COVID-19 Statistical Review

Our Daily Update on the Data and the Trends

Today's Analysis: Data from August 2,

Sunday's stats continue the now solid trends of reduced case counts. We are one third below the max new case day for the U.S. and even more for the group 2 hot-spot states. Interestingly, the WOW decline in cases for group 3 hot-spot states was the largest of the four groups, suggesting they those states may avoid the big runup experienced by the first two groups.

New deaths were up, but only by 20, the smallest increase since July 14th. This should be a sign of the inflection we expect later this week.

Please note that the optimism expressed in this daily report comes from the trends expressed in the numbers. The key assumptions are only that the future numbers will behave like what we have already seen. As such, the history of the pandemic has produced consistently accurate forecasts with one important exception. Differences between countries, states, and regions have produced inaccurate estimates of the length of the contagion, although the shape estimates have been accurate. Only the resurgence of American case counts was a shape surprise based on our failure to see that group 2 was a separate contagion from group 1.

The accuracy of these numbers is in strong contrast to many of the forecasts coming from the medical community. Their forecasts are based largely on models that mix a little data with lots of powerful assumptions about how this contagion behaves. The results so far indicate that the assumptions are often misleading, especially in the pessimistic direction. For instance, the models accurately predicted an increase in cases with the relaxation of mobility restrictions, but got the matter of degree significantly wrong. Nor did they forecast the timely inflection of the group two states. As a result, the medical community continues to dramatically over-estimate the negative effects from COVID-19 and recommends the reimposition of restrictions with clearly proven negative economic effects of a much larger magnitude than the health effects.

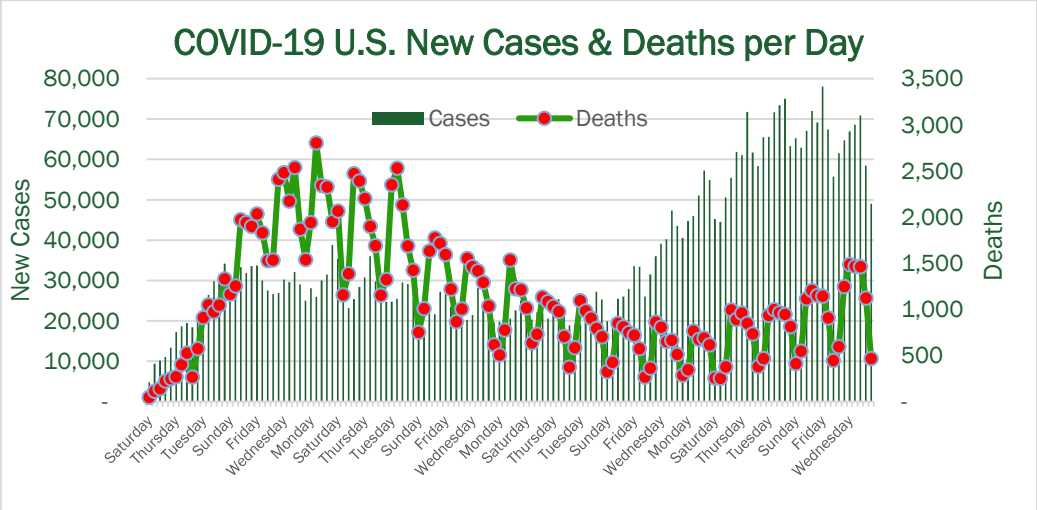
BROUGHTON CAPITAL, LLC
THE INDEPENDENT VARIABLE

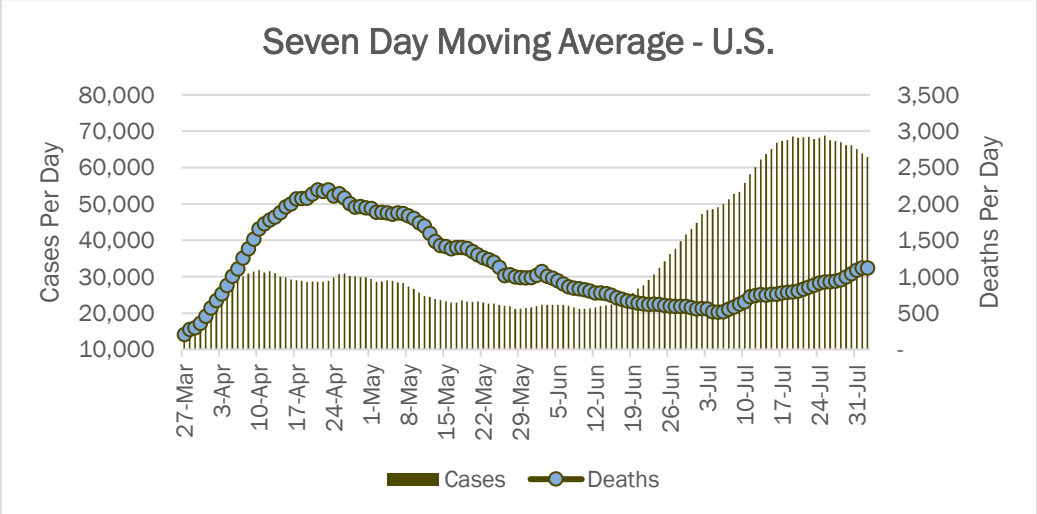
Industrials Research Analysis

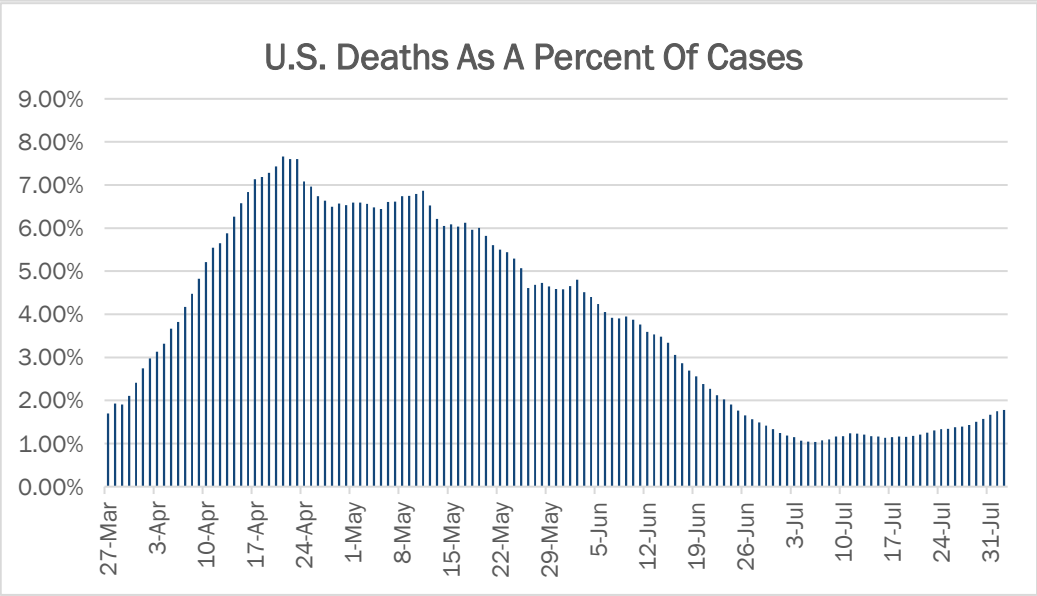
Noel Perry, Managing Director
717-673-2998
noel@broughtoncapital.com

Donald Broughton, Managing Partner
314-308-5911
donald@broughtoncapital.com

Exhibit 1







Source: Worldometer.com, Transport Futures, & Broughton Capital

Exhibit 2

Country	Status	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 From Week Before	Change in New Death Count Latest Day	Change in New Death Count From Week Ago
China	Recovery	84,385	4,634	5.5%	16,949	333,333	6,000	49	150	-	5	3	0	0
S. Korea	Recovery	14,366	301	2.1%	3,571	166,667	851	30	9	-	(1)	(28)	0	0
Italy	Recovery	248,070	35,154	14.2%	244	1,718	6,557	238	919	8	(57)	(16)	3	3
Iran	Rising	309,437	17,190	5.6%	272	4,902	3,186	2,685	235	208	137	352	-8	-8
Germany	Recovery	211,462	9,226	4.4%	396	9,091	6,933	385	333	-	(27)	(24)	-2	-1
France	Recovery?	187,919	30,265	16.1%	347	2,155	9,678	-	1,809	-	-	-	0	0
UK	Recovery	304,695	46,201	15.2%	223	1,471	8,681	743	980	8	(28)	(2)	-66	-6
Norway	Recovery	9,268	255	2.8%	585	21,277	399	15	16	-	2	9	0	0
Netherlands	Recovery?	55,098	6,149	11.2%	311	2,786	1,316	366	234	1	(65)	152	0	1
Sweden	Recovery?	80,422	5,743	7.1%	126	1,761	2,214	-	185	-	-	-	0	0
USA	Falling	**4,813,647**	**158,365**	**3.3%**	**69**	**2,092**	**61,690**	**49,038**	**2,804**	**467**	(9,391)	(6,697)	-656	**20**
Spain	Recovery	335,602	28,445	8.5%	139	1,645	8,271	-	961	-	-	-	0	0
Switzerland	Recovery	35,550	1,981	5.6%	244	4,367	1,321	138	75	-	(42)	28	0	0
Belgium	Recovery?	69,402	9,845	14.2%	167	1,178	2,454	651	496	4	(94)	123	3	0
Denmark	Recovery?	13,789	615	4.5%	420	9,434	390	-	15	-	-	-	0	0
Austria	Recovery	21,304	718	3.4%	423	12,500	1,321	92	30	-	10	(42)	0	0
Canada	Recovery	116,884	8,945	7.7%	323	4,219	1,920	285	207	4	(2)	(70)	-2	-1
Ireland	Recovery	26,162	1,763	6.7%	-	2,801	1,515	53	57	-	9	41	0	0
Portugal	Recovery	51,463	1,738	3.4%	198	5,882	1,516	153	37	1	(85)	(56)	-1	0
Australia	Recovery	17,923	208	1.2%	1,425	125,000	534	641	8	7	264	188	3	-3
Brazil	Falling	2,733,677	94,130	3.4%	78	2,257	70,869	24,801	1,554	514	(17,777)	1,334	-534	-42
Malaysia	Recovery	8,999	125	1.4%	3,597	250,000	235	14	8	-	5	1	0	-1
Mexico	Rising	434,193	47,472	10.9%	297	2,717	8,458	9,556	60	784	1,098	2,805	96	55
Singapore	Recovery	52,825	27	0.1%	111	200,000	1,426	313	2	-	6	(168)	0	0
North America	Falling	5,364,724	214,782	4.0%	93	2,319	86,966	58,879	2,974	1,255	(8,295)	(3,962)	(562)	74
Western Europe	Recovery	1,650,206	178,098	10.8%	244	2,258	35,453	2,834	4,442	22	(377)	213	(63)	(3)
Other	Inflection	11,211,670	299,540	2.7%	613	22,948	203,346	156,188	3,155	3,127	(29,126)	5,715	(572)	233
World	Falling	18,226,600	692,420	3.8%	428	11,261	288,363	217,901	7,960	4,404	(37,798)	1,966	(1,197)	304

Source: Worldometer.com, Transport Futures, & Broughton Capital

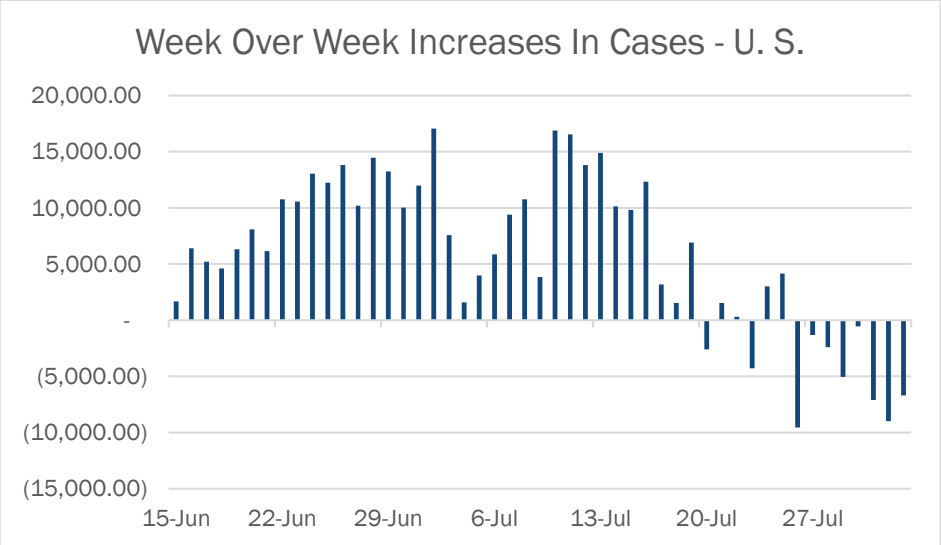
Exhibit 3A

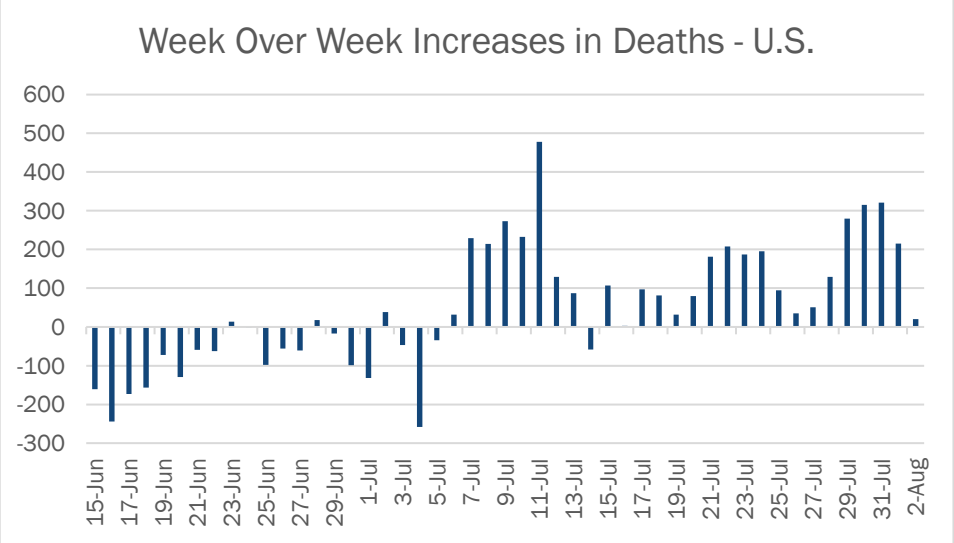
	Hot Spot Group	Total Cases	Max New Cases/Day Since 21 April	New Cases Latest Day	Change in New Cases/Day	Change In Cases/Day Since Week Ago	Change In Cases/Day Since Max	Total Deaths	Max New Deaths/Day Since 21 April	New Deaths Latest Day	Change In New Deaths/Day	Change In Deaths/Day Since Week Ago	Change In Deaths/Day Since Max	Cases/Million	Population
USA Total	**NA**	**4,813,647**	**78,009**	**49,038**	**(9,391)**	**(6,753)**	**-37%**	**158,365**	**2,804**	**467**	**(656)**	**20**	**-83%**	**14,543**	**331,004,361**
Hot-Spot Group 1	1	1,175,766	21,922	6,217	3,009	(451)	-72%	78,759	1,830	96	40	(2)	-95%	17,582	67,002,431
Hot-Spot Group 2	2	2,297,441	50,036	30,278	(7,802)	(2,181)	-39%	38,738	1,043	278	(539)	9	-73%	17,492	131,632,800
Hot-Spot Group 3	3	798,844	13,735	6,488	(3,287)	(2,546)	-53%	27,050	477	60	(88)	17	-87%	11,950	67,059,786
Rest of States	4	541,596	8,624	6,055	(1,311)	(1,575)	-30%	13,818	272	33	(69)	(4)	-88%	7,624	71,140,342
New York	1	445,146	10,868	467	(176)	(138)	-96%	32,780	764	7	(1)	(3)	-99%	22,882	19,453,968
New Jersey	1	188,048	4,160	245	(24)	(85)	-94%	15,913	458	6	(4)	(7)	-99%	21,171	8,882,395
Massachusetts	1	118,458	4,946	418	(10)	49	-92%	8,638	252	12	(5)	(7)	-95%	17,186	6,892,405
California	2	515,686	12,137	6,395	(987)	321	-47%	9,397	195	38	(95)	12	-81%	13,051	39,511,060
Pennsylvania	1	118,038	3,096	570	(111)	(82)	-82%	7,293	294	4	(4)	1	-99%	9,220	12,801,381
Illinois	3	183,224	4,014	1,467	(172)	(74)	-63%	7,714	191	14	6	13	-93%	14,459	12,671,873
Michigan	3	91,761	1,350	429	(329)	(610)	-68%	6,457	232	-	(7)	-	-100%	9,188	9,987,209
Florida	2	487,132	15,300	7,104	(2,538)	(2,240)	-54%	7,084	256	62	(117)	(15)	-76%	22,681	21,477,832
Louisiana	1	119,747	3,840	3,467	3,467	(373)	-10%	4,010	126	57	57	11	-55%	25,759	4,648,783
Texas	2	454,364	12,235	4,618	(2,102)	309	-62%	7,341	322	75	(193)	(11)	-77%	15,670	28,995,746
Connecticut	1	49,810	2,109	-	-	-	-100%	4,432	125	-	-	-	-100%	13,971	3,565,242
Georgia	2	193,177	4,813	3,165	(495)	400	-34%	3,840	82	15	(58)	12	-82%	18,194	10,617,138
Maryland	1	90,274	1,730	909	(110)	215	-47%	3,515	77	9	(4)	2	-88%	14,932	6,045,713
Ohio	3	93,041	1,720	940	18	59	-45%	3,537	138	16	(10)	6	-88%	7,960	11,689,615
Washington	3	59,154	1,209	200	(514)	(130)	-83%	1,594	30	-	(21)	-	-100%	7,768	7,615,063
Indiana	4	67,857	949	735	(233)	(117)	-23%	2,975	119	4	(2)	(4)	-97%	10,079	6,732,546
Colorado	4	47,716	994	449	(9)	(98)	-55%	1,844	122	-	(6)	-	-100%	8,286	5,758,981
Virginia	4	91,782	1,615	981	68	23	-39%	2,218	43	3	(38)	-	-93%	10,753	8,535,562
Tennessee	2	109,627	3,140	1,443	(782)	(1,697)	-54%	1,073	27	6	(1)	3	-78%	16,053	6,829,015
North Carolina	2	125,551	2,588	1,673	409	201	-35%	1,999	41	14	(19)	4	-66%	11,971	10,487,897
Missouri	3	51,840	1,712	32	(865)	(1,037)	-98%	1,313	31	-	(8)	(5)	-100%	8,447	6,137,553
Rhode Island	1	19,022	443	-	-	-	-100%	1,007	27	-	-	-	-100%	17,956	1,059,367
Alabama	2	91,444	2,143	2,095	469	931	-2%	1,627	47	24	1	7	-49%	18,650	4,903,192
Arizona	2	178,467	4,877	1,465	(1,527)	(508)	-70%	3,765	172	18	(35)	(1)	-90%	24,519	7,278,621
Mississippi	3	60,553	1,775	672	(462)	(535)	-62%	1,703	52	10	(20)	(5)	-81%	20,346	2,976,189

Exhibit 3B.

	Hot Spot Group	Total Cases	Max New Cases/Day Since 21 April	New Cases Latest Day	Change in New Cases/Day	Change In Cases/Day Since Week Ago	Change In Cases/Day Since Max	Total Deaths	Max New Deaths/Day Since 21 April	New Deaths Latest Day	Change In New Deaths/Day	Change In Deaths/Day Since Week Ago	Change In Deaths/Day Since Max	Cases/Million	Population
Wisconsin	3	54,924	1,117	922	(140)	(35)	-17%	948	20	1	(12)	-	-95%	9,433	5,822,701
South Carolina	2	91,788	2,374	1,189	(394)	(2)	-50%	1,777	80	26	(13)	-	-68%	17,827	5,148,707
Nevada	2	50,205	1,447	1,131	145	104	-22%	835	29	-	(5)	(2)	-100%	16,299	3,080,195
Iowa	4	45,571	894	482	(25)	(51)	-46%	876	21	5	1	3	-76%	14,444	3,155,131
Utah	3	41,175	954	473	(33)	123	-50%	311	10	1	(5)	1	-90%	12,843	3,205,934
Kentucky	4	31,185	977	462	(110)	147	-53%	742	17	2	(2)	(2)	-88%	6,980	4,467,477
District Of Columbia	1	12,274	335	69	(10)	6	-79%	586	19	1	1	1	-95%	17,391	705,739
Delaware	1	14,949	458	72	(17)	(43)	-84%	585	69	0	-	-	-100%	15,352	973,792
Oklahoma	4	38,225	1,714	494	(750)	(710)	-71%	550	21	1	(7)	1	-95%	9,660	3,956,946
Minnesota	4	55,947	903	759	34	(103)	-16%	1,654	39	8	2	5	-79%	9,920	5,639,743
Kansas	4	28,144	1,080	-	(103)	(100)	-100%	359	13	1	1	(1)	-92%	9,660	2,913,351
New Mexico	4	21,016	460	220	24	(34)	-52%	654	12	3	(6)	(4)	-75%	10,023	2,096,906
Oregon	4	19,097	429	280	(45)	(374)	-35%	326	14	1	(2)	(6)	-93%	4,528	4,218,066
Arkansas	3	43,810	1,061	637	(25)	(5)	-40%	464	20	4	(3)	2	-80%	14,517	3,017,747
Idaho	4	21,344	727	230	(163)	(120)	-68%	197	13	0	(8)	-	-100%	11,944	1,787,063
South Dakota	4	8,955	239	88	(15)	(2)	-63%	135	5	1	(3)	-	-80%	10,123	884,627
Nebraska	4	26,702	641	311	131	88	-51%	332	21	0	-	-	-100%	13,804	1,934,391
New Hampshire	4	6,634	164	21	(9)	-	-87%	417	19	1	-	1	-95%	4,879	1,359,843
West Virginia	4	6,854	262	119	26	(20)	-55%	117	5	1	1	1	-80%	3,824	1,792,229
Maine	4	3,958	76	21	(4)	(3)	-72%	123	5	0	-	-	-100%	2,944	1,344,330
Vermont	4	1,426	17	5	(2)	1	-71%	57	3	0	-	-	-100%	2,285	624,007
North Dakota	4	6,660	168	58	(75)	(82)	-65%	105	6	2	2	2	-67%	8,739	762,045
Hawaii	4	2,242	122	45	(41)	(18)	-63%	26	3	0	-	-	-100%	1,583	1,415,828
Wyoming	4	2,808	69	39	(4)	10	-43%	26	4	0	-	-	-100%	4,852	578,769
Montana	4	4,193	201	112	(4)	30	-44%	61	5	0	(1)	-	-100%	3,923	1,068,733
Alaska	4	3,280	112	144	(2)	(42)	29%	24	2	0	(1)	-	-100%	4,484	731,588
Other	3	119,362	4,588	716	(765)	(302)	-84%	3,009	186	14	(8)	5	-92%	14,543	8,241,190

Exhibit 3C


Week Over Week Increases In Cases - U. S.
20,000.00
15,000.00
10,000.00
5,000.00
-
(5,000.00)
(10,000.00)
(15,000.00)
15-Jun
22-Jun
29-Jun
6-Jul
13-Jul
20-Jul
27-Jul


Week Over Week Increases in Deaths - U.S.
600
500
400
300
200
100
0
-100
-200
-300
15-Jun
17-Jun
19-Jun
21-Jun
23-Jun
25-Jun
27-Jun
29-Jun
1-Jul
3-Jul
5-Jul
7-Jul
9-Jul
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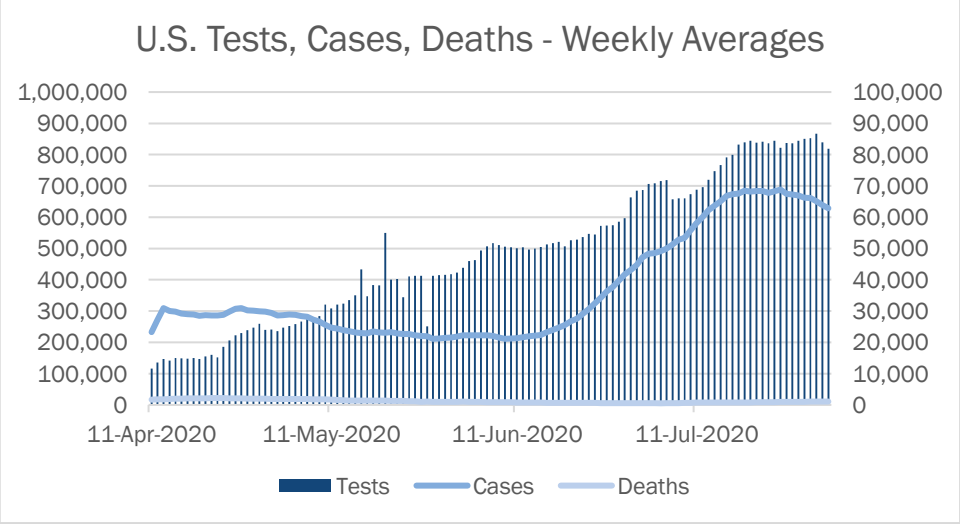
23-Jul
25-Jul
27-Jul
29-Jul
31-Jul
2-Aug


U.S. Tests, Cases, Deaths - Weekly Averages
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
11-Apr-2020
11-May-2020
11-Jun-2020
11-Jul-2020
Tests
Cases
Deaths

A note about data and our approach:

As we have noted before, the 'new case' numbers are influenced by the number of tests. Since the rate of testing varies between entities, varies over time, and is dependent on the completeness of collection, the data on new cases can be misleading at times. However, counting them is simple. Does the test show positive? It is not so simple with deaths, where there is considerable interpretation as to whether COVID-19 was the causal factor. Take the case of a desperately ill person already in hospice care. When that person dies, if he or she has contracted COVID-19, that death is attributed to the contagion, even though death was near anyway. Moreover, some jurisdictions are counting a person dying with 'possible' COVID-19 infection as a COVID-19 death. In addition, there is also the same problem with completeness of counting as with the case statistics.

Recent revisions have slightly increased the number of new cases reported and widened the gap between our projection and the actual data. This process has lowered our confidence in our prediction of the quarantines being lifted quickly. In all of our analysis, we try to point out other factors that may bias the data or those who are reporting the data; and, in the interest of transparency,we strive to admit any bias we harbor. We acknowledge one of our biases - we suspect that there are deaths, classified as caused by Covid-19, in which Covid-19 was only coincidental. Call it our bias about someone else's bias - the potential of increased government and insurance funding, as well as other resources, may incentivize hospitals to report more of the deaths experienced in their facilities as Covid-19 caused.

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, with little of the kind of evidence-based analysis you will find in this report.

1. From within the health care industry, those with intimate working knowledge of patients and the evolution of the cases overall, 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 into 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 data science techniques to produce trend analysis that is free from emotion, as well as to construct forecasts which have statistical significance. This analysis should allow our readers a chance to improve their awareness, embolden their patience (and we could all use a little more patience, right now), and set realistic expectations for the coming days, weeks, and months.

Important Disclosures

Broughton Capital, LLC is an independent, privately held, deep-data driven quantimental 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.