	2
Hancock	0.00%	1	1	4	3
Henderson			0	3	3
Johnson			0	3	3
McDonough		1	1	4	3
Washington	2.89%	2	3	7	4
Union			0	6	6
Cass			0	8	8
Knox	5.33%	2	4	19	15
Warren		1	1	31	30