The Pilot Shortage: A Current and Future Threat

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Aviation industry and business press publications are sounding the alarm about a growing crisis in the airline industry—a shortage of qualified pilots to operate the aircraft. Their fears are well founded; the Boeing 2016 Pilot Outlook indicates that North American companies will need to hire 112,000 pilots between now and 2035. The need for pilots is even greater internationally; this is especially true in the Asia-Pacific region, where the need is anticipated to be at least 248,000 pilots for the same time period. The worldwide pilot pipeline is proving insufficient to the task. Some projections indicate that the United States (“U.S.”) airline industry will have a shortage of as many as 35,000 pilots until 2031. While the pilot shortage is anticipated to endure well into the foreseeable future, its effects are already having a real impact on business. The dearth of pilots is being most acutely felt at the regional affiliates of the major U.S. carriers; Republic Airlines filed for bankruptcy protection in February 2016, stating that one of the primary drivers of their filing was a shortage of qualified pilots.

Why is there a Shortage of Pilots?

There are a number of reasons behind the growing shortage of pilots. Some of the near term shortage is a natural consequence of industry growth. The global aviation marketplace is booming—the International Air Transport Association (IATA) is forecasting that worldwide passenger demand will double within the next 20 years. There are other factors that are increasing the demand for pilots, especially in the U.S. This article provides a summary of the most relevant variables contributing to the current and expected future shortage of pilots.
New Regulatory Requirements for First Officers

On February 12, 2009, a Bombardier Dash 8 Q400 operated by Colgan Airlines crashed on approach to Buffalo, New York. The ensuing NTSB investigation, which blamed the accident on pilot error, brought to light a number of issues; one of these was the lack of flight hours that many regional airline First Officers had when they were initially hired. At the time of the Colgan Airlines’ accident, the only regulatory requirement for a new First Officer to be hired at a Part 121iv airline was that they hold a Federal Aviation Administration (FAA) Commercial Pilot Certificate. This rating could be achieved with as little as 250 hours of flight time

The narrative became that pilot quality was a function of flight time. This led to public pressure for Congress to act; the result was Public Law 111-216, the Airline Safety and Federal Aviation Administration (FAA) Extension Act of 2010. In addition to the many changes made by this law, Congress directed the FAA to address pilot knowledge levels and experience in air carrier operations. In response, the FAA created rules that stipulated higher minimum requirements for new airline pilots. Under the revised regulations, First Officers would now have to possess at least an Airline Transport Pilot Certificate (“ATP”), essentially resetting the minimum flight time required to be hired by an airline to 1,500 hours. The FAA later further revised these rules, allowing graduates of certain collegiate flying programs and military pilots to hold a Restricted ATP with as little as 1,000 and 750 hours respectively.

The effect of the new regulation on the supply of available pilot applicants was immediate and has dramatically impacted the traditional pilot pipeline to the airlines. Instead of hiring recent college and flight school graduates, airlines now have to wait until their perspective applicants have accumulated a significant amount of flight time. With only a small number of flying jobs available outside of passenger and cargo airlines for new pilots, there are proving to be few avenues other than flight instructing for pilots to accrue the necessary hours

Flight Time/Duty Time Rulemaking

One of the other impacts of Public Law 111-216, was that the FAA was directed by Congress to study pilot fatigue and implement new rules to mitigate it. Following several years of study, the FAA instituted revised flight and duty time requirements for airline pilots in January 2014. While the effects of this rule did not have the same level of impact as the ones that increased the minimum level of pilot experience, airlines still had to add additional staff to ensure adequate schedule coverage. A 2014 study by the Regional Airline Association showed that pilot staffing levels at U.S. airlines would have to be increased by 5.0% - 8.0%, in order to cover the schedule under the new regulations\(^{1}\).
Mandatory Retirements

There is a bubble in pilot retirements on the very near horizon, one that the FAA saw coming when it increased the mandatory retirement age for airline pilots to age 65 in 2009. That simply moved the pain point for airline staffing a little further into the future; it is anticipated that U.S. airlines will have to replace 30,000 retiring pilots by 2026. The major airlines have already begun to increase hiring in preparation for the surge in attrition, but this places more pressure on the lower paying regional airlines. Pilots at regional airlines typically are eager to move on to better pay and improved lifestyle, offered by major airlines.

Too Few Pilots Entering the Profession

The shortage of pilots at the airlines will continue to be exacerbated by fewer people entering the professional pilot pipeline. New flight instructor and commercial pilot production was essentially flat from 2006 to 2015, which does not bode well for meeting increased future demand. There are three reasons why the industry has failed in recent years to attract enough new pilots, essentially putting the airlines “behind the power curve” with respect to staffing:

Post 9/11 Shakeup: There were a large number of professional pilots affected by the airline industry turmoil that followed the September 11th attacks. Due to subsequent airline bankruptcies and consolidations, many pilots lost their jobs or chose to change careers. During that period of reduced demand for pilots, there were fewer people attracted to the industry.

The Great Recession: The recession from December 2007 to June 2009 had a negative effect on pilot production. As consumer purchasing power was reduced, fewer people were willing to undertake the significant cost of flight instruction. A possible early warning sign of future trouble comes from analyzing the number of new private pilots—a Private Pilot Certificate is the first certificate that an aspiring professional pilot must earn. According to FAA data, private pilot certification rates have still not recovered to their pre-recession levels.

Temporary lack of retirements post “Age 65” retirement rule: While the 2009 change in the retirement age for airline pilots to 65 was a temporary way for the airlines to hold onto some of their pilots, it had a deleterious effect on the career advancement of younger pilots. This was enough for some pilots to choose other career fields.

It is worth noting that the familiar supply of pilots to the airlines provided by the military cannot be expected to make up the shortfall in the future. The Department of Defense expects to be suffering its own pilot shortage; the Navy is predicting a 10.0% shortage in 2020, while the Air Force is expecting to be below its target number of pilots by 1000 in 2022.
Worldwide Fleet Growth and Competition for Scarce Pilot Resources

The pilot shortage is happening at a time of unprecedented worldwide growth in the aviation industry. This presents both a near and a long term challenge. According to the latest Boeing forecast, there will be 39,620 new aircraft delivered to airlines between now and 2035. The forecast also predicts that the worldwide fleet of airline aircraft will more than double within the next 20 years. Boeing estimates that 617,000 new pilots will have to be trained to meet this demand; by far the greatest need will be in the Asia/Pacific region. This global demand directly affects the ability of airlines in the U.S. to attract and retain pilots—many American pilots are tempted by lucrative opportunities and pursue flying careers overseas. There is also a competitive environment for scarce training resources in the U.S.; in 2012, 45.0% of the FAA commercial pilot written exams administered were taken by foreign pilots. This means that nearly half of all pilots pursuing a commercial pilot certificate are doing so in order to go fly in their home countries, not the U.S.

Outlook for the Future

There is a shortage of pilots today, as evidenced by the reduction of regional airline flying schedules, the Republic Airlines bankruptcy, and difficulties suffered by small EAS operators (such as Great Lakes Airlines). Barring unexpected economic disturbances or a major regulatory change, this situation is likely to persist into the immediate future and beyond.

Major airlines are unlikely to see significant impacts from the pilot shortage in the near term. For their regional counterparts, it is another story; they are already experiencing significant staffing pressure, and that is affecting reliability and revenues. While some of the pilot shortage would likely be alleviated by increasing the level of compensation at the lower paying regional airlines, there is a limit to how much money these companies can afford to throw at the problem; they are significantly constrained by the “fee for departure” model that rewards the lowest bidder and their pilots’ collective bargaining agreements. Many regionals are offering significant financial incentives and career advancement guarantees for new pilots, but without more people entering the training pipeline, this only moves the problem a little further down the road. If the pilot shortage continues, the regional airline industry can be expected to contract. This could have a follow-on negative impact on the revenues of their mainline counterparts due to a reduction in system ASMs and subsequent RPMs from their feeders.

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*Church, Steven, Mary Schlangenstein, and Michael Sasso. (Feb 2016) “Across the Aireline Files for Bankruptcy After Shortage” Bloomberg Businessweek.*

*Federal Aviation Regulations, Title 14, Part 121 governs air carrier operations.*

*Regional Airline Association. (2014). “U.S. Regional Airlines are Facing Shortage of Qualified Pilots”*

*Schanbakstein, Mary, and Michael Sasso. (Jun 2016). “U.S. Regional Airlines are Facing Shortage of Qualified Pilots” Bloomberg Businessweek.*


*Bloomberg. (2016).“Current Market Outlook 2016-2035.”*