

MITRE Air Traffic Update: Predicting the Future

November 2020



Are Published Airline Schedules a Reliable Predictor of Future Traffic?

When passenger bookings dropped in March and April due to the COVID-19 pandemic, U.S. airlines reduced the number of flights they operated. (See Figure 1, which shows the number of flights operated in 2020 compared to 2019.)

During May and June, there was a modest increase in the number of flights, which then plateaued in July and August. Since the middle of summer, the number of domestic flights operated by U.S. airlines has remained steady at slightly over half of last year's levels. But will schedules increase, especially with the holiday season approaching?

Future schedules might help provide an answer. Airlines typically publish their schedules several months in advance. The orange line in Figure 1 shows the number of planned future flights scheduled as of October 2. According to this schedule, planned flights are increasing during November and December, suggesting the holidays may be driving travel demand.

As we look for signs of near-term recovery in commercial aviation, published schedules may be misleading

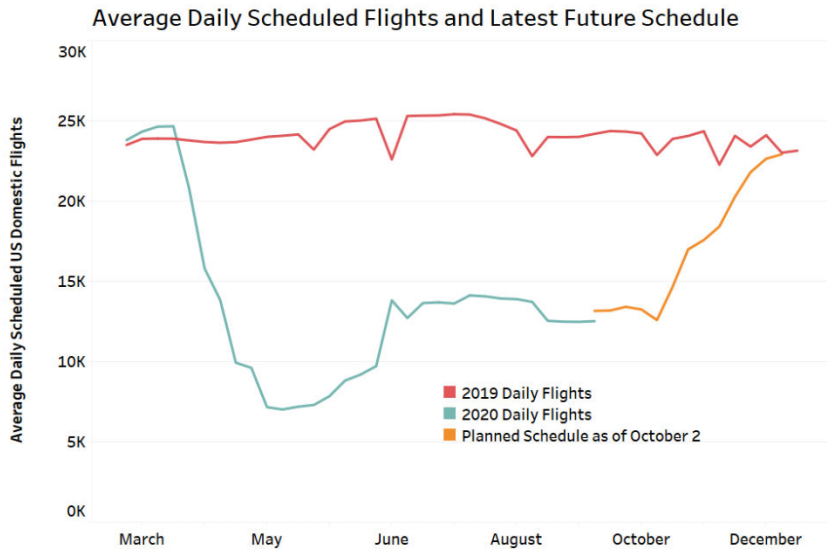


Figure 1

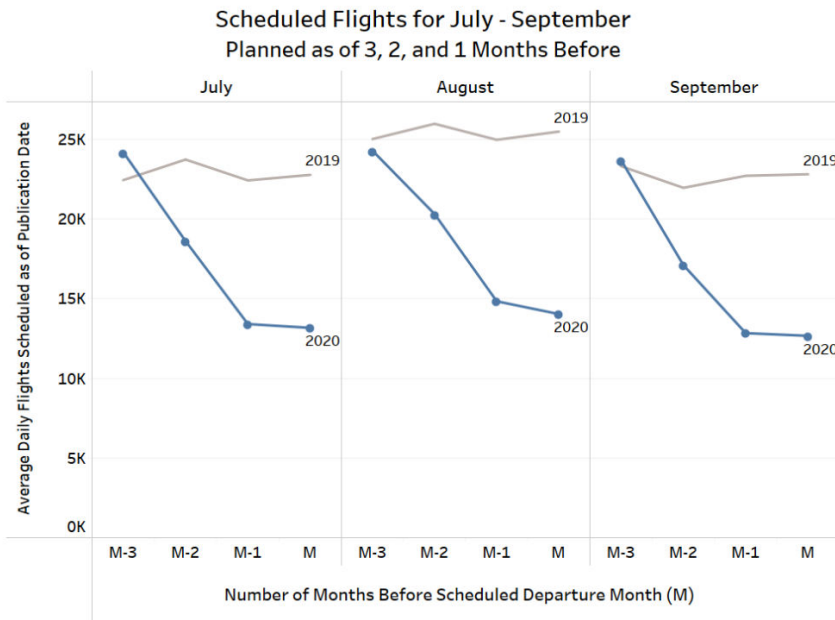


Figure 2

Before getting too optimistic about a December rebound in traffic, we need to consider the stability of airline schedules over time. Future schedules are always subject to revision closer to the departure date, and that has never been truer than now as the COVID-19 pandemic makes travel demands highly uncertain.

Figure 2 depicts published scheduled domestic U.S. departures for 2019 and 2020 at various time horizons. The months at the top of the figure show when the flights are scheduled to depart. The labels at the bottom of the figure reflect how far in advance a particular schedule was published. For example, “M-3” represents the average number of daily scheduled flights published three months ahead of time.

During 2019 (shown in grey), we see minor revisions in the number of scheduled flights as the actual month of departure gets closer, but the schedules are still relatively stable.

In contrast, summer 2020 schedules (shown in blue) were consistently revised down as the departure date got closer. Three months prior, airlines were scheduling flights at pre-pandemic levels. By one month ahead of time, published schedules are much lower and much closer to the actual number of flights that were operated.

A likely explanation is the airlines may be hedging their bets. Not knowing what passenger demand might look like two or three months in the future, they publish optimistic schedules, knowing they can consolidate passengers onto fewer flights if the hoped-for demand does not materialize.

The airlines are as much in the dark as the rest of us about how the pandemic will unfold. It seems best to view their future schedules as “aspirational” rather than a solid forecast of where traffic might be going. Consequently, travelers who make reservations more than one month before departure might expect itinerary changes.

For information about MITRE’s research in this arena, contact Joseph Hollenberg at joeh@mitre.org.

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