Research

Flight Hours Rule Fails to Address Safety

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Executive Summary

In the name of safety, Congress recently required that both pilots (not just the Captain) on commercial airflights have at least 1,500 hours of flight time. This regulation appears to fall short of the desired balance of benefits and costs. The Federal Aviation Agency noted that there was little connection between the 1,500 hour flight rule and airline safety and that this requirement would cost $1.5 billion while generating benefits of only $23 million. Moreover, the regulation would markedly reduce the number of pilots able to begin work under the tutelage of senior pilots, limit the supply of trained pilots, and thus impose additional costs on regional airlines unable to pass on these higher costs.

The Congressional action appears to be an ill-conceived bypassing of the nation's two bodies charged with aviation safety, the FAA and the National Transportation Safety Board. This paper reviews the crash-related evidence and its linkage to the flight time rules, and concludes that the new regulations will have minimal benefit at best. I then turn to the nature of the costs imposed by the regulation and their disproportionate incidence on the regional airlines.

Cause for Action? The Crash of Continental 3407

Aviation accidents always get significant attention, not just from the travelling public, but also from the industry itself, and most importantly by regulators and legislators. Insuring the safety of, and confidence in, the air transportation system is vital to the health of the entire airline industry. In 2009 the crash of Continental flight 3407 (operated by Colgan Air, a regional airline affiliate) captured center stage after it crashed in a Buffalo, NY neighborhood killing all 49 persons on board and one on the ground. All parties agree that the flight crew exhibited poor airmanship skills and that this was the primary cause of the

accident.

In the aftermath of the Colgan accident Congress enacted, as part of the Federal Aviation Administration (FAA) reauthorization bill, the requirement that airline pilots hold an Air Transport Pilot (ATP) certificate. Broadly, this requires that pilots have a minimum of 1,500 hours of flight time before they can operate a commercial airliner, whether as Captain or First Officer (often referred to as the co-pilot).[1] Prior to this only the Captain needed to hold an ATP certificate. To anticipate the conclusions of this paper, was it appropriate for the Congress to act so quickly, and had the FAA "failed" to do so? On this it is best to let the FAA speak for itself:

*The FAA's Office of Accident Investigation and Prevention (AVP) found little relationship between the 1,500-hour requirement and airplane accidents.**[2]***

Despite the FAA's views, and the evidence presented below, a vocal advocate of these higher minimums emerged in the form of Captain Chesley "Sully" Sullenberger, the "Hero of the Hudson" who masterfully brought his crippled Airbus to safety with a dramatic water landing after a bird strike disabled both his engines. On December 6, 2012 he wrote to the *Wall Street Journal* in defense of these regulations arguing that these higher minimum requirements should not be compromised in the face of industry opposition due to an impending pilot shortage blamed on the 1,500 hour rule. He wrote, in part:

The new mandates are the result of a decade of crashes needlessly taking lives… The solution is to offer wages and create working conditions that attract well-qualified pilots… And let's not forget the real victims, those who have lost their lives in regional airline crashes.[3]

While well-intentioned, Mr. Sullenberger's assertion does not hit the mark. A review of the crashes during the last decade finds that regional airline crashes are hardly attributable to unqualified pilots. These fatal crashes, six of them in all over the last ten years, can be placed into three distinct categories.

Mechanical Failure.

Chalk's Ocean Airways Flight 101 (12/10/2005). The cause of this accident is straight forward: due to improper maintenance, corrosion the wing on this flying boat fell off in flight. It should also be noted that while this flight is regularly included in the list of regional airline accidents, it by no means was part of what most of us consider the regional airline industry.

Air Midwest Flight 5481 (1/8/03). Faulty maintenance led to a loss of flight controls. A

compounding factor was an overweight and unbalanced condition brought on despite reliance on a Weight and Balance program consistent with FAA rules.[4]

In the opinion of the National Transportation Safety Board (NTSB), both planes were uncontrollable given their mechanical problems. That is to say, not even Captain Sullenberger could have brought them to earth safely.

Pilot "Stupidity"

Pinnacle Airlines Flight 3701 (10/14/2004). We are accustomed to hearing of pilot error as a factor in a crash, but rarely does pilot stupidity play a role. In this case the pilots were flying a plane on a repositioning run with no passengers aboard and decided to go for a joyride, taking the plane to 41,000 feet. The cockpit voice recorder has the pilots reporting "we don't have any passengers on board so we decided to have a little fun and come on up here." Having ignored proper high altitude procedures, the plane went into a stall resulting in loss of power to both engines.

Pilot Error

That leaves three fatal crashes where the skills of the pilots can be called into question:

Corporate Airlines Flight 5966 (10/19/2004). Pilot failed to properly execute a non-precision approach.

Comair Flight 5191 (8/27/2006). Pilots attempted to take off from the wrong runway.

Colgan 3407 (2/12/2009). Captain responded incorrectly to a stall warning leading to loss of the airplane.

Pilot Flight Experience and the 1,500 Hour Rule

The following graph shows the number of flight hours accumulated by the Captain and First Officer in each of these crashes.

As was noted above, no amount of flight hours would have enabled a pilot to overcome the challenges experienced by these two flights (Chalk, Air Midwest). Regardless, the Captains in both planes fully met the 1,500 hour (ATP) rule. Similarly, when an experienced pilot decides to take a joyride, as the Pinnacle pilot with almost 7,000 hours (and the ATP certificate) did, there is no legislative or regulatory solution for stupidity.

The three crashes by regional airlines where pilot error was the major factor in the crash (Corporate, Comair, Colgan) show why the 1,500 hour rule is misguided. In all three cases

both members of the flight crews had well in excess of the 1,500 hour minimum, sometimes many times so. Moreover all three Captains, as well as the First Officer in the Comair flight, held the ATP certification.

Safety and the 1,500 Hour Rule

Two federal agencies are charged with aviation safety. The FAA is a regulatory body charged with providing "the safest, most efficient aerospace system in the world." The NTSB is charged with investigating the cause of aircraft (and other transportation) accidents, but does not have regulatory authority.

In its assessment of the 1,500 hour rule the FAA reported that there was little relationship between accidents and the 1,500 hour rule. The FAA administrator testified that simply raising the total number of flight hours required without consideration of the quality and nature of that time was an inappropriate metric. In carrying out its cost-benefit analysis the FAA estimated the 1,500 hour rule to have a cost of $1.572 billion dollars and that the benefits of the rule would amount to only $23 million.

The NTSB has regularly criticized the FAA for not implementing, or delaying in implementing, safety recommendations from the NTSB. It is worth noting that every year the NTSB publishes its "Most Wanted" list of safety improvements. In the year prior to the Colgan crash the NTSB's Most Wanted improvements for aviation were:

- Reduce dangers to aircraft flying in icing conditions
- Improve runway safety
- Require image recorders in cockpits to assist accident investigators
- Reduce accidents caused by human fatigue
- Require Crew Resource Management for air taxi pilots
- Improve the safety of emergency medical flights

Conspicuous by its absences is any mention of the 1,500 hour rule.

Origins of the 1,500 Hour Rule

The 1,500 hour rule came not from science or informed analysis, but primarily due to advocacy from pilot organizations with a vested interest in the outcome.

To understand why Congress chose to bypass the aviation regulatory and safety agencies it is useful to look at the structure of the US aviation industry. The industry is comprised of a small number of major carriers (United, Delta, American, US Airways, etc.) as well as a number of regional airlines (SkyWest, Pinnacle, Mesa, etc.) that primarily operate smaller planes (typically 50-76 seat jets) under contractual arrangements with the majors. The regional airlines operate under the same safety regulations as the majors. They provide roughly half of all flights at US airports.

The regional carriers operate under the direction of their major partners, flying schedules and planes as directed by the majors, even painting their planes in a manner similar to the majors. They exist because they pay their pilots less than the majors, allowing them to operate planes and routes that the majors could not operate profitably with their own personnel and fleets. This has created considerable animosity between the collective bargaining representatives for the pilots (Primarily ALPA, the Airline Pilots Association) and the regional airline industry and its pilots (even though many of them are also represented by ALPA). A First Officer could formerly secure a position with as little as 250 hours (and then benefit from the experience of the senior pilot at his side guiding them along as hours built up). Now that same pilot has to self-fund those additional hours, which will serve as a barrier to entry, reducing the supply of pilots and removing competition from those already in the cockpit. Getting a 1,500 hour rule imposed on the regional carriers can be expected to reduce the supply of pilots as the individual's cost of earning a spot in the cockpit has just gone up markedly.

The major airlines regularly hire pilots from the regional industry, with the regional industry in turn recruiting new pilots, putting them through their own training programs before they enter the cockpit. The 1,500 hour rule will disrupt this progression, and costs can be expected to rise for the regional airline industry. Unlike in other industries, however, the regional airlines have no way to pass costs along to customers via higher prices. They typically operate under fixed fee arrangements that stipulate a fixed price for the operations they carry out. If they can't control their costs then they operate at a loss, if at all. Ultimately the losers will be the American consumer, for whom fares will have to rise and smaller communities which may lose service. In bypassing the safety agencies Congress did little more than impose unnecessary costs, particularly on the regional airline industry.

Proponents of this rule, like Captain Sullenberger, assert that a possible pilot shortage is insufficient grounds for repealing the 1,500 hour rule, arguing that "safety" should not be sacrificed by the threat of a pilot shortage. As we have seen, the FAA found little

relationship between safety and the 1,500 hour rule. Creating a pilot shortage was precisely what the advocates of this rule hoped to achieve.

In closing, one must always ask whether safety in the skies is being properly addressed. To its credit the FAA's rule making advanced sensible reforms – more hours in the type of plane being flown, minimum hours in multi-engine aircraft, etc – all of which passed its cost-benefit analysis. As in all such matters the rules must be looked at for both effectiveness and cost effectiveness. The 1,500 rule fails both tests.

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[1] Briefly, this requires a minimum of 1,500 total flight hours which must include at least 500 hours cross-country time, 100 hours of night time, 75 hours of instrument time and 250 hours as Pilot in Command. It will be referred to here as the 1,500 hour rule.