

Appendix A: Alternative Forecast Scenarios

Uncertainty exists in all industries, but especially in the commercial air travel industry. As volatility in the global environment has increased, the importance of scenarios for planning purposes has increased. In order to help stakeholders better prepare for the future, the FAA provides alternative scenarios to our baseline forecasts of airline traffic and capacity.

To create the baseline domestic forecast, economic assumptions from IHS Markit's 10-year and 30-year U.S. Macro Baselines were used. To develop the alternative scenarios, assumptions from IHS Markit's 30-year optimistic and pessimistic forecasts from their

Scenario Assumptions

The FAA's domestic baseline forecast assumes a mild recession in the first half of 2023 followed by stronger activity that keeps growth positive for the full year. Following a pick-up in the few years immediately after, growth edges back to about trend for the remainder of the forecast. Efforts to bring inflation down slow GDP growth in the near term and raise the unemployment rate to about 5.5 percent by the end of 2023. Subsequent years see a gradual reduction in interest rates leading to a strengthening economy and lower unemployment. After the oil price surge in 2022, crude retreats as global economic activity, and energy demand, slows. Thereafter, oil price remains roughly flat, balanced by upward pressure from decreasing supply and downward from technological innovation.

August 2022 US Economy: The 30-Year Focus were utilized. Inputs from these alternative scenarios were used to create "high" and "low" traffic, capacity, and yield forecasts.

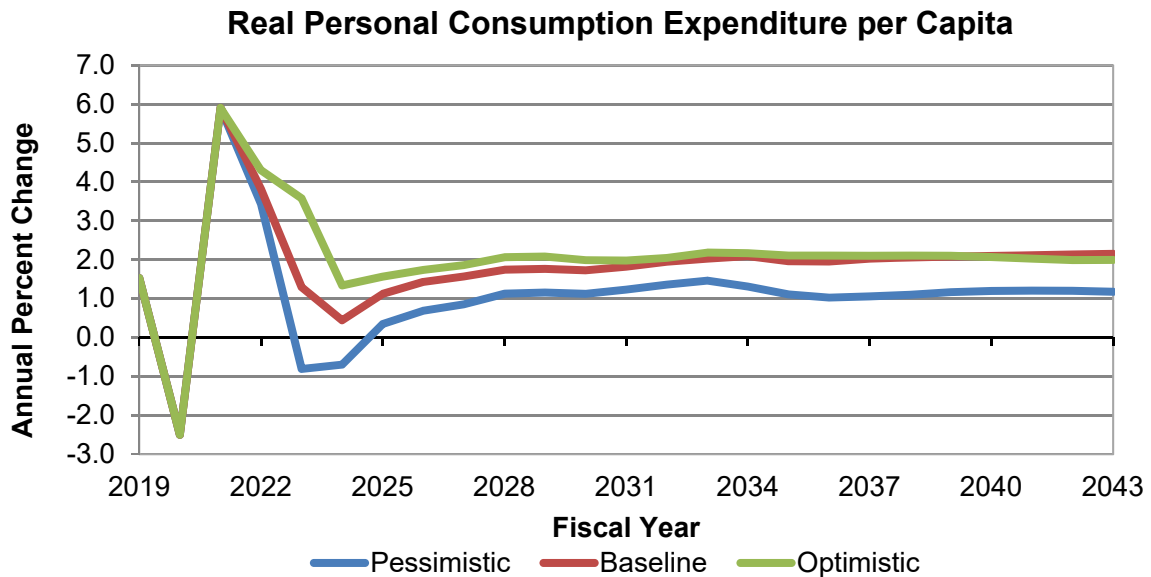
International passengers and traffic are primarily driven by country specific Gross Domestic Product (GDP) forecasts provided by IHS Markit. Thus, the alternative scenarios use inputs based on ratios derived from IHS Markit's Major Trading Partner and Other Important Trading Partners optimistic and pessimistic forecasts in order to create high and low cases.

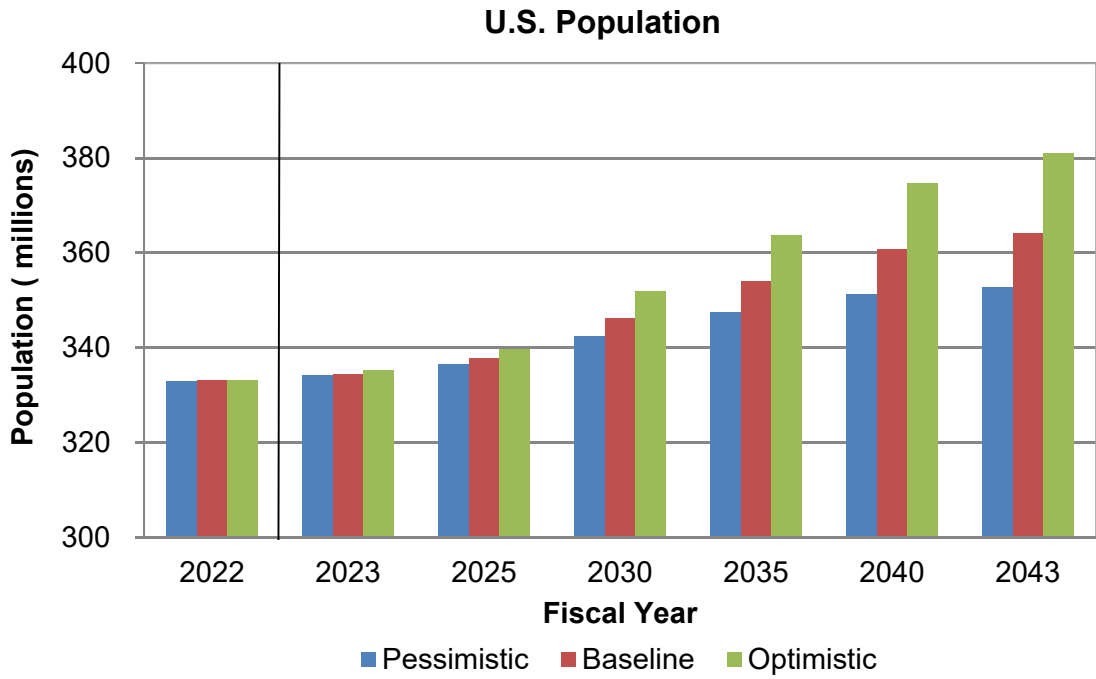
The FAA's high case forecast uses IHS Markit's optimistic forecast. The optimistic scenario is characterized by a faster resolution to the Russia-Ukraine conflict resulting in lower energy prices, and GDP growth that remains positive throughout the forecast. Near-term differences include GDP growth of 1.2 percent in 2023 compared to 0.3 percent in the baseline, driven mainly by stronger consumer spending. Consumer spending rises 2.2 percent in 2023 and 1.3 percent in 2024, versus 1.3 percent and 1.1 percent in the base forecast. Stronger spending results from lower energy expenditures and increased confidence due to lessened political tensions. The unemployment rate rises but 2-3 tenths less than in the baseline.

Conversely, FAA's low case forecast uses IHS Markit's pessimistic scenario. In this forecast, the worse outcome is mainly due to

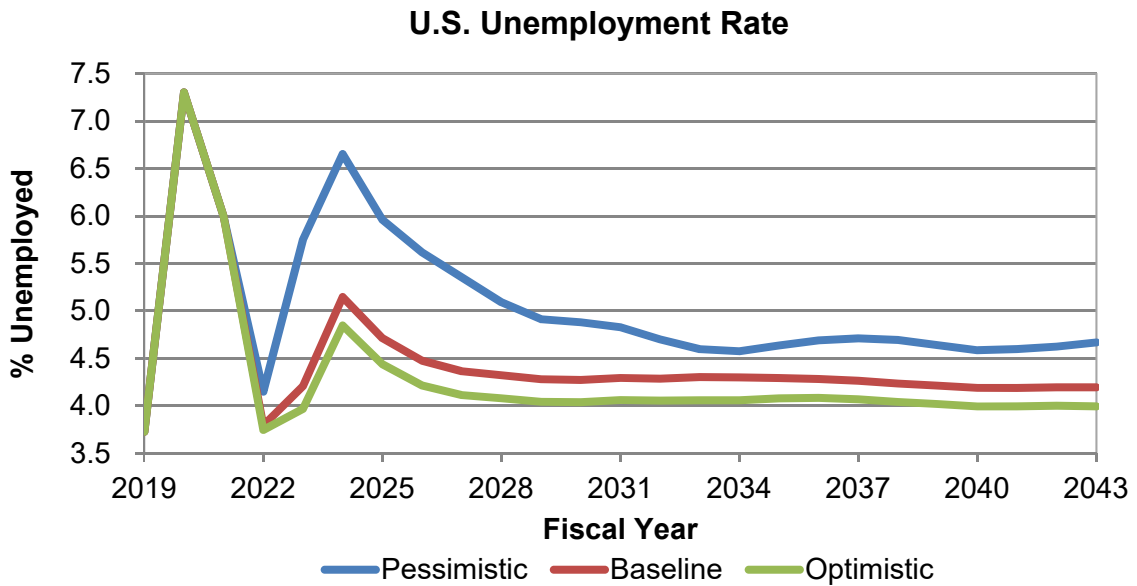
a protracted Russia-Ukraine conflict which leads to higher energy prices and intensifies supply-chain disruptions. GDP growth in 2023 is -0.5 percent compared to 0.3 percent in the baseline. Over the forecast horizon, average GDP growth is six tenths slower than in the baseline. Contributing to slower GDP growth in this scenario, business capital investments and residential housing investments both grow more slowly than in the

baseline, resulting in lower overall productivity growth. The combination of supply chain problems and consumer hesitancy (spending is about half the rate in the base case) causes businesses to scale back investments. Oil prices rise faster than the baseline throughout the forecast and are \$85 per barrel higher by 2043. In the near term, the unemployment rate rises about 2 percentage points higher than the baseline.



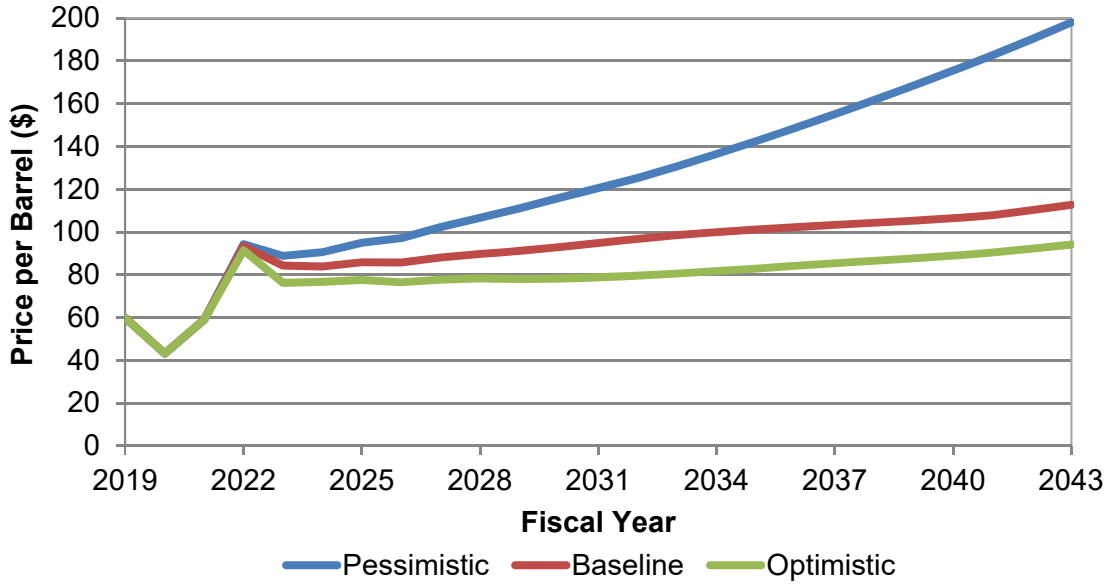


Source: IHS Markit



Source: IHS Markit

U.S. Refiners' Acquisition Cost

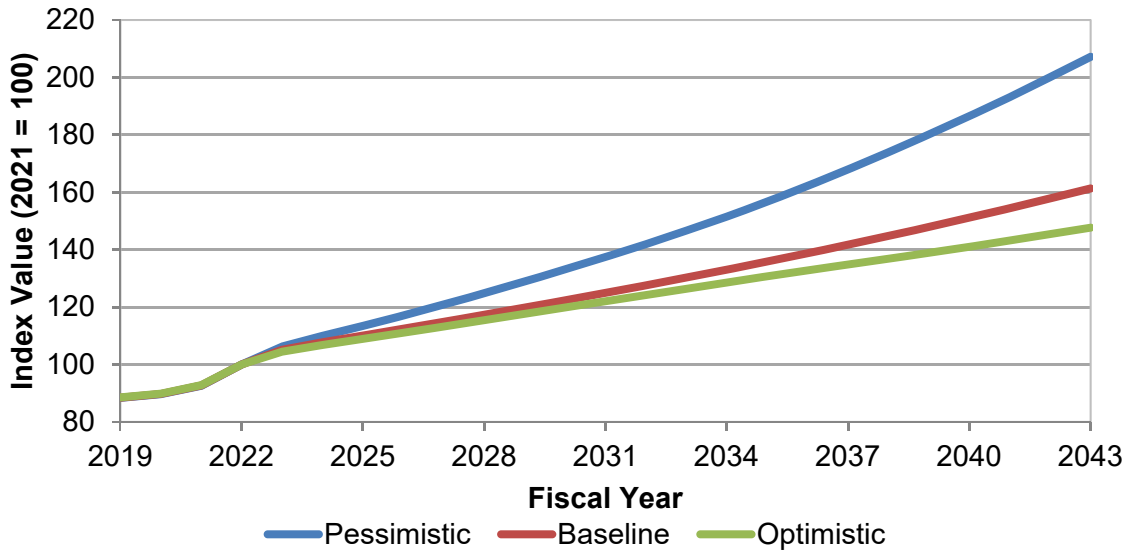


Source: IHS Markit

The price of energy is one of the drivers in the growth of consumer prices over the forecast period. In the optimistic case, slow growth of energy prices and import prices counteracts faster growth of other consumer

goods prices causing the optimistic CPI to rise somewhat slower than the baseline. In the pessimistic case, energy prices, wages and import prices all rise more rapidly compared to the baseline.

Consumer Price Index - All Urban Consumers



Source: IHS Markit

Alternative Forecasts

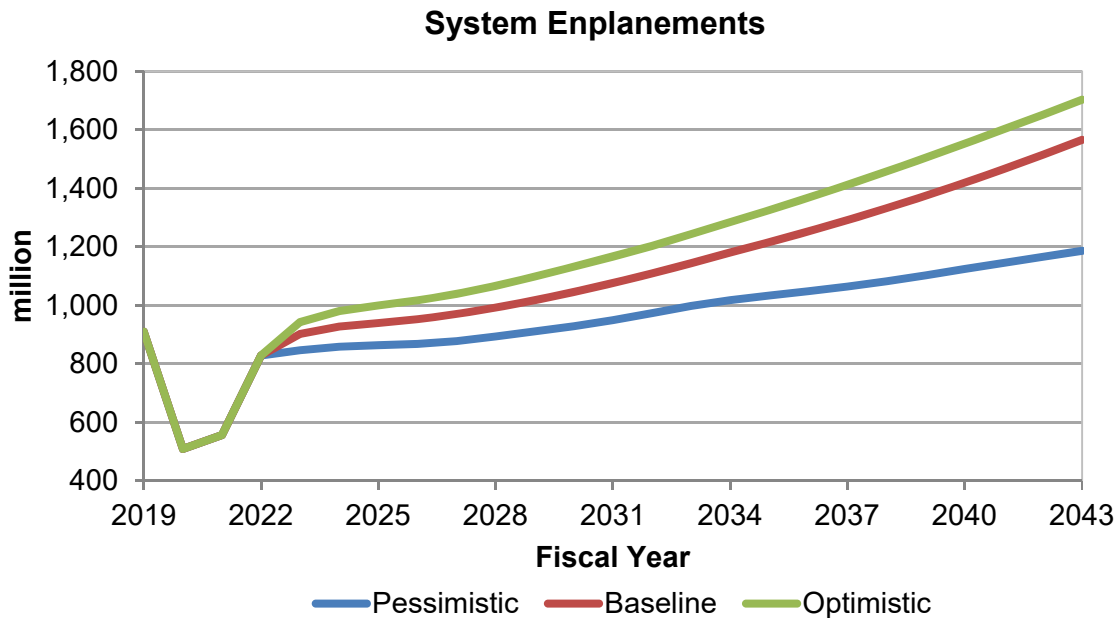
Enplanements

In the baseline forecast, system enplanements are forecast to grow at an average annual rate of 3.1 percent a year over the forecast horizon of 2023-2043 (with domestic and international passengers increasing at rates of 3.0 and 3.9 percent, respectively).

In the optimistic case, enplanements grow at a slightly quicker pace, averaging 3.5 percent per year (up 3.4 percent domestically and 4.3 percent internationally). This scenario is marked by a more favorable business environment and lower fuel prices which make the price of flying more affordable to business and leisure travelers. By the end of the forecast period in 2043, system

passengers in the optimistic case are 9 percent above the baseline, totaling 1.7 billion, 137 million greater than in the baseline.

The pessimistic case is characterized by a period of weakened personal income growth and consumer confidence combined with high inflation, leading to higher interest rates, and curtailed investment and consumer spending. In this scenario, enplanements grow an average of 1.7 percent per year (domestic up 1.5 percent and international up 3.3 percent). In the pessimistic case, system passengers in 2043 are 24 percent below the baseline case, totaling 1.2 billion, or 379 million fewer than in the baseline.



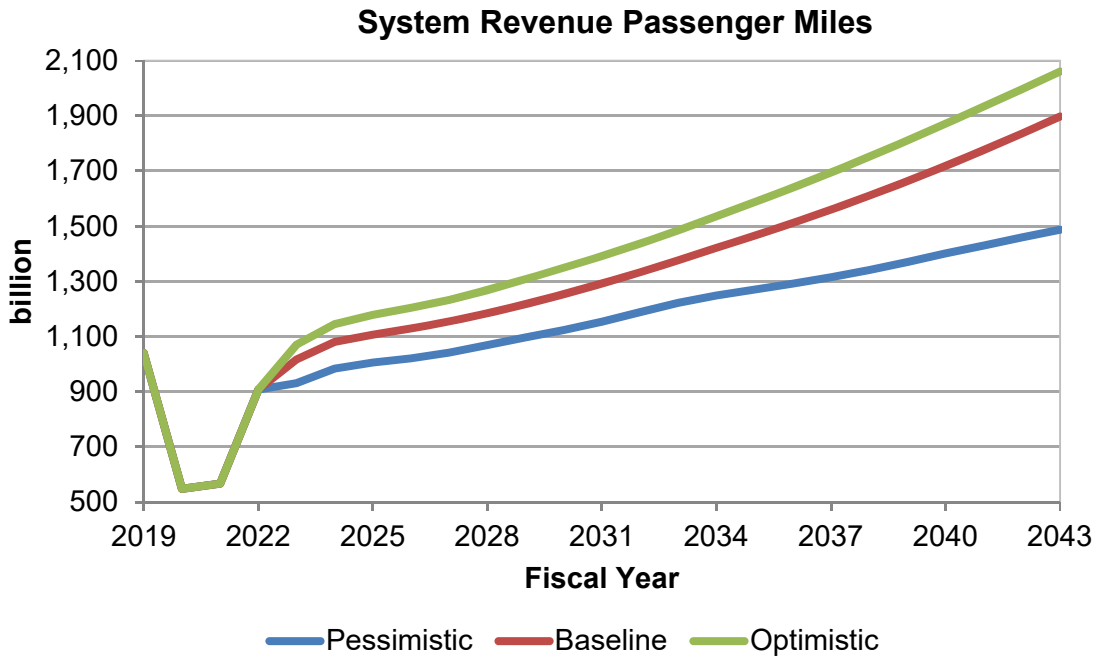
Revenue Passenger Miles

In the baseline forecast, system RPMs grow at an average annual rate of 3.6 percent a year over the forecast horizon (2023-2043), with domestic RPMs increasing 3.2 percent annually and international RPMs growing 4.6 percent annually.

In the optimistic case, the faster growing economy coupled with lower energy prices drives RPMs higher than the baseline, with

growth averaging 4.0 percent per year (domestic and international RPMs up 3.6 and 5.0 percent, respectively).

In the pessimistic case, the combination of a slower growing economy and higher energy prices result in RPM growth averaging 2.4 percent annually with domestic markets growing 1.7 percent a year while international traffic grows 4.1 percent annually.



Available Seat Miles

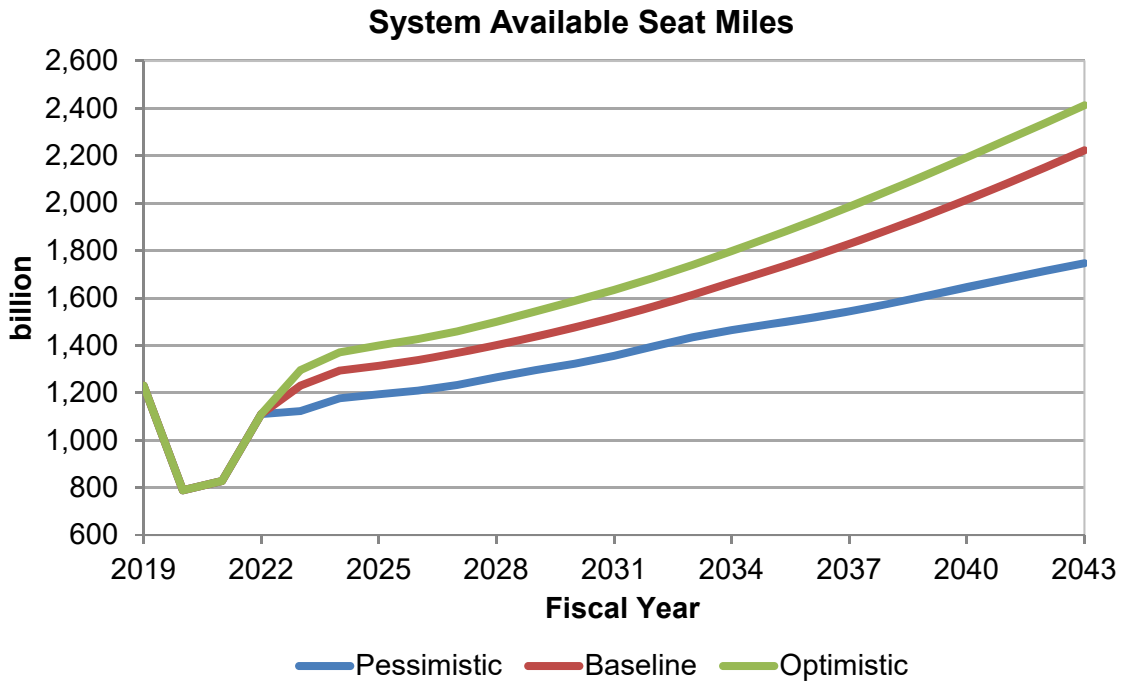
In the base case, system capacity is forecast to increase an average of 3.4 percent annually over the forecast horizon with growth averaging 3.0 percent annually in domestic markets and 4.3 percent a year in international markets.

In the optimistic case, capacity grows somewhat faster than in the baseline forecast, averaging 3.8 percent annually system-wide (3.4 and 4.6 percent for domestic and international markets, respectively). Carriers increase capacity compared to the baseline forecast to accommodate increased travel

demand brought about by a more favorable economic environment.

In the pessimistic case, demand for air travel is lower than in the baseline, thus system capacity grows at a slower pace of 2.2 percent

annually (domestic growth of 1.5 percent annually and international up 3.7 percent annually).



Load Factor

System load factors over the 20-year forecast period are similar for all three forecast scenarios. System load factor rises from 81.8 percent in 2022 to 85.4 (optimistic), 85.1 (pessimistic), and 85.4 (baseline) percent in 2043.

In all three scenarios it is assumed that carriers will keep load factors on the high side by actively managing capacity (seats) to more precisely meet demand (passengers).

The domestic load factor increases over the forecast horizon from 83.5 percent to 86.7

percent in the baseline, optimistic and pessimistic scenarios.

The international load factor rises in the baseline from 76.6 percent to 82.3 percent; in the optimistic to 82.3 percent; and in the pessimistic to 82.2 percent. This reflects in part the relative growth in demand and capacity in the three (Atlantic, Latin, and Pacific) international regions under each scenario.

Yield

In the baseline forecast, nominal system yield increases 1.2 percent annually, rising from 15.38 cents in 2022 to 19.67 cents in 2043. In domestic markets, yield in the baseline forecast rises from 15.40 cents in 2022 to 19.32 cents in 2043. International yield rises from 15.30 cents in 2022 to 20.53 cents in 2043.

System yield rises in the optimistic case at a slower rate than in the baseline, up 0.8 percent annually to 18.17 cents in 2043. Domestic yield increases to 17.61 cents while international yield increases to 19.57 cents. The moderate growth in yield in both cases

is due to advancements in technology, gains in productivity, and modestly rising fuel prices.

In the pessimistic case, nominal yields rise more rapidly than in the baseline, growing an average of 2.3 percent annually, reaching 24.58 cents by 2043 (25.22 cents domestically and 23.31 cents internationally). This scenario reflects higher general domestic inflation and markedly higher energy prices than in the baseline, forcing carriers to increase fares in order to cover the higher costs of fuel, labor, and capital.

TABLE A-1

FAA FORECAST ECONOMIC ASSUMPTIONS

FISCAL YEARS 2022-2043

Variable	Scenario	Historical	FORECAST					PERCENT AVERAGE ANNUAL GROWTH				
		2022E	2023	2028	2033	2038	2043	2022-23	2023-28	2023-33	2023-38	2023-43
Economic Assumptions												
Real Personal Consumption Expenditure per Capita (2012 \$)	Pessimistic	42,111	41,773	42,749	45,529	48,142	51,072	-0.8%	0.5%	0.9%	1.0%	1.0%
	Baseline	42,266	42,814	45,584	49,978	55,230	61,329	1.3%	1.3%	1.6%	1.7%	1.8%
	Optimistic	42,462	43,982	47,884	53,012	58,869	65,115	3.6%	1.7%	1.9%	2.0%	2.0%
Refiners Acquisition Cost - Average - \$ Per Barrel	Pessimistic	94.3	88.9	106.7	130.7	161.7	198.0	-5.8%	3.7%	3.9%	4.1%	4.1%
	Baseline	93.4	84.3	89.7	98.6	104.3	112.7	-9.8%	1.2%	1.6%	1.4%	1.5%
	Optimistic	91.5	76.2	78.2	80.6	86.5	94.1	-16.7%	0.5%	0.6%	0.8%	1.1%
Consumer Price Index All Urban, 1982-84 = 1	Pessimistic	2.88	3.06	3.59	4.22	5.00	5.96	6.2%	3.3%	3.3%	3.3%	3.4%
	Baseline	2.88	3.02	3.38	3.75	4.17	4.64	5.1%	2.2%	2.2%	2.2%	2.2%
	Optimistic	2.88	3.00	3.32	3.64	3.94	4.25	4.4%	2.0%	1.9%	1.8%	1.7%
Civilian Unemployment Rate (%)	Pessimistic	4.1	5.8	5.1	4.6	4.7	4.7	38.6%	-2.4%	-2.2%	-1.3%	-1.0%
	Baseline	3.8	4.2	4.3	4.3	4.2	4.2	10.9%	0.5%	0.2%	0.0%	0.0%
	Optimistic	3.7	4.0	4.1	4.1	4.0	4.0	6.0%	0.6%	0.2%	0.1%	0.0%

Source: IHS Markit

TABLE A-2

FAA FORECAST OF AVIATION ACTIVITY*

FISCAL YEARS 2022-2043

Variable	Scenario	Historical	FORECAST					PERCENT AVERAGE ANNUAL GROWTH				
		2022E	2023	2028	2033	2038	2043	2022-23	2023-28	2023-33	2023-38	2023-43
System Aviation Activity												
Available Seat Miles (BIL)	Pessimistic	1,110.4	1,123.6	1,265.7	1,434.3	1,575.2	1,747.1	1.2%	2.4%	2.5%	2.3%	2.2%
	Baseline	1,110.4	1,230.8	1,401.4	1,613.2	1,888.4	2,223.3	10.8%	2.6%	2.7%	2.9%	3.0%
	Optimistic	1,110.4	1,295.9	1,500.1	1,739.5	2,052.3	2,413.3	16.7%	3.0%	3.0%	3.1%	3.2%
Revenue Passenger Miles (BIL)	Pessimistic	907.9	931.2	1,069.7	1,222.6	1,341.3	1,487.6	2.6%	2.8%	2.8%	2.5%	2.4%
	Baseline	907.9	1,017.4	1,184.4	1,376.8	1,610.8	1,897.9	12.1%	3.1%	3.1%	3.1%	3.2%
	Optimistic	907.9	1,070.5	1,268.3	1,485.3	1,751.6	2,060.8	17.9%	3.4%	3.3%	3.3%	3.3%
Enplanements (MIL)	Pessimistic	828.4	846.3	893.3	997.8	1,082.4	1,186.4	2.2%	1.1%	1.7%	1.7%	1.7%
	Baseline	828.4	902.3	992.0	1,144.3	1,332.2	1,565.8	8.9%	1.9%	2.4%	2.6%	2.8%
	Optimistic	828.4	942.6	1,066.4	1,243.7	1,457.5	1,703.1	13.8%	2.5%	2.8%	2.9%	3.0%
Psgr Carrier Miles Flown (MIL)	Pessimistic	6,862.4	6,694.5	7,217.7	8,019.8	8,681.3	9,488.2	-2.4%	1.5%	1.8%	1.7%	1.8%
	Baseline	6,862.4	7,255.7	8,002.8	9,089.0	10,515.8	12,247.9	5.7%	2.0%	2.3%	2.5%	2.7%
	Optimistic	6,862.4	7,616.5	8,583.0	9,832.4	11,460.9	13,308.9	11.0%	2.4%	2.6%	2.8%	2.8%
Psgr Carrier Departures (000s)	Pessimistic	8,011.0	7,637.1	7,676.0	8,250.6	8,738.1	9,338.9	-4.7%	0.1%	0.8%	0.9%	1.0%
	Baseline	8,011.0	8,096.1	8,502.6	9,448.3	10,727.6	12,293.1	1.1%	1.0%	1.6%	1.9%	2.1%
	Optimistic	8,011.0	8,440.1	9,133.4	10,253.2	11,727.9	13,366.0	5.4%	1.6%	2.0%	2.2%	2.3%
Nominal Passenger Yield (cents)	Pessimistic	15.38	15.67	17.29	19.03	21.59	24.58	1.9%	2.0%	2.0%	2.2%	2.3%
	Baseline	15.38	15.50	16.52	17.51	18.54	19.67	0.7%	1.3%	1.2%	1.2%	1.2%
	Optimistic	15.38	15.35	16.29	17.06	17.63	18.17	-0.2%	1.2%	1.1%	0.9%	0.8%
* Includes domestic and international activity.												

TABLE A-3

FAA FORECAST OF DOMESTIC AVIATION ACTIVITY

FISCAL YEARS 2022-2043

Variable	Scenario	Historical	FORECAST					PERCENT AVERAGE ANNUAL GROWTH				
		2022E	2023	2028	2033	2038	2043	2022-23	2023-28	2023-33	2023-38	2023-43
Domestic Aviation Activity												
Available Seat Miles (BIL)	Pessimistic	832.8	848.2	863.9	950.9	1,039.3	1,146.3	1.8%	0.4%	1.1%	1.4%	1.5%
	Baseline	832.8	888.3	961.7	1,106.2	1,304.3	1,554.5	6.7%	1.6%	2.2%	2.6%	2.8%
	Optimistic	832.8	922.8	1,035.9	1,208.2	1,432.6	1,692.4	10.8%	2.3%	2.7%	3.0%	3.1%
Revenue Passenger Miles (BIL)	Pessimistic	695.2	716.2	740.0	825.0	900.7	993.8	3.0%	0.7%	1.4%	1.5%	1.7%
	Baseline	695.2	750.1	823.7	959.8	1,130.3	1,347.6	7.9%	1.9%	2.5%	2.8%	3.0%
	Optimistic	695.2	779.3	887.4	1,048.3	1,241.6	1,467.2	12.1%	2.6%	3.0%	3.2%	3.2%
Enplanements (MIL)	Pessimistic	737.8	764.4	779.3	857.5	923.8	1,005.9	3.6%	0.4%	1.2%	1.3%	1.4%
	Baseline	737.8	800.5	867.4	997.5	1,159.2	1,363.9	8.5%	1.6%	2.2%	2.5%	2.7%
	Optimistic	737.8	831.7	934.6	1,089.6	1,273.5	1,485.1	12.7%	2.4%	2.7%	2.9%	2.9%
Psgr Carrier Miles Flown (MIL)	Pessimistic	5,573.4	5,451.9	5,449.7	5,897.2	6,339.3	6,877.9	-2.2%	0.0%	0.8%	1.0%	1.2%
	Baseline	5,573.4	5,710.6	6,068.8	6,864.4	7,962.1	9,336.9	2.5%	1.2%	1.9%	2.2%	2.5%
	Optimistic	5,573.4	5,933.5	6,539.4	7,499.9	8,749.3	10,168.7	6.5%	2.0%	2.4%	2.6%	2.7%
Psgr Carrier Departures (000s)	Pessimistic	7,369.7	7,070.7	6,914.4	7,317.5	7,691.2	8,156.1	-4.1%	-0.4%	0.3%	0.6%	0.7%
	Baseline	7,369.7	7,391.9	7,670.4	8,472.8	9,584.9	10,968.0	0.3%	0.7%	1.4%	1.7%	2.0%
	Optimistic	7,369.7	7,673.0	8,251.5	9,228.3	10,511.6	11,934.4	4.1%	1.5%	1.9%	2.1%	2.2%
Nominal Passenger Yield (cents)	Pessimistic	15.40	15.65	17.67	19.75	22.28	25.22	1.6%	2.5%	2.4%	2.4%	2.4%
	Baseline	15.40	15.46	16.52	17.40	18.30	19.32	0.3%	1.3%	1.2%	1.1%	1.1%
	Optimistic	15.40	15.29	16.16	16.74	17.19	17.61	-0.7%	1.1%	0.9%	0.8%	0.7%

TABLE A-4

FAA FORECAST OF INTERNATIONAL AVIATION ACTIVITY*

FISCAL YEARS 2022-2043

Variable	Scenario	Historical	FORECAST					PERCENT AVERAGE ANNUAL GROWTH				
		2022E	2023	2028	2033	2038	2043	2022-23	2023-28	2023-33	2023-38	2023-43
International Aviation												
Activity												
Available Seat Miles (BIL)	Pessimistic	277.7	275.5	401.8	483.4	536.0	600.8	-0.8%	7.8%	5.8%	4.5%	4.0%
	Baseline	277.7	342.5	439.7	507.0	584.1	668.8	23.4%	5.1%	4.0%	3.6%	3.4%
	Optimistic	277.7	373.1	464.1	531.3	619.7	720.9	34.4%	4.5%	3.6%	3.4%	3.3%
Revenue Passenger Miles (BIL)	Pessimistic	212.7	215.0	329.6	397.6	440.7	493.9	1.1%	8.9%	6.3%	4.9%	4.2%
	Baseline	212.7	267.3	360.7	417.0	480.5	550.3	25.7%	6.2%	4.5%	4.0%	3.7%
	Optimistic	212.7	291.2	380.8	437.0	510.0	593.6	36.9%	5.5%	4.1%	3.8%	3.6%
Enplanements (MIL)	Pessimistic	90.6	81.9	114.0	140.3	158.6	180.6	-9.6%	6.8%	5.5%	4.5%	4.0%
	Baseline	90.6	101.8	124.6	146.8	173.0	201.9	12.4%	4.1%	3.7%	3.6%	3.5%
	Optimistic	90.6	110.9	131.9	154.1	184.0	218.0	22.4%	3.5%	3.3%	3.4%	3.4%
Psgr Carrier Miles Flown (MIL)	Pessimistic	1,288.9	1,242.6	1,768.0	2,122.5	2,342.0	2,610.3	-3.6%	7.3%	5.5%	4.3%	3.8%
	Baseline	1,288.9	1,545.1	1,934.0	2,224.6	2,553.7	2,911.0	19.9%	4.6%	3.7%	3.4%	3.2%
	Optimistic	1,288.9	1,683.0	2,043.6	2,332.5	2,711.7	3,140.2	30.6%	4.0%	3.3%	3.2%	3.2%
Psgr Carrier Departures (000s)	Pessimistic	641.3	566.4	761.6	933.1	1,046.9	1,182.8	-11.7%	6.1%	5.1%	4.2%	3.8%
	Baseline	641.3	704.3	832.2	975.5	1,142.7	1,325.1	9.8%	3.4%	3.3%	3.3%	3.2%
	Optimistic	641.3	767.1	882.0	1,024.9	1,216.4	1,431.7	19.6%	2.8%	2.9%	3.1%	3.2%
Nominal Passenger Yield (cents)	Pessimistic	15.30	15.72	16.43	17.54	20.18	23.31	2.8%	0.9%	1.1%	1.7%	2.0%
	Baseline	15.30	15.60	16.53	17.77	19.08	20.53	2.0%	1.2%	1.3%	1.4%	1.4%
	Optimistic	15.30	15.50	16.58	17.83	18.71	19.57	1.3%	1.4%	1.4%	1.3%	1.2%

*Includes mainline and regional carriers.