

FAA AEROSPACE FORECASTS

FISCAL YEARS 2015 – 2035

Developing forecasts of aviation demand and activity levels continues to be challenging as the aviation industry evolves and prior relationships change. In times of amplified volatility, the process is filled with uncertainty, particularly in the short-term. Once again, the U.S. aviation industry has shown that the demand for air travel is resilient as it rebounds from its most recent downward spiral caused by the Great Recession. As 2015 begins, lingering questions remain. Are the U.S. and global economies on firm ground? Will oil prices rebound sharply or remain at current levels for a sustained period into the future? Have the structural changes undertaken by the industry over the past 5 years revamped the industry from one of boom-to-bust to one of sustainable profits? Has industry consolidation finished?

The FAA has developed a set of assumptions and forecasts consistent with the emerging trends and structural changes currently taking place within the aviation industry. The intent of these forecasts is to accurately predict future demand; however, due to the large uncertainty of the operating environment, the variance around the forecasts is wider than it was in prior years.

The commercial aviation forecasts and assumptions are developed from econometric models that explain and incorporate emerging trends for the different segments of the industry. In addition, the commercial aviation forecasts are considered unconstrained in that they assume there will be sufficient infrastructure to handle the projected levels of activity. These forecasts do not assume further contractions of the industry through bankruptcy, consolidation, or liquidation. They also do not assume any drastic changes in federal government operations.

The commercial aviation forecast methodology is a blended one. The starting point for developing the commercial aviation forecasts (air carriers and regionals) is the future schedules published by airlines through Innovata. To generate the short-term forecast (i.e., one year out) current monthly trends are used in conjunction with published monthly schedules to allow FAA forecasters to develop monthly capacity and demand forecasts for both mainline and regional carriers for fiscal and calendar years 2015-16. The medium to long-term forecasts (2016-2035) are based on the results of econometric models.

The general aviation forecasts rely heavily on discussions with industry experts conducted at industry meetings, including four Transportation Research Board (TRB) meetings of Business Aviation and Civil Helicopter Subcommittees in May 2014 and January 2015 along with the results of the 2013 General Aviation and Part 135 Activity Survey. The assumptions have been updated by FAA analysts to reflect more recent data and developing trends, as well as further information from industry experts.

The FAA also presents the draft forecasts and assumptions to industry staff and aviation associations, who are asked to comment on the reasonableness of the assumptions and

forecasts. Their comments and/or suggestions have been incorporated into the forecasts as appropriate.

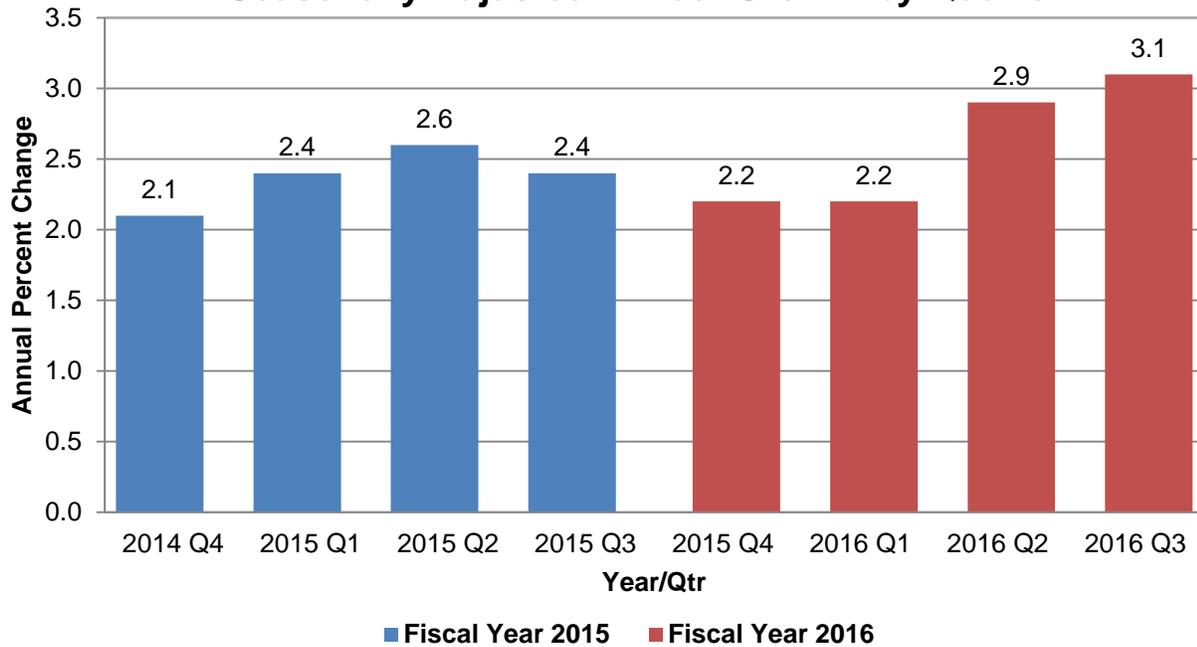
ECONOMIC FORECASTS

For this year's Aerospace Forecast, the FAA is using economic forecasts developed by IHS Global Insight, Inc. to project domestic aviation demand. Furthermore, the FAA uses world and individual country economic projections provided by IHS Global Insight, Inc. to forecast the demand for international aviation services. Annual historical data and economic forecasts are presented in Tables 1 through 4. U.S. economic forecasts are presented on a U.S. government fiscal year (October through September) basis, whereas international forecasts are presented on a calendar year basis.

As the recovery is now entering its sixth year, the U.S. economy continues to face headwinds that could limit growth over the next few years. While the decline in oil prices would normally lead to faster economic growth, a higher dollar, slower foreign economic growth, and reduced investment in energy drilling equipment and infrastructure, mitigates a significant portion of the growth benefit from lower oil and gasoline prices. In the global economy, the outlook for Europe outside of the United Kingdom remains uncertain and recent data from China point to a GDP growth between 6.5 and 7 percent. The dollar appreciated versus other major currencies in 2014 as U.S. economic growth accelerated while China slowed down and Europe and Japan stagnated. The stronger dollar will make U.S. exports more expensive and widen the trade deficit. Falling oil prices are curtailing investment in drilling equipment and infrastructure as revenue from oil production declines due to the falling prices.

U.S. economic growth is projected to accelerate through most of FY 2015 as higher consumer spending kicks in spurred on by solid gains in employment, improving consumer finances, and lower gasoline prices. Government spending will no longer be a drag on growth, unlike the past few years. On a quarter-by-quarter basis, U.S. economic growth is projected to range between 2.1 to 3.1 percent on an annualized basis for the next two years.

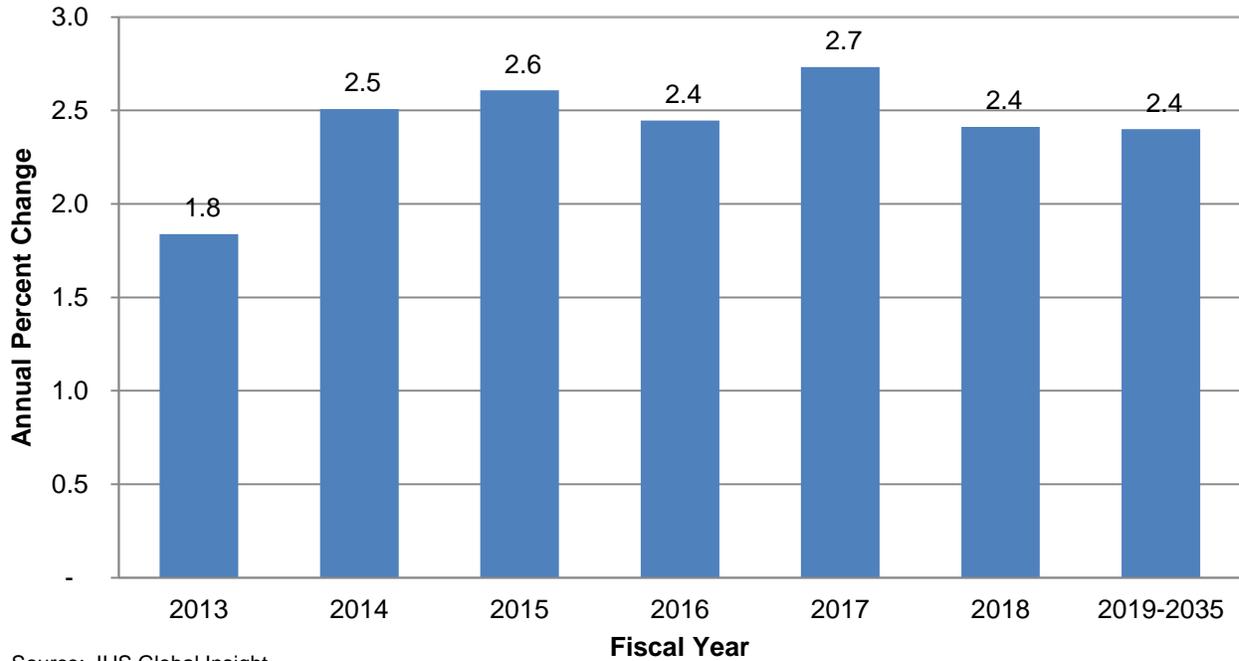
U.S. Gross Domestic Product Seasonally Adjusted Annual Growth by Quarter



The modest pace of economic recovery has been most evident in the nation’s unemployment rate. Since peaking at 9.9 percent in the first quarter of FY 2010, the unemployment rate has come down gradually, dropping to 6.1 percent in the fourth quarter of FY 2014. IHS Global Insight is projecting that with the pickup in economic growth, growth in employment will remain solid and the unemployment rate will drop in FY 2015, averaging 5.6 percent for the year. The growth in employment (and the accompanying fall in the unemployment rate) will result in an uptick in income growth with real disposable income (income after taxes) projected to rise 3.0 percent in 2015 providing a boost to aviation demand in domestic markets, after increasing 1.5 and 1.2 percent in 2013 and 2014, respectively

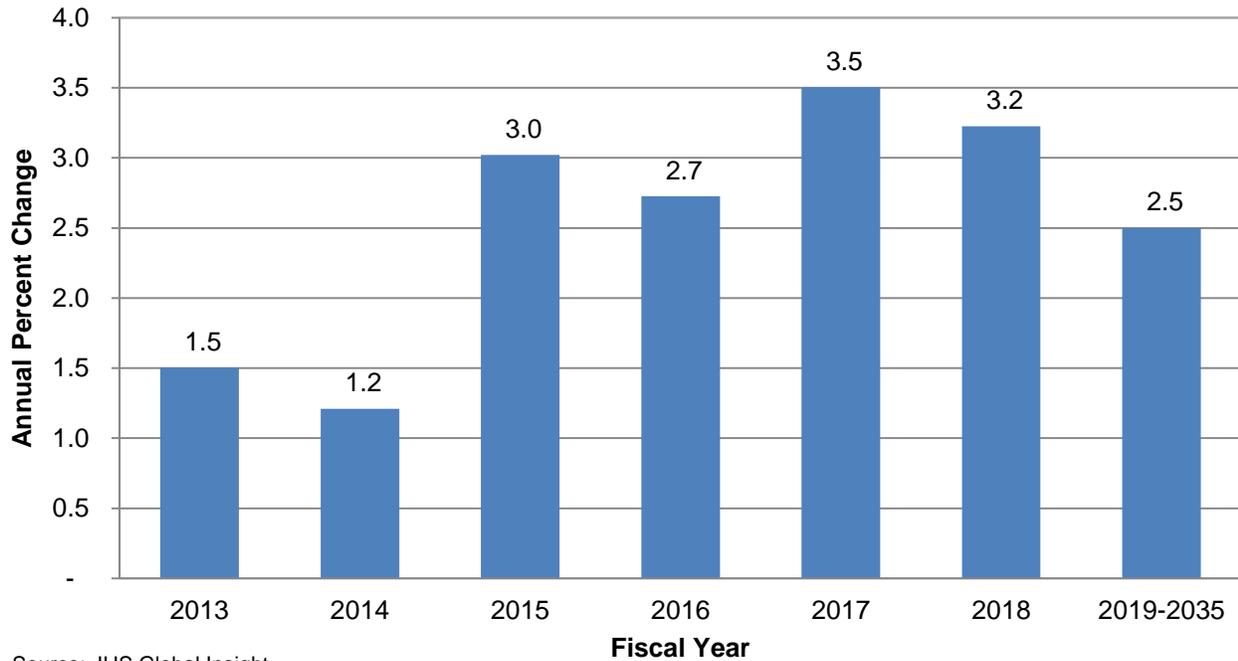
In the medium term, (the three year period between 2016 and 2019), U.S. economic growth is projected to average 2.6 percent per year with rates ranging between 2.4 and 2.7 percent. Income growth picks up during the same period averaging 3.2 percent per year. For the balance of the forecast period, annual average growth of U.S. real GDP growth and real income slow to 2.4 and 2.5 percent, respectively. The long-term stability of U.S. economic growth depends on sustained growth in the workforce and capital stock along with improved productivity and competitiveness.

U.S. Real Gross Domestic Product



Source: IHS Global Insight

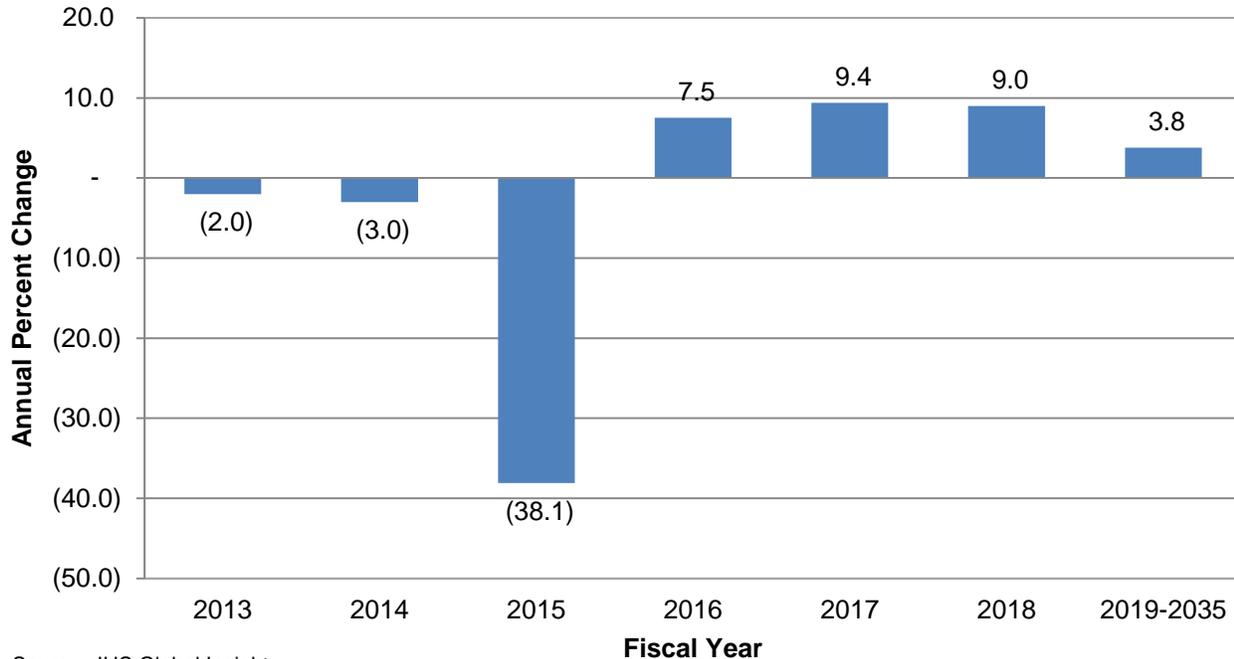
U.S. Real Disposable Income



Source: IHS Global Insight

After falling by 3.0 percent in 2014, IHS Global Insight projects the price, as measured by the Refiners' Acquisition Cost, to fall sharply to \$60 per barrel in 2015 (down 38.1 percent from 2014) as increasing supply (especially in the U.S. from new technologies) coupled with slowing global demand has resulted in a glut of oil. IHS Global Insight believes the glut of oil in the world market is a long term situation as oil prices are forecast to not reach \$100 per barrel until 2021. For the remainder of the forecast period, oil prices are projected to grow slightly faster than general inflation, reaching \$162 per barrel by 2035.

Refiners' Acquisition Cost



Source: IHS Global Insight

Inflation continues to remain in check as energy prices fall in 2015. After increasing 1.6 percent in FY 2014, the inflation rate (as measured by the CPI), is projected to rise only 0.3 percent but then accelerate to 1.7 percent in 2016. After 2016, consumer price inflation is projected to grow between 2.0 and 2.5 percent per year for the balance of the forecast.

To reflect the uncertainty in the projection of economic growth, the FAA Aerospace Forecast uses high and low economic growth cases along with the base forecast. The optimistic and pessimistic economic growth cases are based on optimistic and pessimistic scenarios from IHS Global Insight's December 2014 U.S. economic forecast and extend to 2024. The optimistic case sees oil prices falling to around \$45 per barrel by the end of FY 2015, driving down the price of gasoline and providing an additional boost to consumer spending. Recent moves by the European Central Bank (ECB) successfully lift European growth and pent-up demand in Europe is released. Emerging market growth also accelerates as these markets implement structural reforms to increase labor productivity. The stock market responds favorably to all these developments which helps reinforce higher consumer spending. Employment and wage growth pick up further lifting consumer spending. Real GDP growth between 2014 and 2024 in the optimistic case averages 3.0 percent annually compared to 2.5 percent in the base case. The pessimistic case assumes recent improvements in the labor

market don't translate into wage growth while access to credit remains tight for many. As a result, household formation continues to fall as do housing prices. Declines in the stock market weaken consumer confidence and the combination of falling equity values and declining housing prices lead to a slowdown in consumption spending. In addition, foreign growth is slow reducing demand for U.S. exports. In the face of slow consumption growth at home and slow exports, private sector hiring slows and the unemployment rate climbs back up over 6% in 2015. U.S. economic growth is below 2.0 percent in 2015-18 before finally picking up. Real GDP growth in the pessimistic case averages 1.8 percent annually between 2014 and 2024, 0.7 percentage points lower than the base case. Further details about the high and low scenarios can be found in Appendix A.

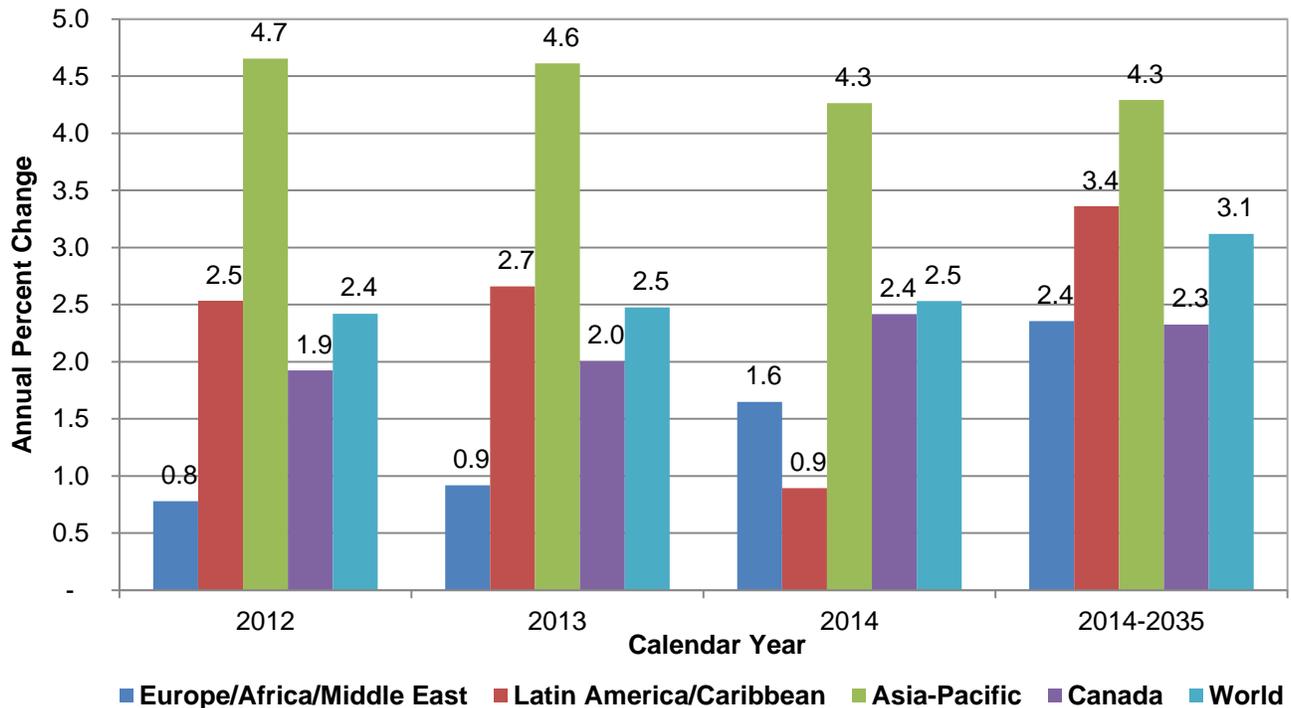
World Economy

After weathering the first contraction in global GDP since the Great Depression, a very slow recovery from the recession in Europe, a sharp decline in energy prices, and political stalemates in the U.S. over what to do with the U.S. federal budget, worldwide economic activity is estimated by IHS Global Insight to have expanded by 2.5 percent in calendar year 2014, the same rate as 2013. The advanced economies (U.S., Canada, Western Europe, Australia, New Zealand, and Japan) posted growth in output ranging from a low of 0.2 percent to a high of 3.1 percent.¹²

The emerging market economies grew 4.1 percent, 0.6 points lower than in 2013 with the economy of China up 7.3 percent, India up 5.9 percent, Brazil remained stagnant with no growth, and Russia was up 0.1 percent. In 2015, world economic growth is projected to increase slightly by 2.8 percent as employment levels improve, consumer confidence improves, and public sector austerity continues to ease in most countries.¹³

While growth in the U.S. and in the emerging market economies edges up, the recovery in Europe continues to be weak, especially in Russia, Greece, Italy, and Spain.¹⁴

Real Gross Domestic Product by World Region



Source: IHS Global Insight

¹² Source: IHS Global Insight, GDP Components Tables, Interim Forecast, Release date December 15, 2014.

¹³ Ibid.

¹⁴ Ibid.

The Asia/Pacific and Latin America/Caribbean regions will continue to experience the world's highest economic growth rates. These regions are expected to see their economic activity grow at annual rates of 4.3 and 3.4 percent a year, respectively, over the forecast period (2014-2035). China, which became the world's second largest economy in 2009 (surpassing Japan), is projected to grow 5.6 percent a year, while India, projected to see its GDP almost quadruple in size, is growing at an average rate of 6.6 percent a year during the forecast period. In contrast, Japan, recently hampered by a new sales tax hike, grows at just 0.8 percent a year over the forecast horizon as structural impediments, and an aging population continues to limit growth¹⁵.

From 2014-2035, worldwide real GDP is projected to increase an average of 3.1 percent per calendar year.¹⁶

¹⁵ Ibid.

¹⁶ Ibid.

AVIATION TRAFFIC AND ACTIVITY FORECASTS

Total traffic and activity forecasts for commercial air carriers (the sum of mainline and regional carriers) are presented in Tables 5 through 9. These tables contain year-to-year historical data and forecasts.

Mainline air carrier traffic and activity forecasts and the forecast assumptions are displayed in Tables 10 through 18, 21, and 23. These tables contain year-to-year historical data and forecasts.

Regional carrier forecasts and assumptions are found in Tables 24 through 27. These tables provide year-to-year historical and forecast data.

Tables 19 and 20 provide year-to-year historical and forecast data for cargo activity. Table 22 provides year-to-year historical and forecast data for the cargo jet fleet.

General aviation forecasts are found in Tables 28 through 31. These tables provide year-to-year historical data and forecasts.

Tables 32 through 34 provide forecasts of aircraft activity at FAA and contract facilities.

Commercial Aviation Forecasts

System capacity is projected to increase modestly (up 2.4 percent) in 2015. In the domestic market, mainline carrier capacity expanded only slightly (1.8 percent) in 2014 but is projected to grow at a more robust rate (2.6 percent) in 2015, while capacity for the regional carriers is projected to post its first increase since FY 2011 (up 4.0 percent). In the international sector, capacity is forecast to increase slowly in the Atlantic and Pacific markets, respectively, and increase modestly in the Latin market -- resulting in an overall international capacity increase of 1.6 percent in 2015. Passenger demand growth is in line with capacity growth in 2015 with system RPMs forecast to grow 2.6 percent.

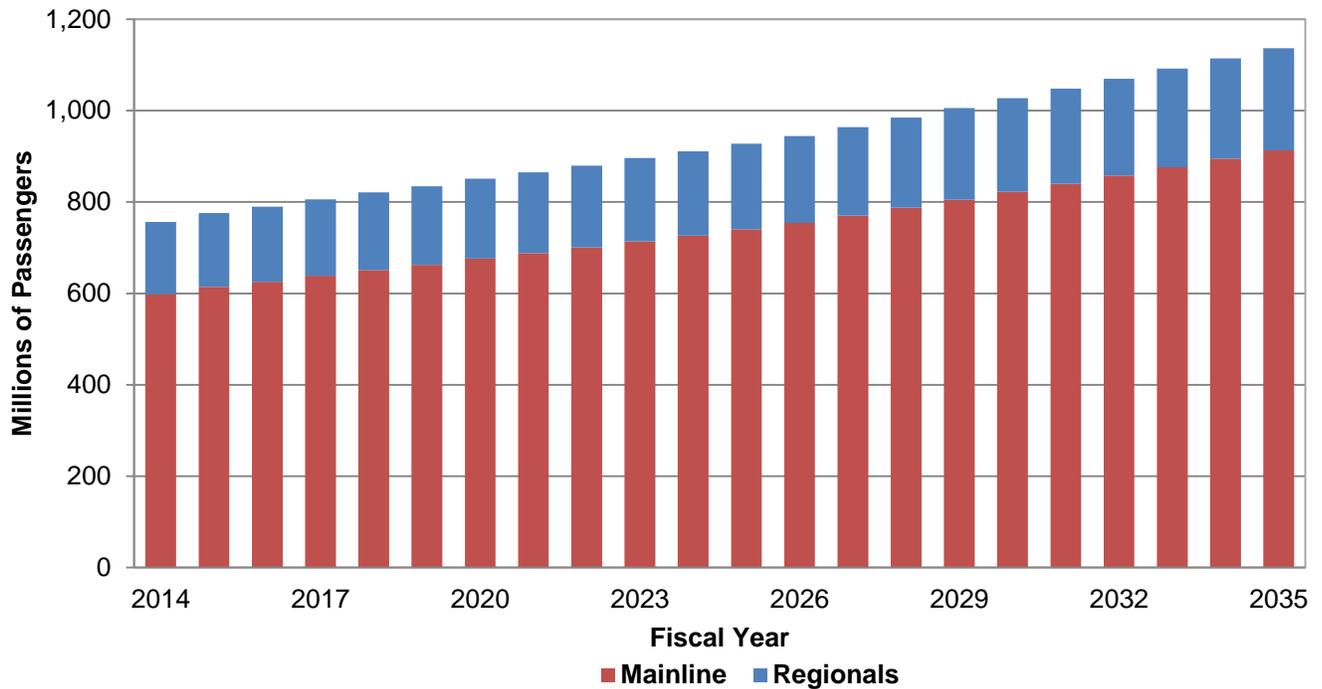
Supported by a growing U.S. and world economy, year over year RPM growth is forecast to be 2.5 percent, on average, over the 2016-2035 period. Over the same time period, system capacity growth averages of 2.5 percent per year as well.

System passengers are projected to increase an average of 1.9 percent a year, with mainline carriers growing at 2.0 percent a year, slightly higher than their regional counterparts (up 1.6 percent). By 2035, U.S. commercial air carriers are projected to fly 1.71 trillion ASMs and transport 1.14 billion enplaned passengers a total of 1.44 trillion passenger miles.

Planes will remain crowded, with load factors projected to grow moderately during the early years of the forecast period then tapering during the mid to latter years to 84.2 percent in 2035 (up 0.6 points compared to the beginning of the forecast period in 2015).

Passenger trip length is forecast to increase by more than 139 miles over the forecast period to 1,270 miles in 2035. The growth in passenger trip length reflects the faster growth in the relatively longer international and domestic trips as compared to shorter-haul flights.

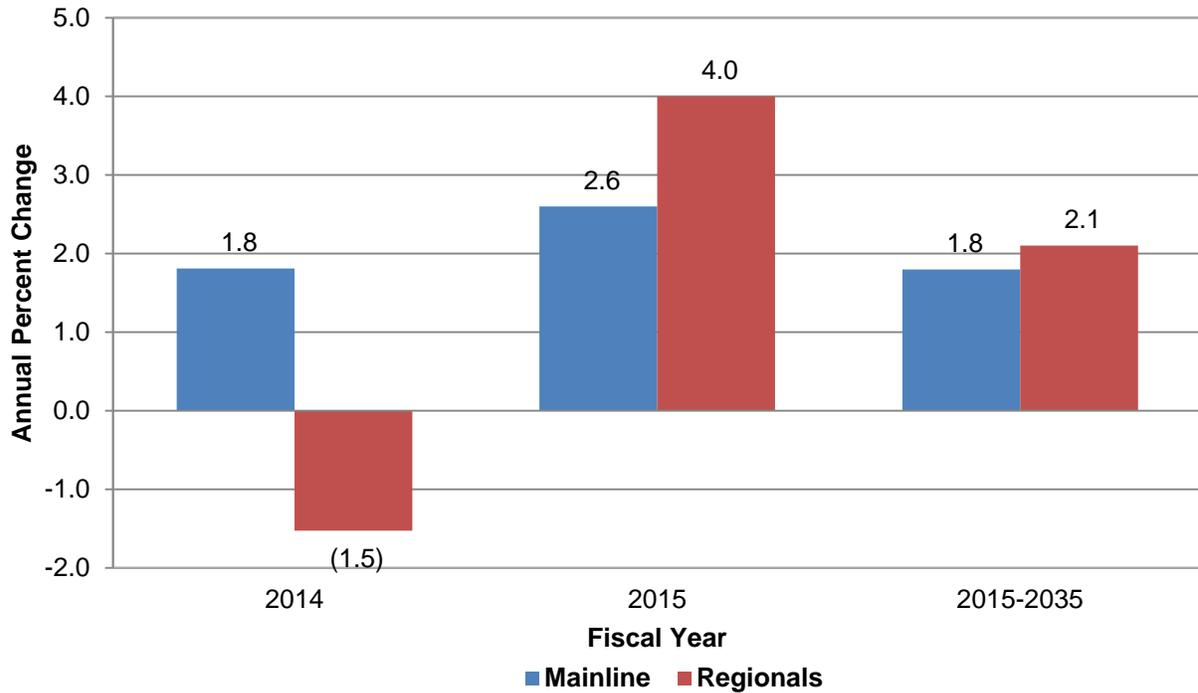
U.S. Commercial Air Carriers System Enplanements



Domestic Markets

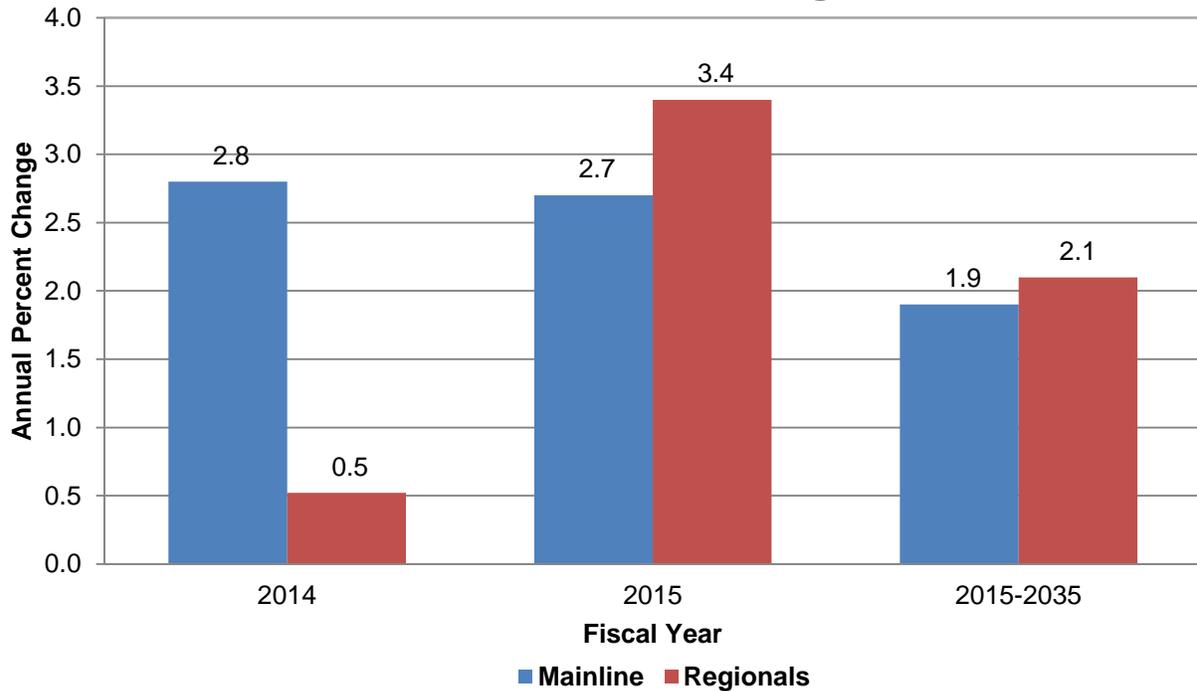
After expanding slightly in FY 2014 (up 1.4 percent), domestic capacity is projected to increase by 2.8 percent in 2015. For the remainder of the forecast period, domestic commercial carrier capacity is expected to remain sluggish but steady at an average of 1.8 percent per year as U.S. economic growth accelerates, with mainline carriers growing slower than regional carriers, 1.8 percent versus 2.0 percent.

U.S. Commercial Air Carriers Domestic Available Seat Miles



Since economic growth is picking up in the U.S., U.S. carrier domestic RPM growth in 2015 is projected to increase by 2.8 percent. Mainline carrier RPMs are projected to increase by 2.7 percent during 2015, while regional carrier RPMs are projected to increase at a faster rate (3.4 percent). Traffic growth remains steady for the next decade with annual RPM growth averaging 1.8 percent as the economic recovery slowly gains steam. For the balance of the forecast period (2026-2035) modest economic growth and falling real yield drive domestic RPM growth of 2.1 percent a year. Over the entire forecast period (2014-2035), domestic RPMs grow an average of 1.9 percent a year with mainline carriers growing more slowly than the regional carriers (1.8 percent a year versus 2.1 percent a year, respectively).

U.S. Commercial Air Carriers Domestic Revenue Passenger Miles



Enplanements are forecast to grow moderately (up 2.6 percent) in 2015 after a 2.1 percent increase in 2014. Similar to RPMs, passenger growth is expected to remain steady in the next decade (up 1.5 percent a year) as the recovery gains momentum and then average 1.8 percent per year for the period 2026-2035. Over the entire forecast period (2014-2035), domestic enplanements are projected to grow at an average annual rate of 1.7 percent with mainline and regional carriers growing at the same rate.

The continued modest recovery in demand, coupled with restricted capacity growth, provided pricing power for the mainline carriers during 2014, with nominal yield increasing 4.5 percent (up 2.9 percent in real terms). In spite of slow demand growth, continued tight capacity will provide support for higher fares in 2015, with an increase in nominal yield of 3.0 percent (2.7 percent in real terms). For the entire forecast period, nominal yield is projected to increase at an average rate of 2.0 percent a year, while in real terms it is projected to decline at an average rate of 0.1 percent a year. The decline in real yield over the forecast period assumes technological improvements, competition between carriers, and the increasing convergence of cost structures between network carriers and their low-cost counterparts. The convergence in cost structures between the carrier groups arises from gains in productivity as network carriers retire fuel inefficient aircraft and hold the line on labor costs while existing low-cost carriers contend with aging fleets, maturing work forces, and larger and more complex networks.

Domestic commercial carrier activity (departures) at FAA air traffic facilities is projected to grow more slowly than passenger traffic over the forecast period (1.0 percent per year for departures versus 1.9 percent for RPMs). This reflects increased carrier efficiencies in three operational measures: aircraft size, load factor, and trip length.

Overall domestic aircraft size increased by 2.0 seats to 126.9 in 2014 as a result of the combination of the increased mainline carrier domestic capacity share and increases in the aircraft size of the mainline carrier group. Mainline carrier aircraft size increased 1.2 seats with the retirement of older aircraft (i.e. MD-80's, 737-300/400/500, and 757's). Regional aircraft size increased by 0.9 seats as 50-seat jets were retired and replaced by larger 70-90 seat jet aircraft entered the fleet. Domestic seats per aircraft are forecast to increase in 2015 (up 0.9 seats) as both mainline and regional carrier aircraft will increase in size. Over the balance of the forecast (2016-2035), domestic seats per aircraft are projected to gradually increase to 137.5 seats by 2035, an average increase of 0.5 seats per year.

The FAA's projection of domestic carrier average aircraft size is greatly influenced by carrier fleet plans, publicly known aircraft order books, and the FAA's expectations of the changing domestic competitive landscape. In the near-term (through 2016), the forecast incorporates several assumptions: 1) mainline carriers desire to keep ASM growth in line with GDP growth; 2) the retirement of older inefficient aircraft (many of which are narrow-body); 3) the shifting of wide-body and larger narrow-body aircraft to international services, and 4) growing use of 70-90 seat regional jet aircraft.

In the longer-term, network carriers will replace their older narrow-body aircraft (A320's/B757-200/300) in their domestic route networks with next generation, narrow-body aircraft like the A320 Neo and the 737 Max. The use of smaller aircraft, like the 100-seat Embraer 190, to supplement carrier route structures will be limited. The use of the next generation, narrow-body aircraft will allow mainline carriers to better serve their customers by more closely matching supply (the number of seats) with demand (the number of passengers), and improve profitability through lower operating costs.

Mainline carrier domestic aircraft size increased in 2014 by 1.2 seats to 155.1 seats, and is projected to increase by another 1.2 seats in 2015. Domestic aircraft size for mainline carriers is projected to increase by 0.6 seats in 2016 and then gradually increase for the balance of the forecast. Overall, average aircraft size for the mainline group will increase by 11.3 seats between 2014 and 2035, going from 155.1 to 166.4.

Regional carrier aircraft size flown domestically is projected to grow at a faster pace than that of the mainline carriers. The faster growth in aircraft size for regional carriers is stimulated by continued deliveries of 70 to 90 seat regional jet aircraft that are entering the fleet as well as reductions in the 50-seat and under jet fleet. The larger share of 70 to 90-seat regional jets in the fleet, coupled with 50-seat jet and small turboprop retirements over the next few years, increases the average seating capacity of the regional fleet from 57.0 seats in 2014 to 59.5 seats by 2017. Over the course of the forecast, seats per aircraft for regional carriers increases an average of 0.6 seats per year to 69.3 seats in 2035. The changing aircraft fleet mix is narrowing the gap between the size and aircraft types operated by the mainline and regional carriers.

The commercial carrier domestic load factor increased 1.1 points during FY 2014 to an all-time high of 84.4 percent, with record load factors posted by the mainline and regional carrier groups. The mainline carrier group posted a load factor of 85.0 percent, up 0.9 percentage points from 2013. Regional carrier load factor increased 2.1 points to 80.0 percent. In 2015,

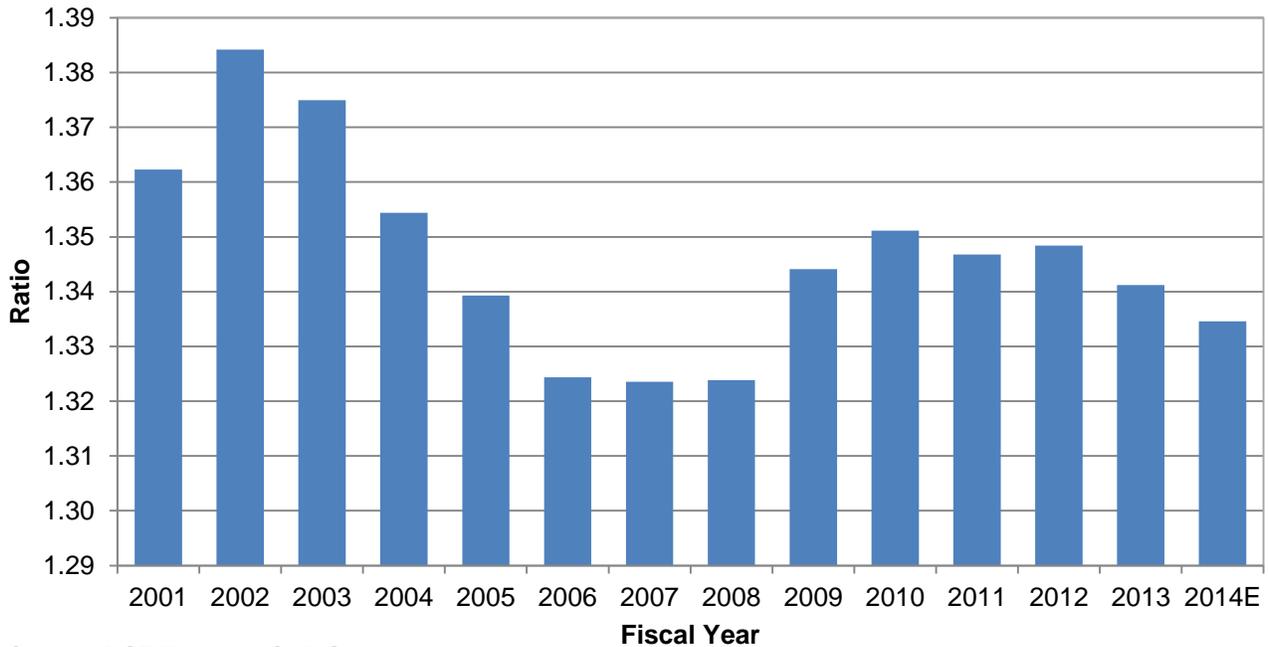
the domestic load factor is forecast to remain at 84.4. Thereafter, the commercial carrier domestic load factor gradually rises to 85.7 percent by 2035.

In 2014 the average domestic passenger trip length increased by 3.0 miles to 895.4 miles in total, after increasing by 8.8 miles in 2013. Passenger trip length is forecast to increase by 1.8 miles in 2015 as carriers continue to restructure their networks and realign capacity. After 2015, trip length is projected to remain relatively stable for a number of years before steadily increasing from 2018 onwards, reaching 943.8 miles by 2035. The increase in trip length reflects longer trips flown by the mainline and regional carrier group. Mainline carrier trip length increases as service in thinner, relatively shorter haul markets is dropped or relinquished to regional partners and replaced with longer domestic trips. Regional carrier trip length increases as flying in shorter haul markets is abandoned and/or reduced as more of the larger 70 and 90-seat regional jets continue to penetrate thinner longer-haul markets previously served with mainline equipment.

Another key factor in predicting aviation activity relative to passenger demand is the level of connecting versus non-stop (origin-destination) traffic. However, as the current cycle of U.S. airline industry restructuring unfolds and hub structures change, the impact on local communities and airport activity levels can vary significantly.

The FAA analyzes the ratio of passenger enplanements to origin-destination (O&D) passengers over time to identify changes in connecting versus non-stop traffic. This ratio is an indicator of the tendency of the average passenger to connect during a typical journey. The closer the ratio is to 1.0, the more passengers fly on a point-to-point routing. As the chart below shows, the overall ratio for the U.S. domestic industry peaked in 2002, and then trailed downward to its lowest level (1.32 enplanements for every O&D passenger) by 2007. The decline in the ratio during this six year period is characterized by a drop in connectivity by the network carriers and a rising passenger share for the low-cost carriers. As demand for air travel fell during the great recession and fuel costs skyrocketed, the ratio jumped up to over 1.34 in 2009. Between 2009 and 2013 the ratio fell between 1.341 and 1.351 enplanements for every O&D passenger, but the 2014 figure fell below 1.34 to 1.335, the lowest figure since 2008. The FAA's forecast recognizes the changing pattern of domestic traffic connectivity and these trends are captured in the forecast's passenger enplanement totals.

U.S. Commercial Carriers Domestic Enplanements Per Origin-Destination Passenger



Source: DOT T100 and O&D Survey

International Markets

U.S. and Foreign Flag Carriers

The FAA provides forecasts of total international passenger demand¹⁷ for travel between the United States and three world travel areas: Atlantic, Latin America (including Mexico and the Caribbean), and Asia/Pacific, as well as for U.S.–Canadian transborder traffic. These forecasts are based on historical passenger statistics provided by the U.S. Customs and Border Protection¹⁸ and Transport Canada, and on regional world historical data and economic projections from Global Insight, Inc.

Total passenger traffic between the United States and the rest of the world is estimated to total 195.7 million in CY 2014, 5.5 percent higher than in 2013. Passenger demand growth slows in 2015 and 2016 (up 4.7 and 3.3 percent, respectively) but picks up again in 2017 (up 4.2 percent) as the U.S. and world economic recovery solidifies. For the balance of the forecast period (2017-35), stable worldwide economic growth leads international passengers to grow at an average rate of 4.1 percent a year, totaling 452.9 million in 2035.

¹⁷ The sum of U.S. and foreign flag carriers.

¹⁸ Customs and border protection data is processed and released by the Department of Commerce.

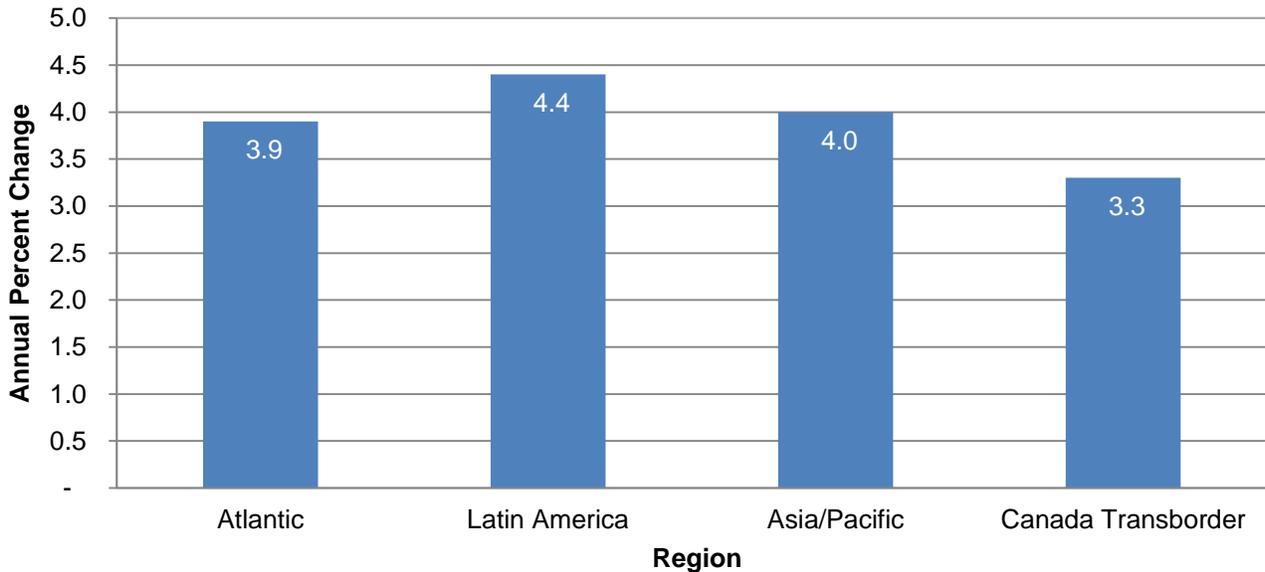
In the Latin America region, sustained economic growth drives passenger growth to an average rate of 4.2 percent a year over the entire forecast period (2014-2035). The highest growth is projected for Mexico (average annual growth of 4.7 percent) while the second largest market in the region, Brazil, grows at an average of 4.4 percent a year. The slowest rates of growth are projected to occur in the Bahamian and Jamaican markets (averaging growth of zero and 3.3 percent a year, respectively).

Emerging economies in the Asia-Pacific market boost passenger demand an average of 4.0 percent per year. Taiwan, South Korea, India and China (passenger growth of 4.2, 4.5, 4.2, and 6.2 percent a year, respectively) are forecast to be the fastest growing markets in the region. Growth in the Japan market (the largest and most established in the region) is projected to be well below the regional average at 2.7 percent a year.

In the more mature Atlantic market, the Open Skies agreement between the European Union and the United States along with competition between global airline alliances helps fuel passenger growth of 3.9 percent a year over the forecast period. Over the 20-year forecast horizon, average annual passenger growth in the top four Atlantic country specific markets, the United Kingdom, Germany, France and the Netherlands, is 3.7, 3.4, 2.9, and 3.6 percent, respectively.

Growth in the Canadian transborder market is forecast to be higher than that of the domestic U.S. market¹⁹ (1.7 percent), averaging 3.3 percent a year over the forecast period.

**U.S. and Foreign Flag Carriers
Passengers to/from U.S.
Calendar Years 2015-2035**



Source: U.S. Customs & Border Protection data processed and released by the Department of Commerce; data also received from Transport Canada.

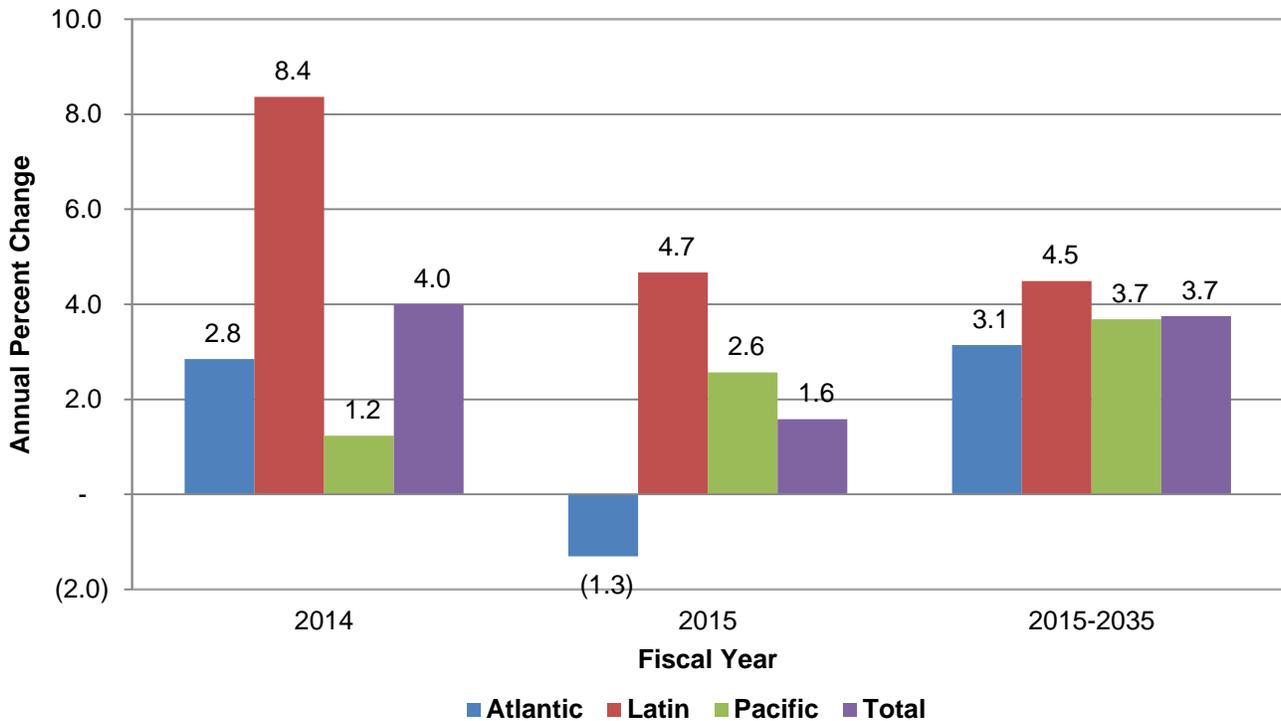
¹⁹ Mainline and regionals.

U.S. Flag Air Carriers

International U.S. commercial air carrier capacity grew modestly in 2014, up 4.0 percent from 2013. The Atlantic market recovered from a loss the previous year (up 2.8 percent) after declining 2.9 percent in 2013. The Latin America market posted a solid 8.4 percent increase while the Pacific market showed more modest growth, up 1.2 percent.

In 2015, moderate demand and increasing competition between global alliances is expected to boost total international capacity by 1.6 percent as all markets are expected to grow. The fastest growth is projected for the Latin market (up 4.7 percent), followed by the Pacific (up 2.6 percent); on the other hand, the Atlantic will show a slight loss (down 1.3 percent). System-wide capacity is projected to inch up in 2015 (up 1.6 percent), fueled by stronger economic growth projected for all world regions, and is projected to average 3.8 percent a year for the remainder of the forecast period (2016-2035). Moderate growth over the forecast period reflects favorable U.S. and world economic activity as it recovers from the global contraction.

U.S. Commercial Air Carriers International Available Seat Miles



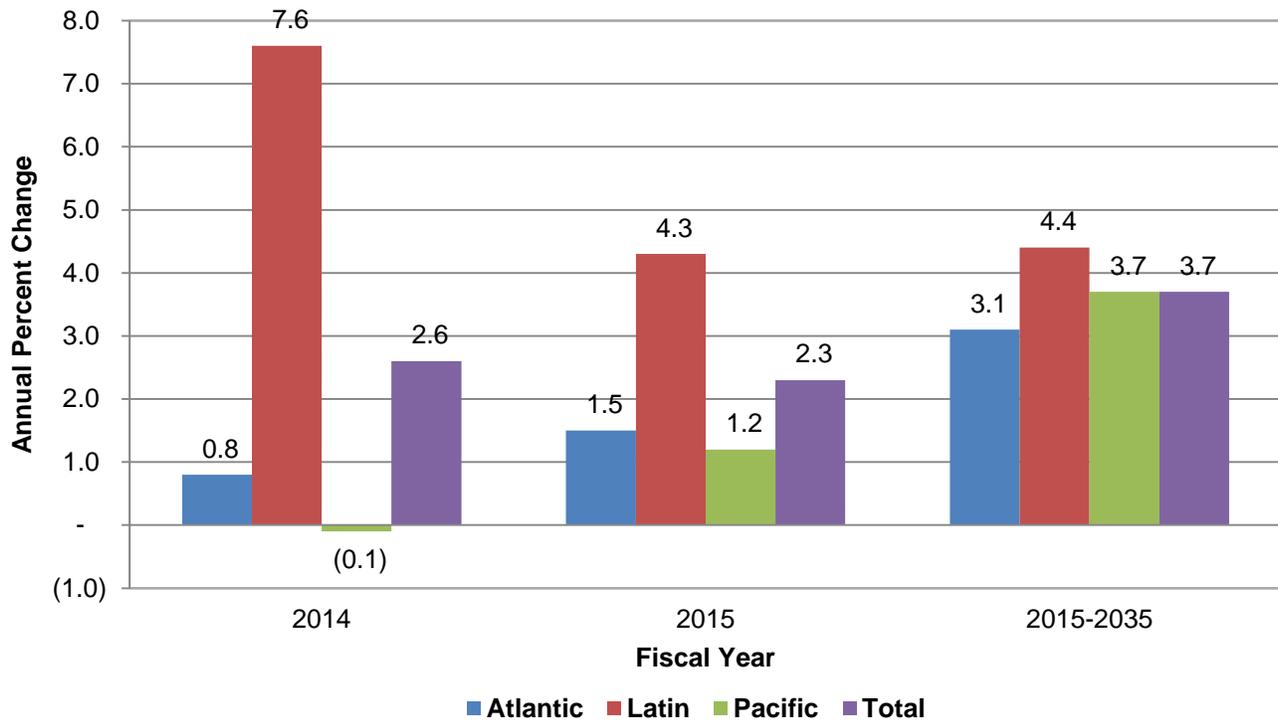
U.S. commercial air carrier international RPMs and enplanements increased 2.6 and 3.4 percent, respectively, in 2014. Increases in RPMs for the Latin market (up 7.7 percent) and the Atlantic market (up 0.8 percent) offset a decrease in the Pacific market (down 0.1 percent).

In 2015, U.S. carrier international RPMs are expected to increase by 2.3 percent as increases in the Latin American market (up 4.3 percent) compensate for the more anemic upticks in the Atlantic market (up 1.5 percent) and the Pacific market (up 1.2 percent).

For the balance of the forecast (2016-2035), RPMs increase an average of 3.7 percent a year with the fastest growth in the Latin region (up 4.5 percent).

International enplanement growth for 2015 by U.S. commercial air carriers is projected to be 2.4 percent as solid growth in both the Latin (up 4.0 percent) and Atlantic (up 1.5 percent) markets offset a decline in the Pacific region (down 1.5 percent) where a slowdown in both China and India’s economic growth affects demand. Over the balance of the forecast period (2016-2035), enplanements are forecast to increase an average of 3.7 percent a year with the fastest growth in Latin and Pacific markets (up 4.3 and 3.7 percent a year, respectively).

U.S. Commercial Air Carriers International Revenue Passenger Miles



International enplanement growth in U.S. carrier over the period 2014-2035 compares favorably to the growth in overall international passengers by U.S. and foreign flag carriers (4.1 percent a year, including the U.S.-Canada transborder market). Forecasts of international demand assume U.S. and foreign flag carriers will benefit from improving economic activity in both the United States and world markets.

International load factor for U.S. commercial carriers was 81.4 percent in 2014, a decrease of 1.2 points from 2013. Load factor is expected to slightly increase to 81.9 in 2015 as capacity increases in line with demand. International load factor is projected to remain steady around 81.9 percent over the balance of the forecast period to 2035 as traffic growth matches capacity growth in all three world markets.

International passenger real yields for U.S. commercial carriers were down 0.8 percent in 2014 as decreases in the Pacific market (down 3.4 percent) and in the Latin market (down 2.0 percent) offset an increase in the Atlantic market (up 1.3 percent). In 2015 international real yield is expected to decrease by 0.5 percent; for the remainder of the forecast period, real yield decreases an average of 0.6 percent a year. In nominal terms, international yields are forecast to decrease 0.2 percent in 2015, and then grow at an annual rate of 1.5 percent over the remainder of the forecast. The decline in real yields assumes competitive pressures (including established and relatively new international carriers) and technological improvements will hold the line on fare increases.

Commercial Air Carriers – Air Cargo

Historically, air cargo activity tracks with GDP. Additional factors that affect air cargo growth are fuel price volatility, movement of real yields, and globalization. Significant structural changes have occurred in the air cargo industry; among these are air cargo security regulations by the FAA and TSA, maturation of the domestic express market, a shift from air to other modes (especially truck), use of all-cargo carriers (e.g., FedEx) by the U.S. Postal Service to transport mail, and the increased use of mail substitutes (e.g. e-mail, cloud-based services).

The forecasts of Revenue Ton Miles (RTMs) are based on several assumptions specific to the cargo industry. First, security restrictions on air cargo transportation will remain in place. Second, most of the shift from air to ground transportation has occurred. Finally, long-term cargo activity will be tied to economic growth.

The forecasts of RTMs were based on models that link cargo activity to GDP. Forecasts of domestic cargo RTMs were developed with real U.S. GDP as the primary driver. Projections of international cargo RTMs were based on growth in world GDP, adjusted for inflation. The distribution of RTMs between passenger and all-cargo carriers was forecast based on an analysis of historic trends in shares, changes in industry structure, and market assumptions.

Total RTMs did not change in 2014 but are forecast to grow 3.7 percent in 2015. Driven by steady U.S. and world economic growth, total RTMs are projected to increase at an average annual rate of 3.6 percent for the balance of the forecast period.

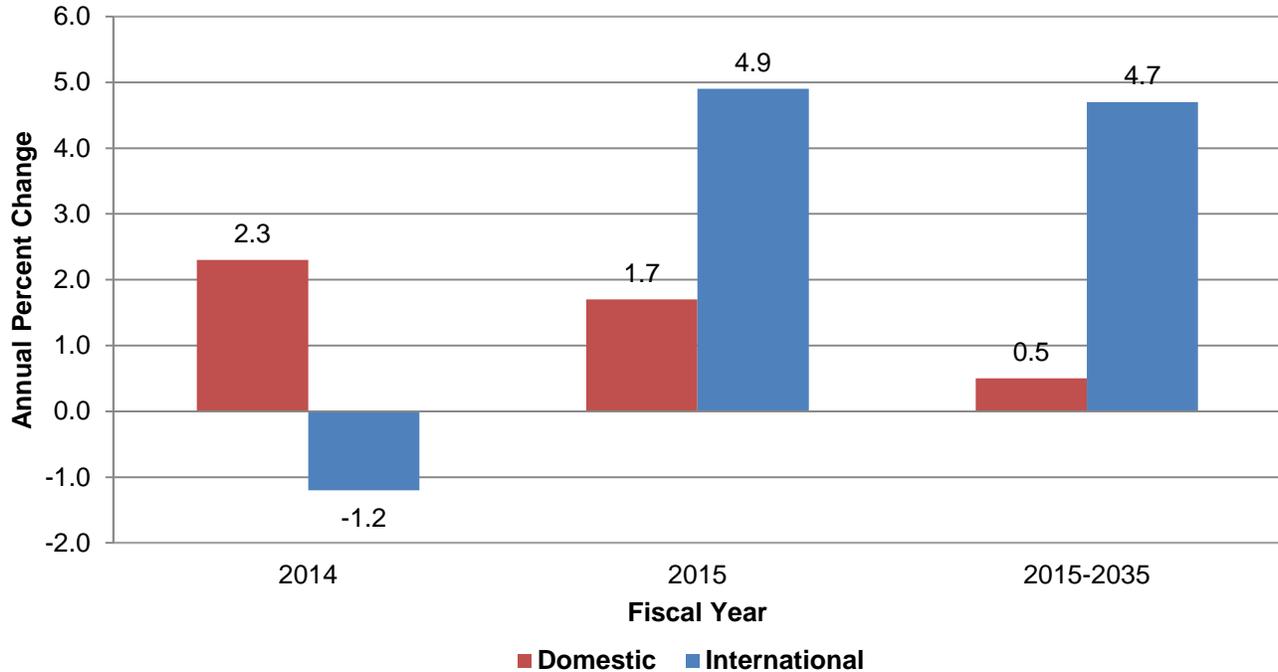
Domestic cargo RTMs increased 2.3 percent in 2014 and are forecast to grow 1.7 percent in 2015 as the U.S. economic recovery continues. Between 2015 and 2035, domestic cargo RTMs are forecast to increase at an average annual rate of 0.5 percent.

The freight/express segment of domestic air cargo is highly correlated with capital spending. Thus, this segment's growth will be tied to growth in the economy. The mail segment of domestic air cargo will be affected by price and substitution (e.g. e-mail).

The all-cargo carriers have increased their share of domestic cargo RTMs flown from 70.1 percent in 2000 to 88.6 percent in 2014. This is because of the shrinkage of the domestic freight/express business for passenger carriers as they have responded to the substantial shocks to the aviation system during this time. Shrinking networks, elimination of unprofitable flying, and consolidation have reduced opportunities for growth in their freight/express business. The all-cargo share is

forecast to grow to 90.2 percent by 2035 based on increases in capacity for all-cargo carriers and ongoing security considerations.

U.S. Commerical Air Carriers Revenue Ton Miles



International cargo RTMs fell for the third year in a row, down 1.2 percent in 2014 as stagnation in Europe and a slowdown in China’s economic growth slowed worldwide trade. They are projected to grow 4.9 percent in 2015 as global trade growth resumes. For the forecast period (2014-35) international cargo RTMs are forecast to increase an average of 4.7 percent a year based on projected growth in world GDP.

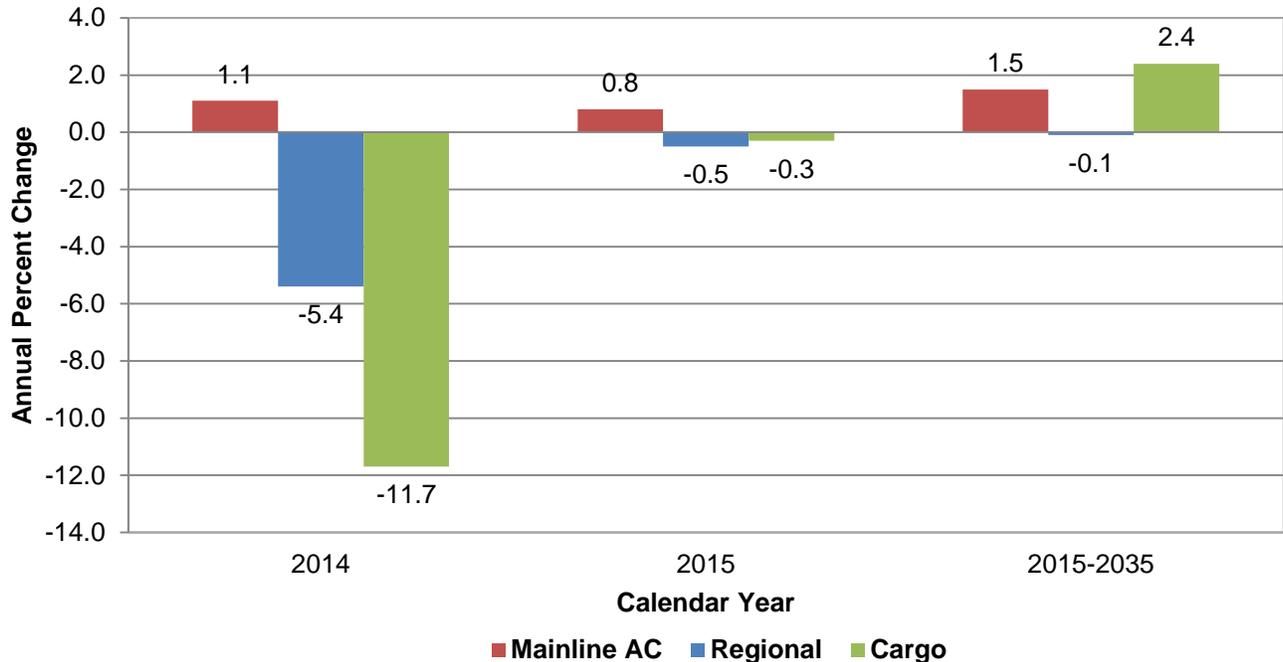
The share of international cargo RTMs flown by all-cargo carriers increased from 50.3 percent in 2000 to 72.3 percent in 2014. Continuing the trend experienced over the past decade, the all-cargo share of international RTMs flown is forecast to increase modestly to 78.6 percent by 2035.

Commercial Aircraft Fleet

The number of commercial aircraft is forecast to grow from 6,676 in 2014 to 8,131 in 2035, an average annual growth rate of 0.9 percent or 69 aircraft annually. The commercial fleet is projected to decrease by 2 aircraft in 2015 after shrinking by 57 aircraft in 2014 as the slow recovery in demand and rising fuel prices prompted carriers to prune their fleets. Since 2007, the U.S. commercial airline fleet has contracted by 1,056 aircraft. In comparison, the U.S.

commercial fleet contracted by 262 aircraft between 2000 and 2003, the last downturn in aviation.

U.S. Commercial Aircraft Fleet Calendar Years 2014-2035



The number of passenger jets in the U.S. mainline carrier fleet fell by 9 aircraft in 2014 and is projected to rise by 49 aircraft in 2015 as network carriers continue to remove older, less fuel efficient narrow body aircraft. After 2015, the mainline air carrier passenger fleet increases an average of 60 aircraft a year over the remaining years of the forecast period, totaling 5,015 aircraft in 2035. The narrow-body fleet (including E-190's at JetBlue and American Airways) is projected to grow by 38 aircraft annually over the period 2014-2035; the wide-body fleet grows by 21 aircraft a year as the Boeing 787 and Airbus A350's enter the fleet.

The regional carrier passenger fleet is forecast to decrease by 57 aircraft in 2015 as increases in larger regional jets are more than offset by reductions in 50 seat and smaller regional jets and turboprops. After 2015, the regional carrier fleet is projected to decrease by an average of 3 aircraft (-0.1 percent) a year over the remaining years of the forecast period, totaling 2,034 aircraft in 2035. The number of regional jets (90 seats or fewer) at regional carriers is projected to grow from 1,593 in 2014 to 1,852 in 2035, an average annual increase of 0.7 percent. All of the growth in regional jets over the forecast period occurs in the larger 70 to 90-seat aircraft. During the forecast period, all regional jets of 50 or less seats are removed from the fleet, reflecting the relaxation of scope clauses. The turboprop/piston fleet is expected to shrink from 555 units in 2014 to 182 in 2035. Turboprop/piston aircraft are expected to account for just 8.9 percent of the regional carrier passenger fleet in 2035, down from a 25.8 percent share in 2014.

Cargo large jet aircraft are forecast to increase by 6 aircraft in 2015 to 764 aircraft after increasing by 17 aircraft in 2014 primarily due to 757F's to Federal Express. For the

remainder of the forecast period, cargo large jet aircraft at U.S. carriers are forecast to grow at an average annual rate of 1.8 percent to 1,082 aircraft in 2035. The narrow-body, cargo jet fleet is projected to increase by 3 aircraft a year over the 21-year forecast period as older 757's and 737's are converted to cargo service. The wide-body, cargo jet fleet is projected to increase by 13 aircraft yearly.

General Aviation

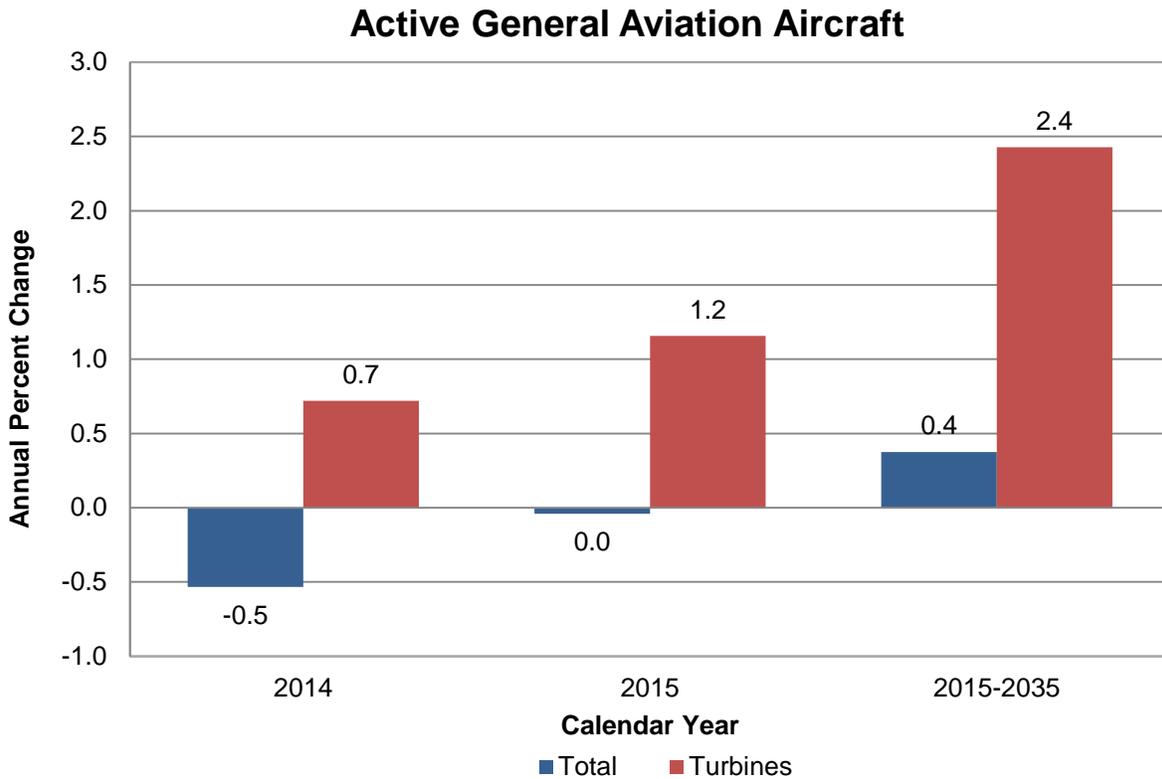
The FAA forecasts the fleet and hours flown for single-engine and multi-engine piston aircraft, turboprops, turbojets, piston and turbine powered rotorcraft, and light sport, experimental and "other" (which consists of gliders and lighter than air vehicles) aircraft. The forecasts are carried out for "active aircraft,"²⁰ not total aircraft. The FAA uses estimates of fleet size, hours flown, and utilization from the General Aviation and Part 135 Activity Survey (GA Survey) as baseline figures upon which assumed growth rates can be applied. Beginning with the 2004 GA Survey, there were significant improvements to the survey methodology. Coinciding with the changed survey methodology, large changes in many categories were observed, both in the number of aircraft and hours flown. The results of the 2013 GA Survey are consistent with the results of surveys conducted since 2004, reinforcing our belief that the methodological improvements have resulted in superior estimates relative to those of the past. Thus, they are used as the basis for our forecast. Because results from the GA Survey are not published until the following year, the 2013 statistics are the latest available. As an additional note, the results of the 2011 survey were not available to use. Therefore, estimates of 2011 fleet and hours were based on estimated number of general aviation aircraft in the FAA civil aircraft registration database by the end of CY 2011, and past rates of active aircraft and utilization by type of aircraft and age of the fleet. The 2013 GA Survey results reflect the majority of the anticipated effect of the 2010 Rule for Re-Registration and Renewal of Aircraft Registration. The complete effect of this Rule, which requires all aircraft registered in the U.S. to re-register within the three-year period from 2011 to 2013, will be noted after the 2014 Survey, when the residual Registry cleanup efforts are taken into account. The 2013 Survey showed that between 2010 and 2013 the number of active GA aircraft went down by 10.5 percent, from 223,370 to 199,927. There may be an additional marginal decline in the active fleet due to cleaning of the Registry. General aviation flight hours for 2014 are estimated based on the active fleet and other activity indicators at 23.1 million, with an increase of 0.8 percent from the previous year. Activity forecasts begin in 2015 and continue through 2035.

After growing rapidly for most of the past decade, and then slowing over the past few years, the most recent shipment activity indicates the modest growth continues in the overall general aviation aircraft market. While the recovery in the business jet market has been slow, 2014 recorded the first increase in shipments by U.S. manufacturers since 2008. The forecast calls for robust growth in the long term outlook, driven by higher corporate profits and the growth of worldwide GDP, though at rates slightly lower than those predicted last year. Continued concerns about safety, security, and flight delays keep business aviation attractive relative to commercial air travel. As the industry experts and prior year's survey results report a significant portion of piston aircraft hours are also used for business purposes, we predict

²⁰ An active aircraft is one that flies at least one hour during the year.

business usage of general aviation aircraft will expand at a faster pace than that for personal and recreational use. Increased demand for turboprop aircraft also contributes to increased turbine fleet and hours.

The active general aviation fleet is projected to increase at an average annual rate of 0.4 percent over the 21-year forecast period, growing from an estimated 198,860 in 2014 to 214,260 aircraft by 2035. The more expensive and sophisticated turbine-powered fleet (including rotorcraft) is projected to grow to a total of 45,905 aircraft at an average rate of 2.4 percent a year over the forecast period, with the turbine jet portion increasing at 2.8 percent a year, reaching a total of 20,815 by 2035.



The number of active piston-powered aircraft (including rotorcraft) is projected to decrease at an average annual rate of 0.5 percent from the 2014 total of 139,890 to 125,935 by 2035, with declines in both single and multi-engine fixed wing aircraft, but with the smaller category of piston-powered rotorcraft growing at 2.1 percent a year. Single-engine fixed-wing piston aircraft, which are much more numerous within this group, are projected to decline at a rate of 0.6 percent, while multi-engine fixed wing piston aircraft are projected to decline by 0.4 percent a year.

Starting in 2005, a new category of aircraft (previously not included in the FAA's aircraft registry counts) was created: "light sport" aircraft. At the end of 2013, a total of 2,056 active special light-sport aircraft were estimated in this category (Beginning in 2009, experimental light-sport aircraft category was reported in the FAA statistics as a separate category and until 2012 reported under light sport aircraft together with the special light-sport aircraft. Starting in 2012, this experimental light-sport group was re-classified within the experimental aircraft

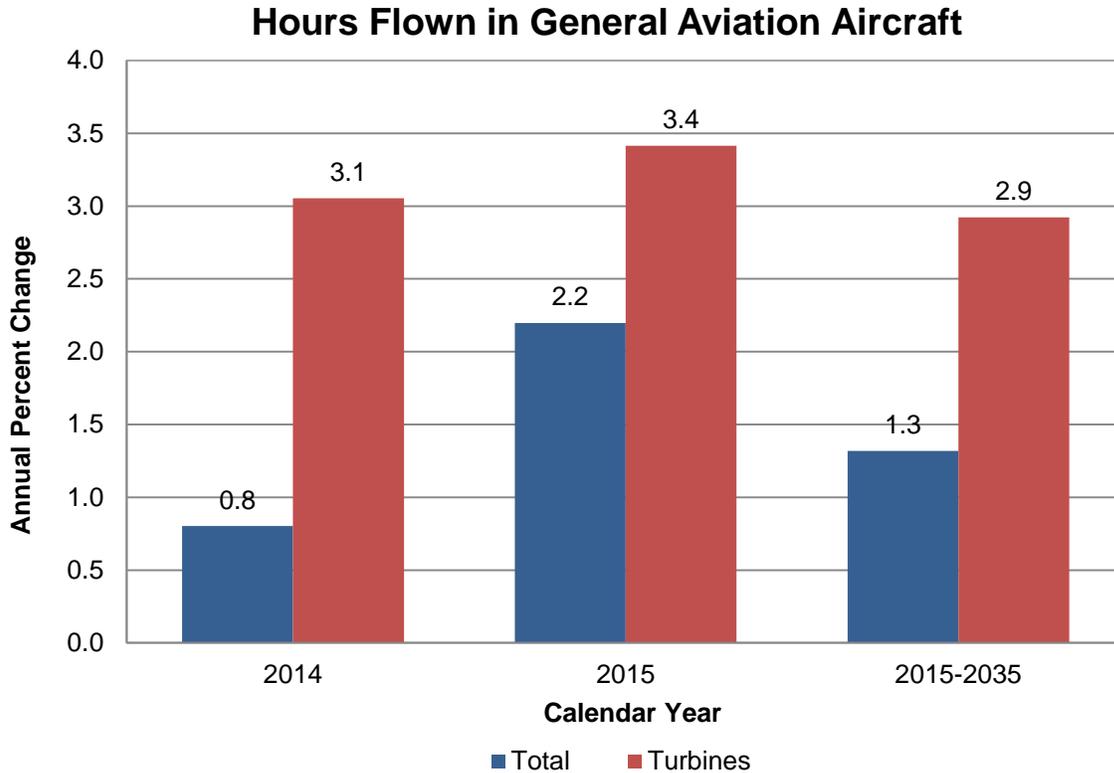
category). The forecast assumes about 4.3 percent annual growth of the fleet by 2035, to a total of 5,360 light sport aircraft.

The total number of general aviation hours flown is projected to increase by 1.4 percent yearly over the forecast period. The FAA projects faster growth in hours will occur after 2023 with increases in the fixed wing turbine aircraft fleet, as well as increasing utilization of both single and multi-engine piston aircraft as the aging of this fleet starts to slow down. In the medium term, much of the increase in hours flown reflects strong growth in the rotorcraft and turbine jet fleets. It is also expected that declining fuel prices will slow down the decrease in piston flight hours over the short to medium term.

Hours flown by turbine aircraft (including rotorcraft) are forecast to increase 2.9 percent yearly over the forecast period, compared with a decline of 0.3 percent for piston-powered aircraft. Although hours flown by piston rotorcraft are forecast to increase an average of 2.2 percent per year during the forecast period, they have a relatively small share (less than 10 percent) in this segment of hours flown by general aviation aircraft; and thus have a small impact on the overall trend. Jet aircraft are forecast to account for most of the increase, with hours flown increasing at an average annual rate of 3.6 percent over the forecast period. The large increases in jet hours result mainly from the increasing size of the business jet fleet, along with continued recovery in utilization rates from recession induced record lows. Turboprop hours are also expected to continue their increase, as indicated by the 2013 GA Survey.

Rotorcraft hours were less impacted by the economic downturn when compared to other categories and rebounded earlier. However, the 2013 GA survey recorded declines in the active rotorcraft fleet and utilization rates. It is uncertain if the decrease in utilization is permanent. The decline in oil prices has different effects on various segments of this sector. While decreasing activity is expected in oil exploration area, and some other functions such as aerial mapping/ photography, patrol, and surveillance may see decreasing use of rotorcrafts, yet other uses, including corporate, air taxi, air medical, and air tours, may experience offsetting increases. Rotorcraft hours are projected to grow by 3.0 percent yearly over the forecast period with utilization of rotorcraft projected to increase by 0.4 percent a year. Turbine rotorcraft hours are forecast to grow at an average annual rate of 3.2 percent over the forecast period.

Lastly, the light sport aircraft category, which now includes only the special light sport (experimental light-sport aircraft is now considered as part of the experimental aircraft category), is expected to see an increase of 5.1 percent a year in hours flown, primarily driven by growth in the fleet.



The number of active general aviation pilots (excluding air transport pilots) is projected to be 448,400 in 2035, an increase of about 8,000 (up 0.1 percent yearly) over the forecast period. Between 2011 and 2014, there was a decline of 16,543 in the number of commercial pilots, accompanied by an increase of 10,422 in the number of air transport pilots (ATPs). A substantial part of the decline in commercial pilot certifications is thought to be a result of these pilots obtaining the higher level ATP certificates as required by the Airline Safety and Federal Aviation Administration Extension Act of 2010. This Act mandated that all part 121 (scheduled airline) flight crew members would hold an ATP certificate by August 2, 2013. The FAA estimated there were about 13,000 airline pilots holding a commercial pilot certificate, most of which were serving at Second in Command positions at the regional airlines. Since airline pilots could no longer operate with only a commercial pilot certificate after August 2013 (excluding a limited number of special cases as specified by 2013 FAA Final Rule for Pilot Certification and Qualification Requirements for Air Carrier Operations), we have reduced the rate of increase of our commercial pilot forecast compared to the previous years. Thus, commercial pilots are projected to increase from 104,322 in 2014 to 113,350 in 2035 with an average annual growth rate of 0.4 percent over the forecast period, compared to the 0.6 percent average growth rate of the past year’s forecast. Our ATP forecast, while higher than previous year’s forecast during near to medium term, remains close to the last year’s forecast after 2024, with a similar average annual rate of increase (0.5 percent) overall.

In other pilot certificate categories, the number of student pilots is forecast to decrease at an average annual rate of 0.3 percent over the forecast period, declining from 120,546 in 2014 to 112,200 in 2035. The number of private pilots is projected to decrease at an average yearly rate of 0.3 percent over the forecast period to a total of 163,600 in 2035, from 174,883 in 2014.

The number of rotorcraft-only pilot certificates is forecast to increase at an average rate of 2.2 percent, from 15,511 in 2014 to 24,440 in 2035. In addition, the FAA is projecting that by the end of the forecast period a total of 14,950 sport pilots will be certified. As of December 31, 2014, the number of sport pilot certificates issued was 5,157 reflecting a steady increase in this new “entry level” pilot certificate that was only created in 2005.

FAA Operations Forecasts

FAA and Contract Towers

Activity at the 516 FAA (264) and contract towers (252) totaled 49.6 million operations in 2014, down 0.9 percent from 2013. Activity is projected to rise slightly (0.4 percent) in 2015, with increases in both commercial and non-commercial activity. Growth in total activity at FAA and contract towers accelerates in 2016 (1.1 percent) and for the balance of the forecast, activity grows at an average rate of 0.9 percent per year, reaching 59.9 million operations in 2035.

Most of the growth over the forecast period results from increased commercial aircraft activity (up 1.5 percent annually). Air carrier activity is projected to increase sharply (4.2 percent) in 2015 as carriers swap in larger regional jets for smaller (50 seats or less) regional jets and increase capacity to meet growing demand. Beyond 2015, air carrier activity is projected to increase an average of 2.7 percent per year over the forecast period. The increase in air carrier activity is driven by combination of mainline carriers increasing capacity in response to growing demand as well as an increase in the operations of 70-90 seat jets which are counted in the air carrier category. Commuter/air taxi operations are forecast to fall 4.9 percent in 2015 and decrease 1 percent a year for the balance of the forecast period as regional jets less than 50 seats exit the industry.

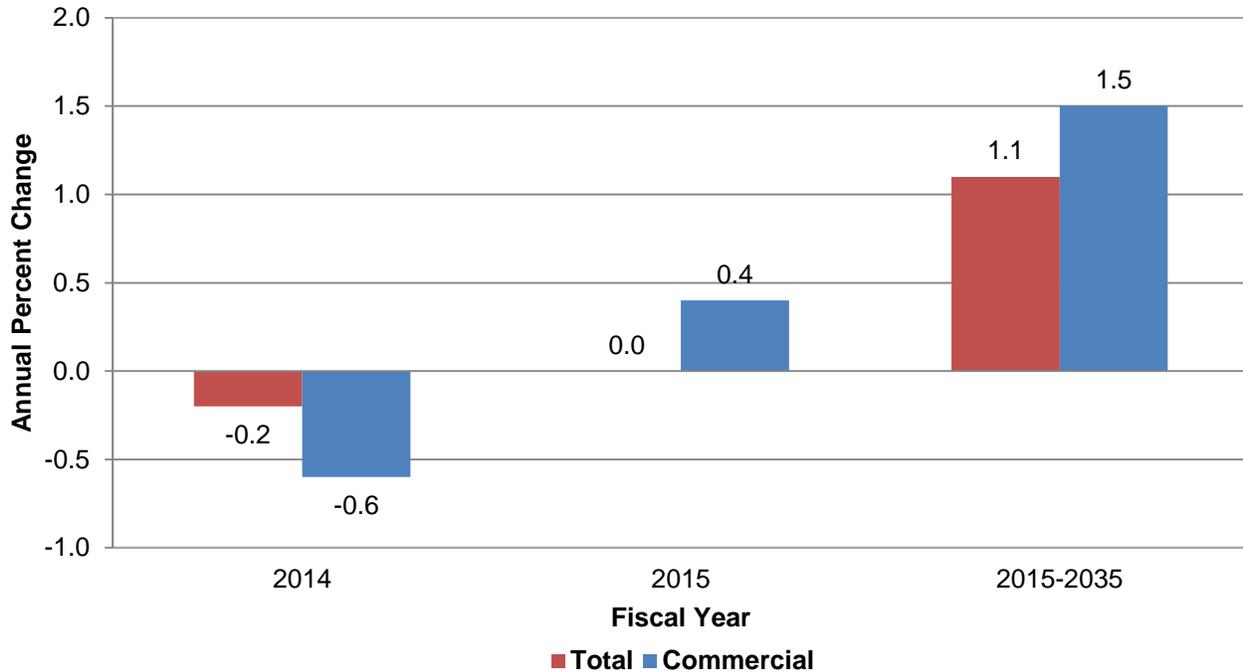
General aviation activity decreased 1.1 percent in 2014 as itinerant activity fell 1.4 percent. Overall general aviation activity is projected to increase 0.3 percent in 2015 reflecting the impact of an improving economy on flight hours and operations. For the entire forecast period, general aviation activity at towered airports is projected to increase an average of 0.4 percent a year, to 28.0 million operations in 2035. General aviation activity at combined FAA/contract towers grows in line with the modest increase forecast for general aviation hours already cited. Most operations at the smaller towers are in piston aircraft, while those at the largest airports tend to be turbine operations.

Military activity fell 1.4 percent in 2014 and is assumed to remain at 2014 levels (2.5 million) throughout the balance of the forecast period.

The forecasted growth in operations is not uniform across all facility categories. Over the forecast period, total operations at large hub airports (those airports that enplane 1% or more of total US enplanements) are projected to increase from 12.5 million in 2014 to 17.6 million in 2035, an average annual rate of 1.7 percent a year. Operations at these facilities are overwhelmingly commercial in nature (95.0 percent in 2014) and their growth will mirror the growth in total commercial operations. Total operations at medium hub airports (those airports that enplane 0.25 to 0.99 percent of total US enplanements) are projected to increase a bit slower than the large hubs, averaging 1.5 percent a year over the forecast period, to total 6.5 million in 2035. In the largest category, small and non-hub airports, where 81.6 percent of the operations are non-commercial in nature, total operations are projected to increase from 32.3 million in 2014 to 35.8 million in 2035, an average annual rate of 0.5 percent a year.

Operations²¹ at FAA TRACONS (Terminal Radar Approach Control) fell 0.4 percent in 2014, the tenth year in a row. They are projected to remain steady in 2015 as declines in non-commercial activity offset a slight rise in commercial activity. After 2015, TRACON operations are forecast to increase at an average annual rate of 1.1 percent for the balance of the forecast, reflecting the increasingly commercial nature of TRACON operations. For the entire forecast period, TRACON operations grow an average of 1.1 percent per year, totaling 46.1 million in 2035.

Tracon Operations



Over the forecast period, commercial aircraft operations at FAA TRACONS are forecast to increase at 1.5 percent per year driven by growth in air carrier activity. General aviation operations at FAA TRACONS are projected to grow 0.6 percent a year, reflecting the slow growth in the general aviation fleet and hours. Military activity is expected to remain at its 2014 level (2.2 million) of activity throughout the forecast period.

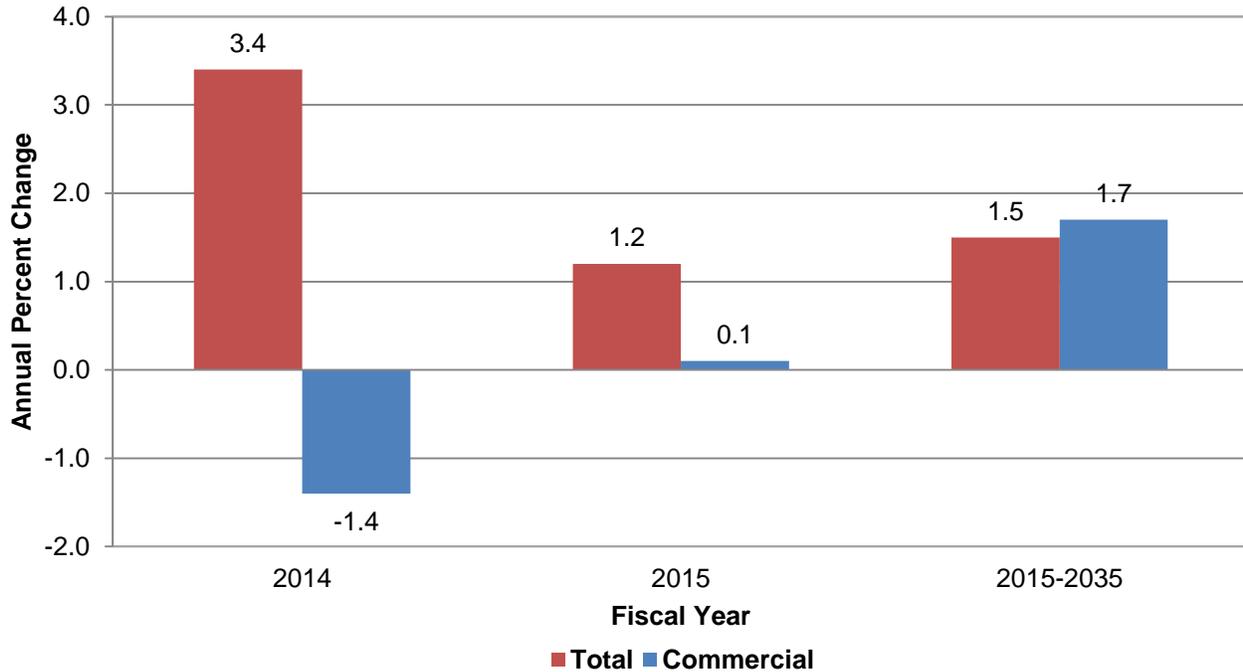
En-route Centers

The number of IFR aircraft handled at FAA en-route traffic control centers increased 3.4 percent to 41.3 million in 2014, with increases in all categories except commuter/air taxi. In 2015 increases in air carrier activity and general aviation activity, result in en-route center activity increasing by 1.2 percent. After 2015, through the balance of the forecast period, en-route activity increases 1.5 percent annually, reaching 56.1 million aircraft handled in 2035.

²¹ TRACON operations consist of itinerant Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) arrivals and departures at all airports in the domain of the TRACON as well as IFR and VFR overflights.

Between 2014 and 2034 commercial activity is projected to increase at an average annual rate of 1.7 percent, reflecting increases in the commercial fleet and aircraft stage lengths. During the same period, general aviation activity is projected to grow 0.8 percent per year, reflecting growth in business aviation. Military activity is held constant at the 2014 activity level throughout the forecast period.

IFR Aircraft Handled at FAA En-Route Centers



Activity at FAA en-route centers is growing faster than at towered airports because more of the activity at en-route centers is from the faster growing commercial sector and high-end (mainly turbine) general aviation flying. Much of general aviation activity at towered airports, which is growing more slowly, is local in nature, and does not impact the centers.