

Covid-19 Statistical Review

Our Daily Update on the Data and the Trends



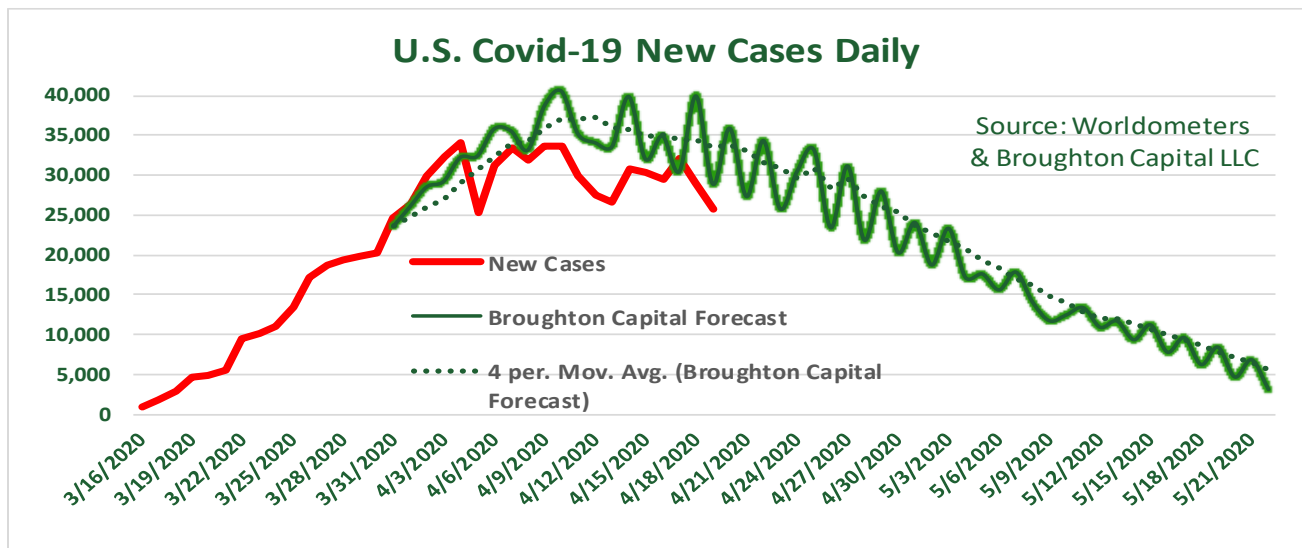
BROUGHTON CAPITAL, LLC
THE INDEPENDENT VARIABLE

Today's Analysis: Data from April 22, 2020

Wednesday was a mixed day as is typical of mid-week days. The U.S. case count was up significantly, influenced strongly by New York and Texas. From here on we will be presenting the state breakouts (Exhibit 2.) so that you may see where caution is most necessary and where relaxation of restrictions is likely.

To the good, there is lots of green in the U.S. death count change, save only Texas. We are hopeful that such a midweek reduction is a sign of the long-awaited inflection point for U.S. deaths per day. Europe was also down in deaths, although up modestly in new cases, notably in Italy.

To illustrate the difficulty of interpreting these statistics we have learned that some states are including their 'probables' counts, situations where the cause of death was unclear.



Our projection of U.S. Covid-19 New Cases Daily was first published on April 1, 2020. The actual new cases daily continue to track our projection closely. Although the actual peak was quicker and lower, our data science team captured the shape and slope of the mathematical progression that was coming, and even managed to predict much of the daily cadence (note the daily pattern of oscillation – actual vs. projected).

Industrials Research Analysis

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Exhibit 1

Country	Status	Current days	Cases	Deaths	Death Rate	Pop per case	Pop per death	Daly Max Cases	New Cases Latest Day	Daily Max Deaths	New Deaths Latest Day	Change In New Case Count Latest Day	Change In New Case Count Last Three Days	Change in New Death Count Latest Day	Change in New Death Count Last Three Days
China	Recovery	89	82,788	4,632	5.6%	17,241	333,333	6,000	30	150	-	19	14	0	0
S. Korea	Recovery	64	10,694	238	2.2%	4,785	200,000	851	11	9	1	2	3	0	-1
Italy	Falling	61	187,327	25,085	13.4%	323	2,410	6,557	3,370	919	437	641	323	-97	4
Iran	Falling	58	85,996	5,391	6.3%	977	15,625	3,186	1,194	158	94	-103	(149)	6	7
Germany	Falling	53	150,648	5,315	3.5%	556	15,873	6,933	2,195	333	229	807	177	5	125
France	Falling	51	159,877	21,340	13.3%	408	3,058	9,678	1,827	1,809	544	-840	726	13	149
UK	Falling	49	133,495	18,100	13.6%	509	3,745	8,681	4,451	980	763	150	(1,399)	-65	167
Norway	Recovery?	49	7,338	187	2.5%	739	29,412	399	97	16	5	12	55	4	4
Netherlands	Falling	48	34,842	4,054	11.6%	492	4,219	1,316	708	234	138	-21	(358)	-27	55
Sweden	Falling	48	16,004	1,937	12.1%	631	5,208	726	682	185	172	137	119	-13	143
USA	Falling	47	848,717	47,659	5.6%	390	6,944	34,196	29,973	2,804	2,341	3988	4,933	-463	802
Spain	Falling	47	208,389	21,717	10.4%	224	2,155	8,271	4,211	961	435	243	(47)	5	25
Switzerland	Falling	47	28,268	1,509	5.3%	306	5,747	1,321	205	75	31	86	(131)	-18	6
Belgium	Inflection ?	47	41,889	6,262	14.9%	277	1,852	2,454	933	496	264	-40	(380)	94	34
Denmark	Falling	44	7,912	384	4.9%	732	15,152	390	217	15	14	37	75	8	5
Austria	Recovery?	43	14,925	510	3.4%	604	17,544	1,321	52	30	19	-26	(26)	-2	10
Canada	Inflection ?	41	40,190	1,974	4.9%	939	19,231	1,821	1,768	185	140	175	95	-4	23
Ireland	Falling	41	16,671	769	4.6%	-	6,410	1,515	631	44	39	243	138	-4	0
Portugal	Falling	40	21,982	785	3.6%	464	12,987	1,516	603	37	23	87	82	-4	-4
Australia	Recovery	40	6,649	74	1.1%	3,831	333,333	534	4	8	3	-16	(22)	3	2
Brazil	Rising?	40	45,757	2,906	6.4%	4,651	71,429	3,348	2,678	204	165	342	746	11	64
Malaysia	Recovery?	40	5,532	93	1.7%	5,848	333,333	235	50	8	1	-7	(34)	-2	0
Mexico	Inflection ?	39	9,501	857	9.0%	13,514	142,857	764	729	60	145	218	107	119	41
Singapore	Inflection ?	48	10,141	12	0.1%	577	500,000	1,426	1,016	2	1	-95	420	1	1
North America	Falling?	47	898,408	50,490	5.6%	553	9,846	35,911	32,470	2,974	2,626	4,381	5,135	(348)	866
Western Europe	Falling	61	1,029,567	107,954	10.5%	391	3,725	35,453	20,182	4,442	3,113	1,516	(646)	(101)	723
Other	Inflection ?	89	707,744	25,622	3.6%	9,714	268,315	26,550	27,307	903	868	(1,183)	470	(6)	56
World	Inflection ?	89	2,635,719	184,066	7.0%	2,959	42,373	84515	79959	7960	6607	4,714	4,959	(455)	1,645

Exhibit 2.

	Cases	New Cases	Change in New Cases	Deaths	New Deaths	Change In New Deaths
USA Total	848,717	29,973	3,988	47,659	2,341	(463)
New York	262,268	5,713	1,252	20,354	661	(103)
New Jersey	95,865	3,478	(103)	5,063	310	(66)
Massachusetts	42,944	1,745	189	2,182	221	69
California	37,343	1,700	(257)	1,419	121	46
Pennsylvania	36,892	1,599	220	1,713	99	(167)
Illinois	35,108	2,049	498	1,565	97	(22)
Michigan	33,966	999	32	2,813	113	(119)
Florida	28,576	707	(104)	927	60	16
Louisiana	25,258	404	73	1,473	68	(9)
Texas	22,469	2,109	1,335	1,544	121	98
Connecticut	21,458	862	317	550	22	(70)
Georgia	21,102	936	169	846	28	(15)
Maryland	14,775	582	73	698	46	(24)
Ohio	14,117	392	(414)	610	53	5
Washington	12,494	212	15	692	10	(20)
Indiana	12,438	341	(70)	661	31	(30)
Colorado	10,878	431	90	508	22	(15)
Virginia	10,266	636	(4)	349	25	1
Tennessee	7,842	448	292	166	9	4
North Carolina	7,488	375	129	265	24	(7)
Missouri	6,188	247	137	232	12	(3)
Rhode Island	5,841	341	(69)	181	10	(6)
Alabama	5,592	265	16	197	11	(11)
Arizona	5,459	208	21	229	21	-
Mississippi	4,894	178	(26)	193	10	(4)
Wisconsin	4,845	225	104	246	4	(8)
South Carolina	4,761	153	(16)	140	5	(6)
Nevada	4,081	144	37	172	9	4
Iowa	3,748	107	(375)	90	7	3
Utah	3,445	149	66	34	2	(2)
Kentucky	3,373	181	39	185	14	(3)
District Of Columbia	3,206	108	(63)	127	15	8
Delaware	3,200	269	83	89	7	(3)
Oklahoma	2,894	87	(40)	170	6	(15)
Minnesota	2,721	154	57	179	19	2
Kansas	2,392	402	178	44	2	(7)
New Mexico	2,317	107	6	111	2	(5)
Oregon	2,210	138	92	71	6	3
Arkansas	2,059	57	38	78	0	-
Idaho	1,858	103	73	9	1	(2)
South Dakota	1,813	100	30	42	9	8
Nebraska	1,802	36	(29)	54	3	3
New Hampshire	1,588	97	53	48	6	6
West Virginia	963	34	7	29	3	1
Maine	907	19	6	39	3	2
Vermont	823	5	3	40	0	(2)
North Dakota	679	35	18	14	1	1
Hawaii	592	6	4	12	0	(2)
Wyoming	447	6	(7)	6	0	(4)
Montana	439	2	(2)	14	2	-
Alaska	335	6	(2)	9	0	-
Guam	137	1	1	5	0	-
Northern Mariana Islands	14	-	-	67	0	-
Puerto Rico	1,378	80	80	67	3	3
United States Virgin Islands	54	1	1	-	0	-

We continue to find the scarcity of factual data being reported about the Covid-19 Virus alarming. Even more distressing is the scarcity of statistically-based trend analysis. There are many models based largely on assumption, but little of the kind of evidence-based analysis you will find below.

1. From within the health care industry, those with intimate working knowledge of patients and the evolution of the cases overall and their condition individually, updated in real time and arguably best equipped to provide it, are for some reason not producing any statistical forecasts or even conducting simple mathematical trend analysis. We will give the benefit of the doubt, since we know they are busy treating patients, and perhaps the kind of work we love to do, just isn't on their priority list.
2. We claim no special insights to the virology or contagion or appropriate medical treatment protocols. We do however, understand the basic principles of applying critical thinking, conducting a bit of evidence scrutiny, and then using some old-fashioned mathematical reasoning. We use a few data science techniques, to produce trend analysis that is relatively free from emotion, as well as constructing forecasts which have statistical significance. We are hopeful to allow business people a chance to improve their awareness, embolden their patience, and set realistic expectations for the coming days, weeks, and months.

Important Disclosures

Broughton Capital, LLC is an independent, privately held, deep-data driven quantamental economics balanced with fundamental equity research, firm. Headquartered in St. Louis, with personnel in Boston, Dallas, Chicago, Nashville and Philadelphia, we travel the globe to meet with companies, their customers and vendors, and clients, as we strive to be the single best resource for transportation data and understanding the trends driving the future of the commercial transportation of goods. The material contained herein is based upon sources we believe to be reliable, but is not guaranteed to be accurate or complete. It is published for informational purposes only and should not be construed as an offer, or the solicitation of an offer to buy or sell any security. Opinions expressed are solely those of the author and subject to change as new data becomes available.

We are “The Independent Variable.” Why? Two reasons:

1. As is true in a mathematical equation, **the independent variable drives the value, changes the value of the dependent variables.** Knowing the independent variable, allows you to solve for the value of not only the dependent variables but the value of the overall equation. We know that through good fundamental research, high quality data, and years of industry experience, we can literally change the value of an equity, a company's access to capital (debt and equity), ability to merge or acquire, and even a management team or their behavior. We know that if we do our job well, we become the 'Independent Variable' in a company's future.
2. **We are Independent.** We do not work for a large commercial bank. We are not beholden to lending relationships, or our firm's investment holdings, or even worse – our firm's investment bankers. While we pride ourselves on being independent from emotion and influence, we are aware of, and guarded against falling victim to, the cognitive biases inherent in the human brain. We are dependent on math and the power of back tested multivariable analysis, especially when balanced with wisdom of experience from those who have made decades of mistakes. **We are Variable.** Over the last several decades, we have been everything from strongly positive about to strongly negative about almost every single equity in the transportation universe. We have built our reputation upon having an opinion, and

being clear about that opinion (i.e., no one ever finishes a conversation with us and says, “I wonder what they really think?”). We know that our opinions and outlooks may be everything from slightly flawed to completely wrong. As a result, we consider it our professional duty to change our opinions and outlooks as the statistics, data, or evidence warrant.

Transportation stocks have the reputation for predicting the overall market #dowtransporttheory because the underlying goods flow is heartbeat of the economy. That goods flow becomes increased (or decreased) levels of asset utilization for asset intensive transportation companies, which becomes increased (or decreased) levels of financial returns, which becomes stock price. We believe that the stock price performance of transportation companies is only symptomatic of the underlying goods flow.