

Forecast Highlights (2021–2041)

Since its deregulation in 1978, the U.S. commercial air carrier industry has been characterized by boom-to-bust cycles. The volatility that was associated with these cycles was thought by many to be a structural feature of an industry that was capital intensive but cash poor. However, the great recession of 2007-09 marked a fundamental change in the operations and finances of U.S. Airlines. Since the end of the recession in 2009, U.S. airlines revamped their business models to minimize losses by lowering operating costs, eliminating unprofitable routes, and grounding older, less fuel-efficient aircraft. To increase operating revenues, carriers initiated new services that customers were willing to purchase and started charging separately for services that were historically bundled in the price of a ticket. The industry experienced an unprecedented period of consolidation with three major mergers in five years. The results of these efforts were impressive: 2019 marked the eleventh consecutive year of profitability for the U.S. airline industry.

The outbreak of the COVID-19 pandemic in 2020, however, brought a rapid and cataclysmic end to those boom years. Airline activity and profitability tumbled almost overnight and without the financial and competitive strength built up during the boom, airlines would have faced even greater challenges. As it was, they were able to slash capacity and costs, and then, relying on their balance sheets, credit ratings and value inherent in their brands, to raise capital through borrowing and restructuring fleets allowing them to withstand the period of losses into 2021. Although several small regional carriers ceased operations in 2020, no mainline carriers did.

The business modifications necessitated by the downturn will shape the industry for years to come. Primarily, airlines will be smaller having retired aircraft and encouraged voluntary employee separations. Fleets, however, become younger and more fuel-efficient as retirements targeted the oldest and the least efficient aircraft. As airlines carry high levels of debt, capital spending and investment will be restrained which in turn holds back future growth. And even the unbundling of services took a small step backwards as carriers eliminated change fees for all but Basic Economy tickets.

In the medium-term, airlines will be focused on trying to foretell the recovery in demand and position themselves to meet it. To date, that demand recovery has been extremely uneven, driven by COVID-19 case counts, vaccinations, governmental restrictions and the degree of pent-up demand experienced by consumers. As expected, domestic leisure traffic has led the recovery and domestic business travel should begin to pick-up later in 2021. International activity will lag somewhat as individual country experience with the pandemic is varying so widely. As a result, airlines have initially shifted flights and routes to outdoor recreation areas but as the recovery progresses, their focus will gradually return to traditional markets and segments.

Long-term, the strengths and capabilities developed over the past decade will become evident again. There is confidence that U.S. airlines have finally transformed from a capital intensive, highly cyclical industry to an industry that can generate solid returns on capital and sustained profits.

Fundamentally, over the long-term, aviation demand is driven by economic activity, and a growing U.S. and world economy provides the basis for aviation to grow. The 2021 FAA forecast calls for U.S. carrier domestic passenger growth over the next 20 years to average 4.9 percent per year. This average, however, includes three double-digit growth years during the recovery from a very low base in 2021. Following the recovery period, trend rates resume with average growth through the end of the forecast of 2.3 percent. Domestic passengers are forecast to return, on an annual basis, to 2019 levels in early 2024. Oil prices averaged \$43 per barrel in 2020 and are forecast to fall to \$36 per barrel in 2021 before rising steadily to \$94 by the end of the forecast period.

Just as U.S. economic activity drives domestic demand for air transport, foreign economic activity affects international travel demand. And as virtually all countries have taken actions to contain COVID-19, those same actions have resulted in economic patterns that are similar to those in the U.S. with sharp declines in 2020 followed by strong rebounds forecast as the recovery begins in 2021. The variation of economic performance across countries depends on their relative strength at the beginning of 2020 but is also dependent on the severity of their experience with COVID-19 as well as the stringency of their responses. Europe saw sharp economic declines in 2020, consistent with its relatively high level of infections and numerous lockdowns that overwhelmed a tepid level of baseline economic growth. Many Asian countries, on the other hand, saw only mild downturns as they took swift and strong actions to control the virus early in the pandemic but also began the year with relatively strong economic growth. Most countries are expected to vaccinate their populations and

bring the virus under control by 2022 and economic growth rates settle back to their long-run trends in about 2023.

System traffic in revenue passenger miles (RPMs) is projected to increase by 5.5 percent a year between 2021 and 2041. Domestic RPMs are forecast to grow 5.1 percent a year while International RPMs are forecast to grow significantly faster at 6.6 percent a year. These figures are, of course, boosted by several years of high growth rates during the recovery after which the annual rates return to more moderate long-term trends. The strong growth rates return system RPM, on an annual basis, to 2019 levels in 2024, with domestic RPM returning early that year but international RPM recovering a year later in 2025. System capacity as measured by available seat miles (ASMs) is forecast to grow somewhat slower than RPM during the recovery period as airlines seek to restore load factors but, subsequently, ASM grow in line with the increases in demand.

The FAA expects U.S. carrier profitability to remain under pressure for several years due to depressed demand and competitive fare pressures. As carriers return to levels of capacity consistent with their fixed costs, shed excess debt, and see rising yields, profitability should gradually return. Over the long term, we see a competitive and profitable aviation industry characterized by increasing demand for air travel and airfares growing more slowly than overall inflation, reflecting growing U.S. and global economies.

The general aviation (GA) sector was less affected by the COVID-19 crisis than the airlines. There are new comers in the high-end business jet segment as a result of flying privately due to concerns of the virus. At the lower end new comers included student, pri-

vate and commercial pilots, joining the existing GA pilot population. They are flying piston aircraft in and out of small airports as well as larger airports that do not have as many commercial flights due to the pandemic. The long-term outlook for general aviation thus is more promising than before, as growth at the high-end offsets continuing retirements at the traditional low end of the sector. The active GA fleet is forecast to increase slightly by 0.1 percent between 2021 and 2041, after recording a decline of 2.8 percent in 2020 from the year before (active fleet shrinks 1 percent by 2041 from its 2019 level). Turbine aircraft, including rotorcraft is estimated to not experience a decline between 2019 and 2020, while the total of piston fleet is estimated to have decreased by 1.1 percent in 2020 from the previous year. While steady growth in both GDP and corporate profits results in continued growth of the turbine and rotorcraft fleets, the largest segment of the fleet – fixed wing piston aircraft will continue to shrink over the forecast period. Against the marginally declining active GA fleet between 2019 and 2041, the number of GA hours flown is projected to increase by a total of 14.8 percent from 2019 to 2041 (an average of 0.6 percent per year), as growth in turbine, rotorcraft, and experimental hours more than offset a decline in fixed wing piston hours.

When the period of 2021 to 2041 is compared, the total hours flown by the GA aircraft is forecast to increase by an average of 1.0 percent per year, after declining by 9.7 percent between 2019 and 2020, and recovering partially, with a growth of 4.9 percent in 2021 from the previous year.

With the expected robust air travel demand growth between 2022 and 2026 due to the U.S. economy recovering from the impact of COVID, we expect increased activity growth that has the potential to increase controller workload. Operations at FAA and contract towers are forecast to grow 1.9 percent a year over the forecast period (FY2021-41) with commercial activity growing at approximately five times the rate of non-commercial (general aviation and military) activity. The COVID recovery growth in U.S. airline activity is the primary driver. The U.S. commercial aviation sector has been hit by the pandemic much harder than the non-commercial sector. The pent-up demand is expected to drive the commercial operations back to the pre-COVID level, hence leading to the stronger growth in the commercial sector. In particular, large and medium hubs will see much faster increases than small and non-hub airports, largely due to the commercial nature of their operations.