



#virus

Data Science High Frequency Indicators Update Running Out of Room for Worse

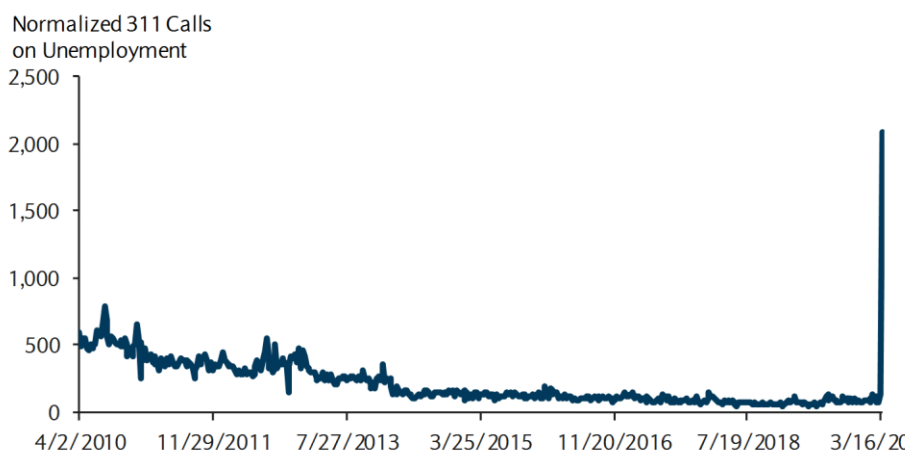
Most of the high frequency indicator series we track are starting to level off, but in most cases that seems to be a function of getting close to the limits: NYC subway ridership is down 75%, traffic at the median airport is down 50%, and the median S&P company has sent home 87% of its headquarters staff. We're simply approaching the limit of social distancing as measured in this data.

The one place that may not be saturated is the real economic impact, with 311 calls about unemployment benefits jumping by a factor of 16x in a week, suggesting that a 7-figure jobless claims number is entirely possible on Thursday. That series has been a good predictor of jobless claims historically. In this case, we need to treat any model prediction with caution (and wide prediction intervals), because the increase in calls is so far outside of what's ever been seen in the data before. But when even the lowest end of the very wide prediction interval suggests a record rise in initial jobless claims, it seems all but certain that the number will be very large.

Despite a week of social distancing measures, the COVID-19 confirmed cases have not visibly slowed yet: But if the experience of Hubei is representative, even if things are successful, we might not see slowing growth in the data until next week.

FIGURE 1

Normalized for total call volumes, this weeks' calls to NYC's 311 about unemployment insurance have been the highest on record by a factor of 2.6x



Source: NYC Open Data, Barclays Research

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FOR IMPORTANT FIXED INCOME RESEARCH DISCLOSURES, PLEASE SEE PAGE 10.

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INDUSTRY UPDATE

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Commentary

Growth in US COVID-19 cases spiked heading into the weekend, but that rate has now seemingly mean-reverted to the average of the past several weeks. The growth rate of the US outbreak has been slightly above 30% for most of March (Figure 2). Confirmed case growth has accelerated in New York State in particular, where hospitals are now receiving record visits for influenza-like and respiratory illnesses on a daily basis (Figure 5). Based on data for flu tests (which have continued to decline), we believe that one source of growth in those admissions is likely COVID-19 cases; and while there has been no decline in those yet, they have also grown less quickly than confirmed cases – suggesting recent growth spikes have more to do with accelerating testing than a rising infection rate (*Worse, Worsening, But Maybe Not Worst*, March 23, 2020). But if Hubei is representative of how long it takes before social distancing policies show up in confirmed case growth rates, it could be next week before the reduction really becomes clear in the data (Figure 4).

Information-seeking indicators – visits to the CDC website (Figure 14), 311 calls for COVID-19 information (Figure 13), and tweets (Figure 15) have stabilized or even dipped slightly this week after several weeks of exponential growth. It suggests that we've reached some sort of attention saturation on the virus. But given its ubiquity in news coverage, it may be as simple as reaching a ceiling where there is no more to grow into.

Transportation volumes continued to fall, but they are more clearly approaching a zero bound. NYC subway ridership is starting to bottom out. But given that it was down almost 75% as of Friday, March 20th, that may be simply because there is no more room to fall (Figure 10). Airport traffic also continues to fall, with the median airport traffic down 50%. But with the Wall Street Journal reporting potential full shutdown of flights between regions of the US, there is room for further declines¹.

On the other hand, social distancing in the workplace may also be reaching the hard bottom, with the median S&P 500 HQ having now reduced on-site staff by almost 90% (Figure 11). About 90% of companies have reduced their staffing by more than half (Figure 12), so there has been a clear move by the largest businesses to keep staff socially distanced.

Where the limits are less binding is in the economic consequences, which are starting to show up in dramatic fashion. We think calls to NYC's 311 line referencing unemployment are a leading indicator for initial jobless claims releases. For the week ending March 20th (which corresponds to the period covered by the March 26 initial jobless claim release), the number of calls was up 16x over the prior week (Figure 6). Although that makes it distantly out of sample, even the lowest bound of a prediction interval would be the 98th percentile of new jobless claims, and most of the range would be an outright all-time record (Figure 7).

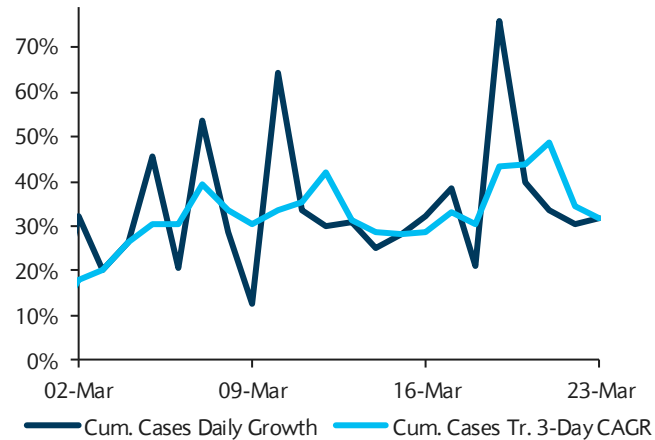
High Frequency Series Updates

Tracking COVID-19 Confirmed Cases

There were 7,783 confirmed new cases of COVID-19 in the US yesterday, an increase of 1,394 cases from 6,389 new cases the day before. The cumulative total cases grew to 33,272 from 25,489 the day before. The 3-day trailing daily CAGR in cumulative cases was 34%.

¹ *U.S. Domestic Passenger Flights Could Virtually Shut Down, Voluntarily or by Government Order*, Wall Street Journal, March 23, 2020

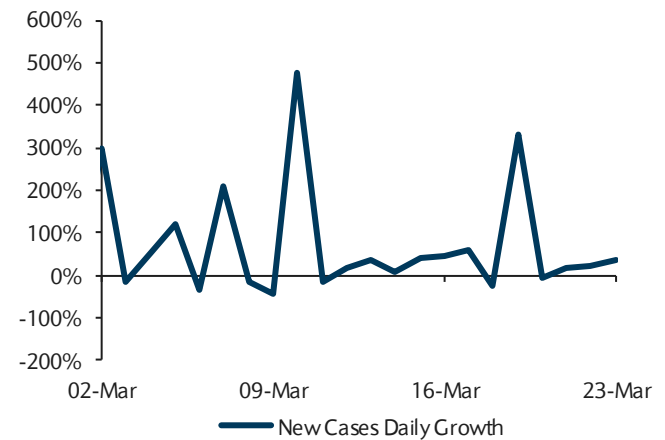
FIGURE 2
US Daily Growth in Cumulative Total Cases



Note: Chart since US crossed 100-case threshold. Source: Johns Hopkins,

Barclays Research

FIGURE 3
US Daily Growth in New Cases



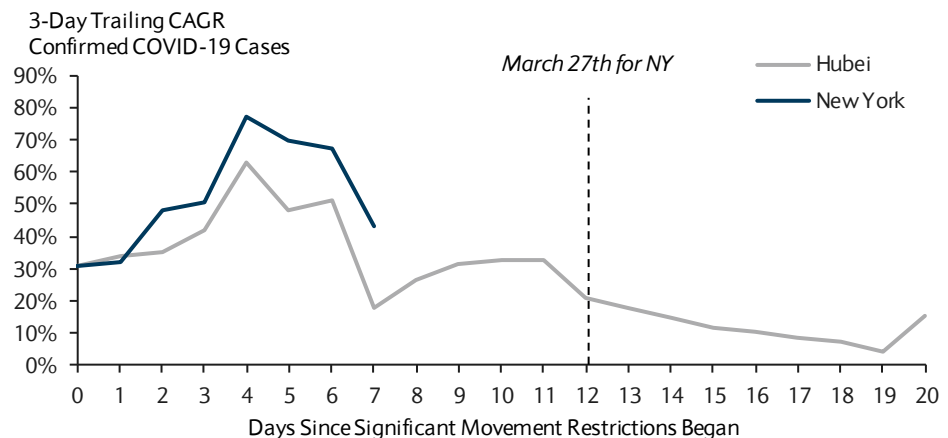
Note: Chart since US crossed 100-case threshold. Source: Johns Hopkins,

Barclays Research

New York has actually seen cases spike since starting its “stay at home” policies around March 16th. That was similar to what was seen in Hubei after the government there constrained most movement, so both may be a reflection of policy-makers’ insights into the scale of the outbreak.

For Hubei, it took about 12 days after policy was implemented before there was a sustained drop in case growth; that would make it March 27th in NYC. But that data would not be seen until March 28th, and it might take a few days of sustained declines before it would be clear. So it could be another week or more until we have reliable information about whether New York is on the right track.

FIGURE 4
New York has not yet seen confirmed COVID-19 case growth decline, but if Hubei is representative then a clear improvement in data won’t come until next week



Source: Johns Hopkins, Barclays Research

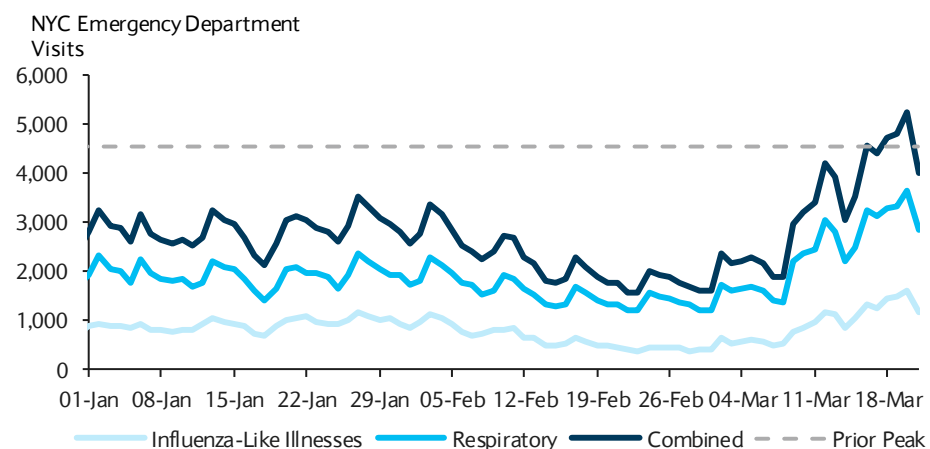
Details of today’s confirmed case count can be found in [US COVID-19 Daily Case Tracking](#), March 23, 2020.

NYC Hospital Emergency Room Admissions

Even if confirmed case growth starts to decline in New York, the city's health infrastructure is already under clear stress. The number of emergency room visits has been setting new records daily, and because of the time needed for patients to progress to needing critical care (reported to average around 7 days after first requiring hospitalization), the peak stress will only arrive after the peak in emergency visits.

FIGURE 5

NYC hospital emergency room visits for combined flu-like and respiratory illnesses are now setting records almost every day



Source: NYC Health, Barclays Research

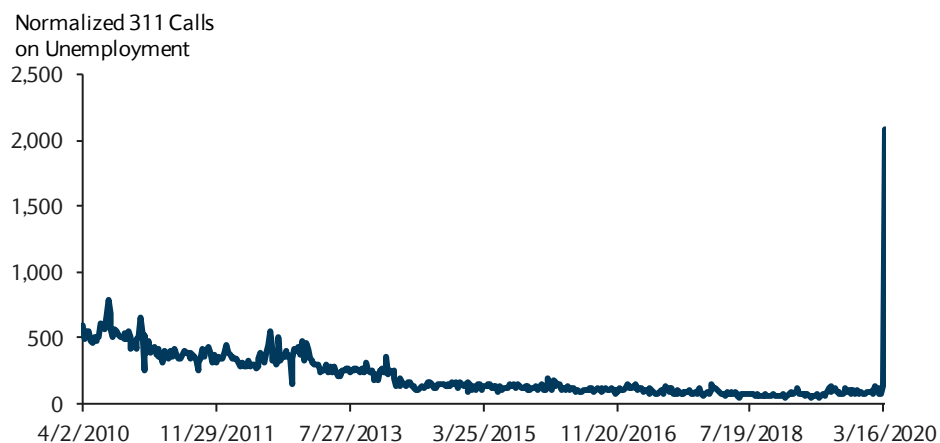
For details of how we look at emergency room admissions, see [Data Science High Frequency Indicators: NYC Emergency Room Admissions Are Already at Peaks](#), March 16, 2020.

Jobless Claims

NYC 311 calls about unemployment have historically been useful for forecasting jobless claims, because people call the line to ask about filing for unemployment benefits. The relationship between calls and claims has an r -squared > 0.6 . The number of calls spiked to over 2000 in the week ending March 20th, from only 134 in the week ending March 13th, suggesting that the March 26th jobless claims report will be a very significant jump.

FIGURE 6

Normalized for total call volumes, this weeks' calls to NYC's 311 about unemployment insurance have been the highest on record by a factor of 2.6x

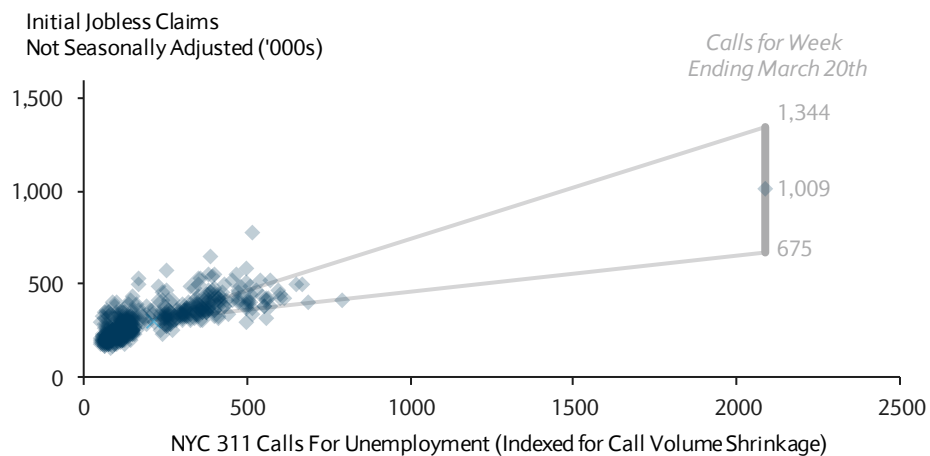


Source: NYC Open Data, Barclays Research

Because this week's data point is so far outside the area for calibrating the model, we think it makes sense to account for both model and estimate uncertainty in prediction intervals. To that end, we think the most reasonable prediction interval stretches from 675k to 1,338k; and even that might be too small given how much bigger this jump in calls has been compared to any other in the dataset.

FIGURE 7

NYC 311 calls about unemployment lead initial jobless claims data; this week's 16x jump in calls suggests that the March 26rd report will see among the biggest jump ever.



Source: NYC Open Data, Barclays Research

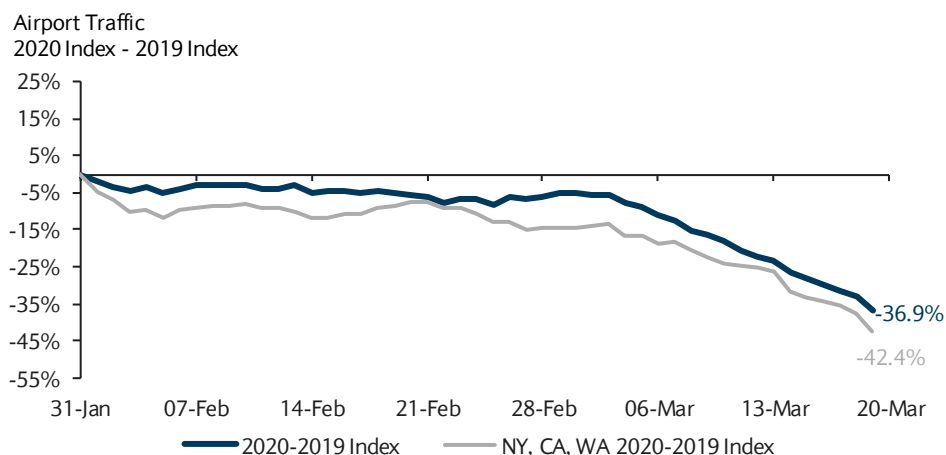
For details of how we look at the relationship between 311 unemployment calls and initial jobless claims, see [311 Calls About Unemployment Lead Weekly Jobless Claims](#), March 24, 2020.

Airports

Nationally, airport traffic has declined nearly 40% year over year. However, these numbers are a bit elevated because JFK is only down 30%, and is large enough to move the full dataset mean. The median airport is down 50%, which seems more representative of the decline in national volumes. Even Miami is down 35%, despite the highly accessible scenes of people congregating on its beaches in large numbers.

FIGURE 8

Traffic at airports was down 37% nationally last week, and down 42% in CA, WA, and NYC



Source: Complementics, Barclays Research

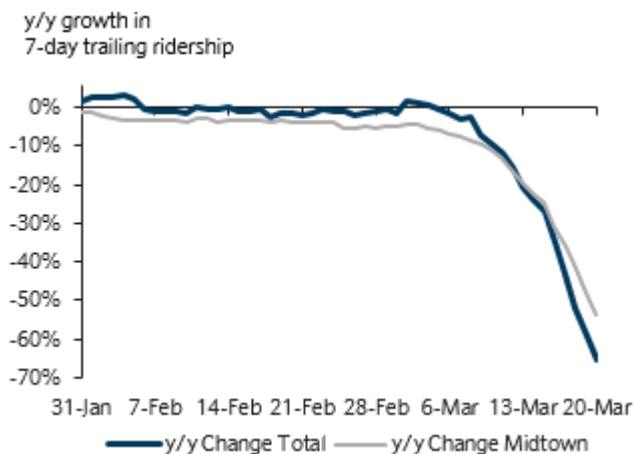
For details of how we look at airport traffic, see [Data Science High Frequency Indicators: US Airport Traffic Is Down and Falling](#), March 12, 2020.

NYC Subways

Subway ridership reached a low of 74% below last year's level on Friday. The decline is starting to flatten, but that is likely because there is very little room for it to fall further.

FIGURE 9

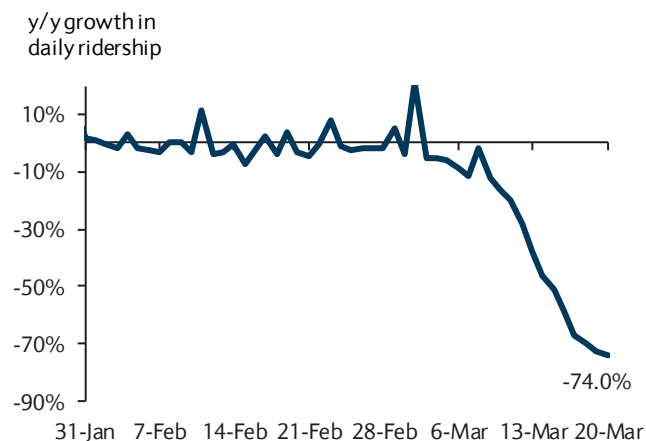
NYC subway ridership is down nearly 70%



Source: MTA, Barclays Research

FIGURE 10

Volumes continued to fall through the end of last week



Source: MTA, Barclays Research

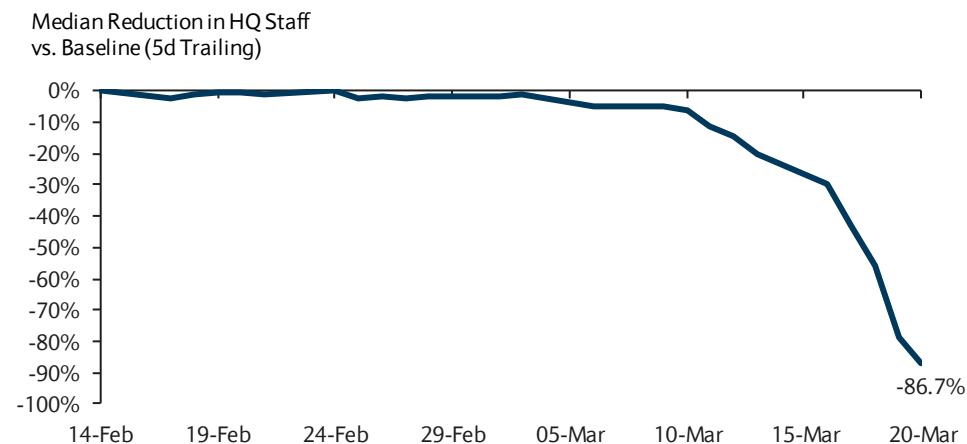
For details of how we look at subway ridership, see [Data Science High Frequency Indicators: NYC Subway Ridership Is Declining](#), March 10, 2020.

S&P 500 Headquarters

S&P 500 headquarters staffing is also starting to flatten at it approaches zero. The median company has reduced headquarters staffing by almost 90%.

FIGURE 11

The median S&P 500 company has reduced HQ staffing by 87% in the most recent week

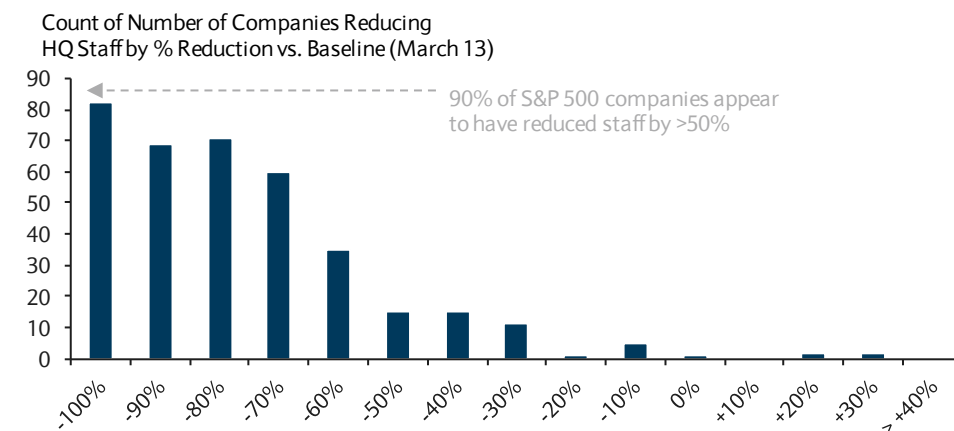


Source: Complementics, Barclays Research

And >90% of S&P 500 constituents have cut staffing by more than 50% (Figure 12).

FIGURE 12

Greater than 90% of S&P 500 companies have reduced headquarters staff by half or more



Source: Complementics, Barclays Research

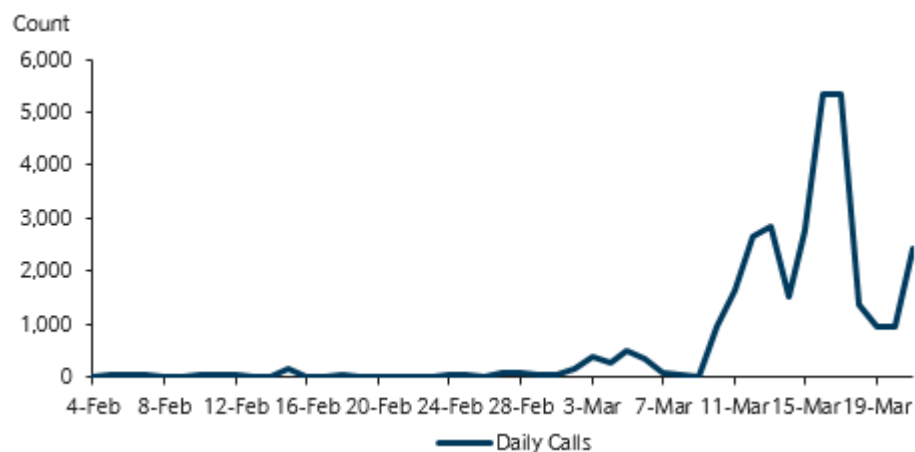
For details of how we look at S&P HQ staffing, see [Data Science High Frequency Indicators: S&P Companies Have Committed to Social Distancing](#), March 16, 2020.

NYC 311 Calls for COVID-19 Information

After weeks of sharp growth, we have finally seen a dip in the number of New Yorkers calling 311 seeking information on COVID-19. The numbers are still substantial, however, suggesting that it remains a significant topic for now.

FIGURE 13

NYC 311 calls seeking information about COVID-19 have finally dipped



Source: NYC Open Data, Barclays

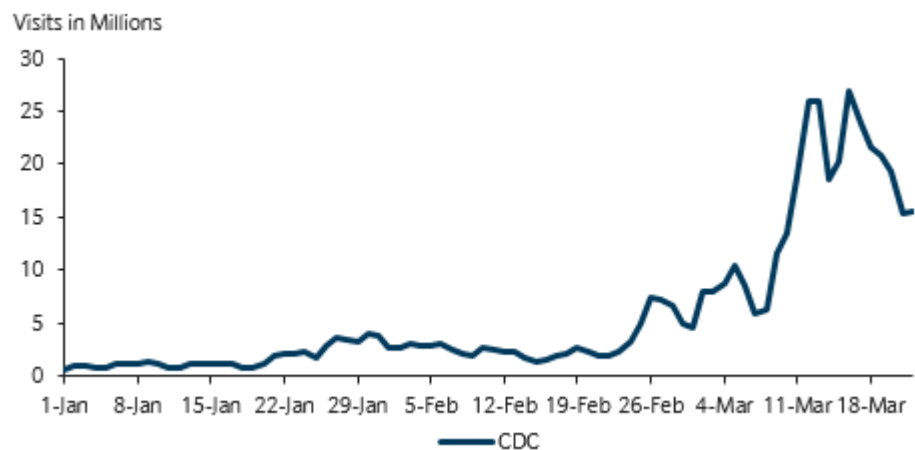
For details of how we look at 311 call volume, see [Data Science High Frequency Indicators: COVID-19 Calls to NYC's 311 Are Starting to Spike](#), March 13, 2020.

Visits to the CDC Website

Visits to the CDC website have also dipped from their peaks, though (like 311 COVID-19 calls) they remain elevated (Figure 14).

FIGURE 14

Visits to CDC website have declined over last week for the first time in more than a month



Source: analytics.usa.gov, Barclays Research

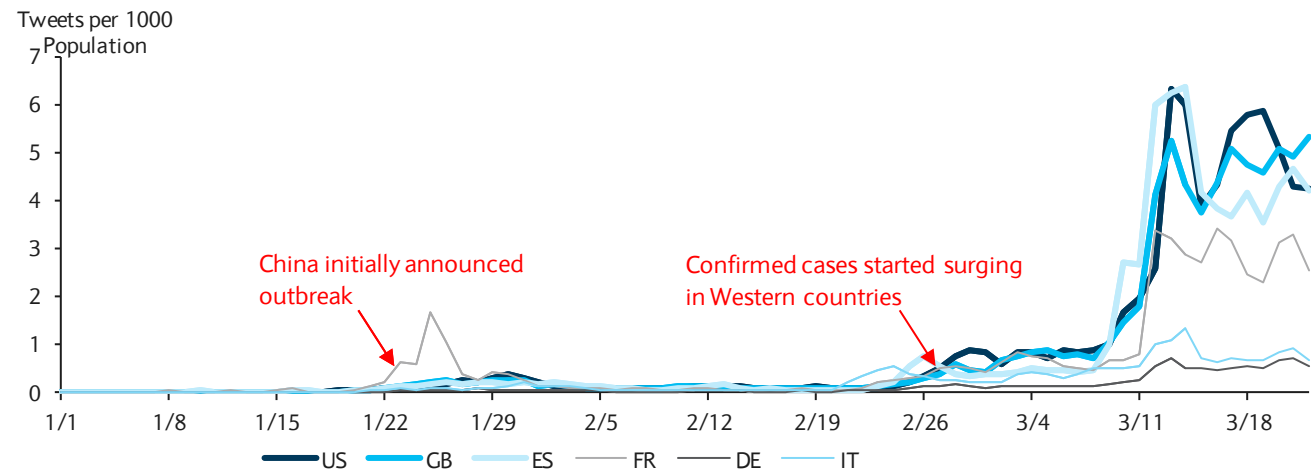
For details of how we look at CDC website traffic, see [Data Science High Frequency Indicators: Visits to CDC Websites Have Spiked](#), March 16, 2020

Twitter

Tweets that are “virus” or “covid” related have seen their growth flatten after a sharp uptick for several weeks (Figure 15). They remain near peaks, however, suggesting that engagement remains high even if no longer accelerating as sharply. Note that number of tweets tends to decline during weekends.

FIGURE 15

Population normalized count of “virus” or “covid” related tweets, by country



Source: Twitter, United Nations, Barclays Research

For details of how we look at tweet volume, see [Data Science High Frequency Indicators: COVID-19 Tweet Surges Vary by Country](#), March 16, 2020.

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