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## **Age Restrictions for Airline Pilots: Revisiting the FAA's "Age 60 Rule"**

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# Age Restrictions for Airline Pilots: Revisiting the FAA's "Age 60 Rule"

## Summary

Since 1960, federal regulations have specified that individuals age 60 and older may not serve as airline pilots. Over the years, the "Age 60 Rule", as it is commonly known, has been the topic of considerable controversy and debate. The central issue in this debate is whether pilots age 60 and older exhibit age-related declines in health and cognitive abilities that compromise flight safety as the Federal Aviation Administration (FAA) maintains, or whether these effects typically occur later in the life span. Another key issue is the potential economic impact to pilots and the airline industry. Continued uncertainty in the airline industry is prompting many pilots who once supported the rule as a mechanism for career advancement to rethink the rule in light of large numbers of furloughs, significant financial risks to legacy airline pension funds, and the lack of defined benefit retirement programs at many low cost airlines. Advocates for relaxing the age restrictions for airline pilots also argue that doing so may be a viable means for maintaining sufficient numbers of experienced pilots and avoiding a possible pilot shortage.

Congress has expressed considerable interest in this issue over the years. The rule has been examined in oversight hearings, several bills to increase the age limit have been offered, and Congress has mandated studies examining the rule and its relationship to aviation safety. Affected pilots have petitioned the FAA for waivers to the rule and have challenged the rule in the federal court system on several occasions, all to no avail. While the Age 60 Rule has withstood these challenges, there is currently significant interest in reexamining and perhaps revising this rule. Recently, some airlines have voiced open support for increasing the upper age limit for airline pilots and the Air Line Pilots Association (ALPA) is reviewing its 25-year stance supporting the rule. Many foreign pilots are already permitted to fly past age 60, and a new international standard is under consideration to raise the maximum age for airline pilots to 65 with the proviso that one of the pilots in the cockpit be under age 60.

Possible options for statutory or regulatory change to the Age 60 Rule include increasing the upper age limit for airline pilots; conducting a trial program to examine the possible implications of increasing the upper age limit for airline pilots; or eliminating the upper age limit altogether, relying solely on medical testing to determine each pilot's fitness for duty. In the 109<sup>th</sup> Congress, two identical bills (S. 65 and H.R. 65) seeking to raise the upper age limit for airline pilots to correspond to their social security retirement ages have been offered. Other legislative options may seek to modify retirement entitlements for pilots to make certain benefits and coverage available to them at age 60. For example, S. 685 would entitle retired pilots under the age of 65 to the same benefits as pensioners over the age of 65 if their pension program is assumed by the federal government's Pension Benefit Guarantee Corporation (PBGC). This report will be updated as needed.

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# Age Restrictions for Airline Pilots: Revisiting the FAA's "Age 60 Rule"

Currently, airlines, including all-cargo airlines and many commuter airlines, may not use a pilot age 60 or older for conducting any flight operations covered under Title 14 Code of Federal Regulations (CFR), Part 121.<sup>1</sup> While this is a limitation or restriction on the use of pilots over age 60 in what the airlines refer to as line operations, it is not specifically a mandatory retirement age because it does not preclude airline pilots from performing various other pilot duties for an airline.<sup>2</sup> For example, a pilot over the age of 60 could be employed by an airline to complete non-revenue ferry flights, serve as a maintenance test pilot to check airplanes before they return to service after maintenance or repairs are performed, or could serve as a flight instructor. Pilots over the age of 60 could also be employed by charter or air tour operators, fractional ownership programs that operate business jets, or as a pilot for corporate and private general aviation aircraft. While this rule cannot be technically considered a form of mandatory retirement, the typical career path of professional airline pilots have been predicated on retirement at age 60 ever since it was promulgated in 1959.

While the Age 60 Rule occupies one short paragraph in the Code of Federal Regulations, it has generated volumes of research, public policy debate, and court proceedings making it one of the most contentious aviation safety regulations in existence. While the FAA maintains that the rule is needed for safety reasons, the rule directly impacts pilots financially and is considered by many to be arbitrary and unfair. Congress has expressed considerable interest in this contentious rule over the years. This interest has grown considerably in recent years as increasing numbers of foreign countries are allowing older pilots to fly in airline operations, the financial instability of the airline industry is making the prospect of full retirement at age 60 increasingly untenable for pilots, and the health of older adults continues to improve bringing into question the continued legitimacy of safety concerns regarding pilots in their sixties. This report provides a background on the rule, the surrounding safety issues, economic considerations, and discusses some available policy options.

## Historical Context

The Age 60 Rule was established over 45 years ago under controversial circumstances and has been a matter of considerable debate ever since. In 1959, the FAA was a newly established agency within the Department of Commerce given broad

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<sup>1</sup> Title 14 Code of Federal Regulations (CFR), §121.383(c).

<sup>2</sup> Although airline pilots must end their careers flying line operations upon reaching age 60, they may retain their airline transport pilot (ATP) certificates which are issued for life by the FAA unless otherwise revoked.

authority to regulate the safety of the airline industry in addition to providing air navigation and air traffic control services. At the time, airlines and pilots were engaged in a tumultuous battle over mandatory retirement policies imposed by the airlines, usually being set at age 60. It was the dawn of the age of commercial jets and several airlines were of the opinion that it was in their economic best interest to recruit young pilots leaving the military who had flown jet aircraft rather than training its older, more senior pilots to transition from piston-engine airplanes to jet-powered airplanes. Several senior pilots who had been forced into retirement based on these company policies filed grievances. Although an arbitrator sided with the pilots and ordered that they be reinstated, management at American Airlines refused to abide by the decision and continued to enforce the company's age 60 retirement policy. This and other grievances led pilots to strike during the holiday travel season of 1958. To end the strike, American Airlines agreed to many of the pilots' demands. However, the issue of a maximum age limit for pilots was far from settled.<sup>3</sup>

Then-president of American Airlines, C. R. Smith, took his case for pilot age limits to the FAA, writing in February 1959, that it may be necessary for the regulatory agency to set a suitable retirement age.<sup>4</sup> To bolster the argument for age limits, American Airlines provided the FAA with data from 31 pilots trained on the Boeing 707 with the purpose of showing that younger pilots required fewer hours of flight training to transition from propeller to jet airliners than older pilots and were more likely to successfully complete the training.<sup>5</sup>

According to accounts of subsequent FAA actions, two proposals were subsequently considered – one to set a maximum age of 55 for pilots to receive certification to fly jet aircraft, and a second to set an age limit of 60 for all airline pilots.<sup>6</sup> An expert panel was convened to review the proposals and the supporting data provided by American Airlines, and recommended favorably on adopting both recommendations, but eventually dropped the recommendation to limit jet type-ratings to pilots under the age of 55. However, when the FAA's legal counsel reviewed the proposal, it found that the training data did not provide a compelling argument for setting a maximum age for airline pilots, and recommended that the FAA instead focus on available medical knowledge in setting a maximum age for pilots. The FAA did so, and on December 5, 1959, published a final rule that went into effect on March 15, 1960, establishing that a pilot could no longer fly in airline operations upon reaching age 60.<sup>7</sup>

The Age 60 Rule was justified solely on the basis of medical concerns over progressive deterioration of important physiological and psychological functions and the

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<sup>3</sup> Robin Wilkening. "The Age 60 Rule: Age Discrimination in Commercial Aviation." *Aviation, Space, and Environmental Medicine*, 73(3), March 2002, pp. 194-202. Gavin Francis. "Origins of the Age 60 Rule." *Air Line Pilot*, January 2005, pp. 14-16.

<sup>4</sup> Letter from C.R. Smith to General Elwood Quesada, Federal Aviation Agency, February 5, 1959. [[http://www.age60rule.com/docs/smith\\_quesada.pdf](http://www.age60rule.com/docs/smith_quesada.pdf)], Last visited June 21, 2005.

<sup>5</sup> Correspondence from C.R. Smith to General Elwood Quesada, April 3, 1959. [[http://www.age60rule.com/docs/smith\\_quesada.pdf](http://www.age60rule.com/docs/smith_quesada.pdf)], Last visited June 21, 2005.

<sup>6</sup> Wilkening, p. 195; Francis, p. 16.

<sup>7</sup> Federal Aviation Administration. *Federal Register* (24), December 5, 1959, p. 9767.

risk of sudden incapacitation. The FAA asserted that incapacitation – due primarily to heart attacks and strokes – could not be accurately predicted in an individual by available medical tests and criteria. Furthermore, the FAA noted that age is associated with other factors even more difficult to measure and predict including the loss of ability to: perform highly skilled tasks rapidly; resist fatigue; maintain physical stamina; perform effectively in a complex and stressful environment; apply experience, judgment, and reasoning rapidly in new, changing, and emergency situations; and learn new techniques, skills and procedures.

While the FAA followed standard rulemaking procedures including an opportunity for public comments and justified the rule on the grounds of safety concerns stemming from the health and fitness of older pilots, opponents have long criticized the rule as being quite arbitrary and imposed largely to support the position of the airlines. The circumstances under which the rule was adopted have certainly contributed to the long-standing controversy surrounding it.

In the late 1990s the number of pilots and types of operations subject to the Age 60 Rule was expanded when the FAA phased-in requirements to enhance the safety of scheduled commuter operations and bring them under the more stringent rules of Part 121. Under those requirements, the operations of all commuter turbojets and commuter turboprop aircraft with 10 or more passenger seats were required to operate under the same rules as air carriers flying larger aircraft including the requirement that prohibited the use of pilots aged 60 and older.<sup>8</sup> During the transition, pilots over the age of 60 that had been flying for commuter airlines were permitted to continue to do so up until December 20, 1999.<sup>9</sup> Today, Part 121 covers scheduled passenger operations of jet and turboprop aircraft having a seating capacity of 10 or more passengers and all-cargo aircraft with a payload capacity of 7,500 pounds or greater. Under the Age 60 Rule, airlines are not permitted to use pilots age 60 and older in these operations.

## Challenges to the Rule

Opponents have used two vehicles to challenge the Age 60 Rule. First, pilots impacted by the rule have petitioned the FAA directly for an exemption to the rule under a general provision set forth in Title 14 Code of Federal Regulations §11.61 *et seq.* While many pilots have petitioned the FAA for such an exemption over the years, to date no pilot has ever been granted such a request. The second mechanism has been to challenge the FAA's position on the Age 60 Rule through the federal court system. While those seeking remedy in the federal courts have garnered support from the Equal Employment Opportunity Commission (EEOC) since 1981,<sup>10</sup> the courts have consistently ruled in favor of the FAA authority and basis for the Age 60 Rule. Most recently, on May 2, 2005, the Supreme Court denied a petition filed on behalf a group of several older pilots seeking exemptions from the Age 60 Rule who had the backing of Southwest Airlines. The airline had come to the support of the pilots expressing concern that the rule has

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<sup>8</sup> See Title 14 Code of Federal Regulations (CFR) §135.2; 14 CFR §121.2.

<sup>9</sup> 14 CFR §121.2(i).

<sup>10</sup> Gavin Francis. "How ALPA Fought, Then Accepted the Age 60 Rule." *Air Line Pilot*, February 2005, p. 18.

arbitrarily deprived the airline of some of its best pilots at the peak of their careers.<sup>11</sup> The Supreme Court found that the motion was initiated as a direct challenge to the rule itself, and therefore should properly be effected through a petition for rulemaking rather than a petition for exemption. The Circuit Court of Appeals for the District of Columbia had previously upheld the FAA's authority and stance on the Age 60 Rule, similarly refusing to hear oral arguments in the case. As reflected in this recent decision, the position of the courts has consistently upheld the FAA's authority to implement and enforce the Age 60 Rule and the legal basis for its establishment. Based on these precedents, any change or exemptions to the Age 60 Rule are not likely come about through the federal court system. Therefore, any modifications to the rule would likely require either a regulatory change by the FAA initiated through the rulemaking process or statutory change initiated by congressional action.

## Recent Congressional Interest

Unlike the statutory upper age limit for air traffic controllers and federal law enforcement and firefighting personnel, the upper age limit for airline pilots is a regulatory action and therefore may be modified either through a statutory or a regulatory change. The FAA has continued to defend its position that 60 is an appropriate upper age limit for airline pilots based on its analysis of available safety and medical data. Historically, the federal courts have upheld the FAA's authority and position on the Age 60 Rule. In this context, airline pilots seeking to have the upper age limit increased have turned to Congress seeking legislative action to modify the Age 60 Rule. Several Members of Congress have been supportive of such action and numerous bills and amendments to increase the upper age limit for airline pilots have been introduced and debated over the years. Additionally, congressional committees have conducted oversight hearings on the issue, and Congress has mandated and recommended studies examining the relationship between age and medical fitness, pilot performance, and flight safety.

On March 13, 2001, the Senate Committee on Commerce, Science, and Transportation held a hearing on the Age 60 Rule in the context of potential future pilot shortages and the potential impact of these shortages on rural air service and the military. Speaking at the hearing, Senator McCain noted that the available pilot pool to meet these needs is directly affected by the Age 60 Rule. Noting that many European nations have increased the maximum age of pilots to 65, Senator McCain urged a reconsideration of the rule noting that while safety is paramount, "...there are almost certainly ways of ensuring that pilots who decide to fly beyond the age of 60 are fit and capable."<sup>12</sup>

On September 14, 2004, the Senate Special Committee on Aging held a hearing on mandatory retirement practices. Speaking before the committee, Dr. Russell B. Rayman, Executive Director of the Aerospace Medical Association, a professional organization of physicians, flight nurses, and scientists in the field of aerospace medicine, testified that

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<sup>11</sup> "High court declines to review federal rule barring pilots from flying at 60." *USA Today*, May 3, 2005. "Butler v. Federal Aviation Administration" *United States Law Week's Supreme Court Today*, May 2, 2005.

<sup>12</sup> Statement of Senator John McCain, Chairman, Senate Committee on Commerce, Science, and Transportation. Full Committee Hearing on S. 361, Legislation to Amend the FAA's Age 60 Rule, March 13, 2001.

“...there is insufficient medical evidence to suggest restriction of pilot certification based on age alone.”<sup>13</sup> Committee Chairman Senator Larry Craig, citing a dramatic increase in health and longevity over the past half century, concluded that “...we now need to look for ways to enable healthy and able airline pilots to continue to pilot commercial aircraft.”<sup>14</sup>

In the 109<sup>th</sup> Congress, two identical bills have been introduced: H.R 65 offered by Representative Gibbons, and S. 65 introduced by Senator Inhofe. These identical bills call for raising the maximum age for airline pilots to coincide with the individual’s full retirement age for social security benefits. Additional legislation offered by Senator Akaka (S. 685) would benefit pilots of ailing airlines whose pension plans have been or may be assumed by the federal Pension Benefit Guaranty Corporation (PBGC). The measure would entitle retired pilots under the age of 65 to the same benefits as pensioners over the age of 65 if their pension benefits are assumed by the federal government’s PBGC. Currently, guaranteed benefits under the PBGC are reduced for pensioners under age 65, and these benefits are often significantly less than what retirees would have received under their company-sponsored pension programs.<sup>15</sup>

## Safety Issues

Safety concerns over aging pilots that form the basis for the Age 60 Rule have focused on three topics: (1) the potential increased risk associated with aging pilots reflected in aircraft mishap data; (2) underlying medical factors associated with the risk of incapacitation or the inability to perform pilot functions; and (3) age-related declines in piloting skills and abilities that may pose an increased safety risk.

### Age as a Risk Factor

Flight crew performance is the leading cause of large commercial airplane accidents worldwide. In analyzing worldwide commercial jet hull losses over the ten-year period from 1994 through 2003, the Boeing Commercial Airplane Group found that 62% of those accidents with known causes were primarily attributable to the actions of the flight crew.<sup>16</sup> Therefore, reducing pilot-related accident causes has been a major focus of efforts to improve aviation safety. In this context, determining the extent to which age contributes to an increased risk of pilot-related accidents and incidents, and identifying an age at which this increased risk becomes unacceptable are the primary safety issues surrounding the Age 60 Rule.

<sup>13</sup> Statement of the Aerospace Medical Association for the Hearing Record to the Committee on Aging, United States Senate, September 14, 2004.

<sup>14</sup> U.S. Senate Special Committee on Aging. “Mandatory Retirement: Craig Says Flexibility Needed on Retirement Rules for Pilots – But Safety First.” Press Release, September 14, 2004.

<sup>15</sup> “Pilots Ask Congress to Raise Retirement Age.” *Los Angeles Times*, May 26, 2005.

<sup>16</sup> Boeing Commercial Airplanes. *Statistical Summary of Commercial Jet Airplane Accidents: Worldwide Operations, 1959-2003*. Seattle, WA: Boeing Commercial Airplanes.



In the early 1990s, the FAA sponsored an extensive research project examining the relationship between age and accident risk. The project became popularly known as the Hilton Study after the prime contractor, Hilton Systems, Inc. The study found no evidence of increased accident rates among air carrier pilots as they approached age 60. Examining accident data for older private pilots who were fairly experienced and remained rather active in flying by general aviation standards, the researchers concluded that there was only a slight hint of increased accident risk for pilots beyond age 63, and no indication of increased risk below that age.<sup>17</sup> Based on their findings, the Hilton Study researchers concluded that cautiously raising the upper age limit for airline pilots to 63 would not compromise safety. In response to these findings, the FAA held a public meeting and solicited comments on the Age 60 Rule, but ultimately chose to maintain the rule.

In 1999, the Senate Appropriations Committee revitalized interest in findings of the Hilton Study. Language in S.Rept. 106-55 on FY2000 transportation appropriations requested that the FAA provide justification for maintaining the Age 60 Rule despite the Hilton Study conclusion that the upper age limit for airline pilots could be cautiously increased to age 63. While this report language was not statutorily mandated, the FAA proceeded to complete the requested study examining accident rates for non-scheduled operations comparing pilots age 60-63 to all other four year groupings of pilot age (i.e., 56-59, 55-58, 54-57, and so on). The FAA subsequently issued a series of reports in 2003 including extensive analysis of age-related safety and pilot performance data. This research provides the most comprehensive and up-to-date analysis relating pilot age to accident risk since the Hilton Study. Because the recommended methodology described in the Senate report resulted in accident cases being counted more than once – a violation of the statistical principle of independent samples – FAA researchers also looked at the data by grouping accident rates into discrete, five-year age ranges below age 60.<sup>18</sup>

The results indicated a significant relationship between age and accident rate, with accident rates following a U-shape curve as a function of age (See Figure 1 and Figure 2). In other words, accident rates were highest for younger and older pilots and lowest for pilots in their mid 30s and 40s. While this trend was significant, there was not a significant difference in accident rates between airline transport pilots (ATPs) holding class 1 medical certification between the ages of 60 and 63 and those between 55 and 59 years old. However, the accident rate for the 60-63 year old pilots holding either an ATP or a commercial rating and either a first or a second class medical certificate was significantly higher than younger pilots with comparable ratings. While this data supports the Age 60 Rule, it leaves open the question of whether the failure to observe a

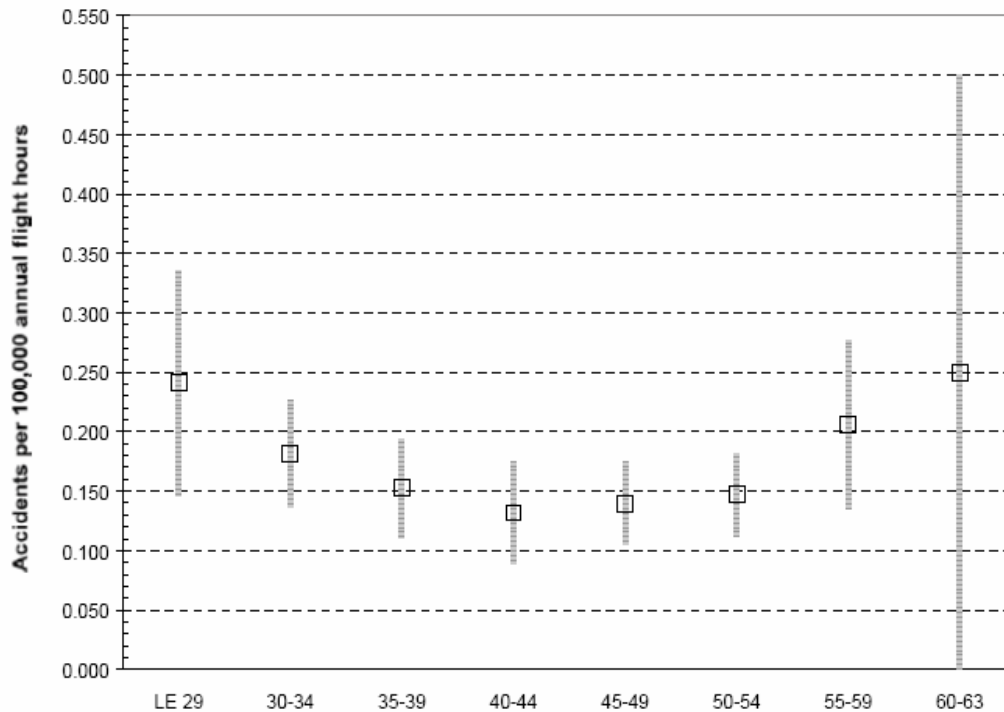
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<sup>17</sup> E.J. Kay, D.J. Hillman, D.T. Hyland, R.S. Voros, R.M. Harris, J. D. Deimler. *Age 60 Study, Part III: Consolidated Database Experiments Final Report*. Washington, DC: Office of Aviation Medicine, Federal Aviation Administration, October 1994. DOT/FAA/AM-94/22.

<sup>18</sup> Dana Broach, Kurt M. Joseph, and David J. Schroeder. *Pilot Age and Accident Rates Report 3: An Analysis of Professional Air Transport Pilot Accident Rates by Age*. Oklahoma City, OK: Civil Aeromedical Institute, June 27, 2003. Dana Broach, Kurt M. Joseph, and David J. Schroeder. *Pilot Age and Accident Rates Report 4: An Analysis of Professional ATP and Commercial Pilot Accident Rates by Age*. Oklahoma City, OK: Civil Aeromedical Institute, June 27, 2003.

similar trend among only ATP pilots with first class medical certification – those considered most representative of pilots flying for the airlines – was due to having too small of a sample in the upper age ranges or is an indicator that age-related risk factors can be effectively mitigated by the more rigorous medical testing required for issuance of a first class medical certificate and the higher standards of proficiency need to attain an ATP rating.

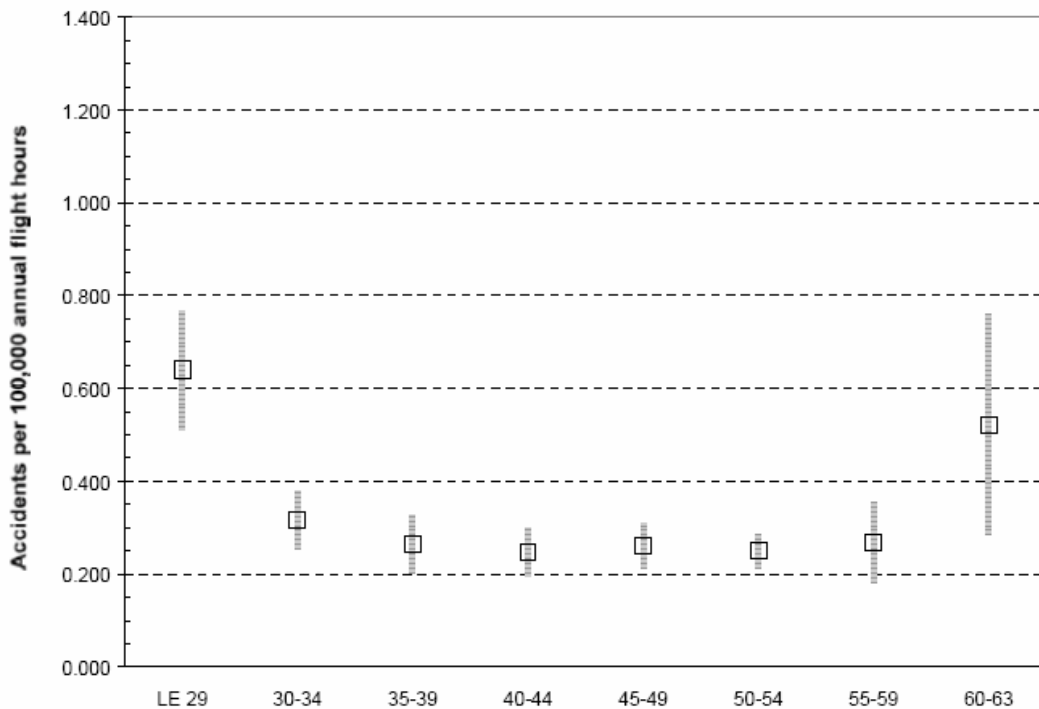
**Figure 1. Accident Rate for Airline and Commercial Operations flown by Air Transport Rated Pilots with Class 1 Medical Certificates**



Source: Dana Broach, Kurt M. Joseph, and David J. Schroeder. *Pilot Age and Accident Rates Report 3: An Analysis of Professional Air Transport Pilot Accident Rates by Age*. Oklahoma City, OK: Civil Aeromedical Institute, June 27, 2003.

While these results provide interesting insights into the relationship between pilot age and safety, it should be noted that there are significant limitations associated with using accident and incident data to draw conclusions regarding the Age 60 Rule. By the very fact that the Age 60 Rule exists, studies examining accidents and incidents in the United States suffer from the limitation that there are no air carrier operations using pilots older than 59. Consequently, one must either draw inferences from data based on air carrier operations using pilots under age 60, or make comparisons from safety data involving flight operations that do not meet the rigorous safety standards and pilot qualifications of airline operations. This complicates matters in terms of both identifying pilots that are most representative of U.S. airline pilots and identifying categories of operations to examine that are most similar to air carrier operations. In light of this significant limitation, the experience of other countries who already allow pilots age 60 and older to continue flying in airline operations is of particular interest.

**Figure 2. Accident Rates for Airline and Commercial Operations Flown by Air Transport and Commercial Pilots with Class 1 or Class 2 Medical Certification**



Source: Dana Broach, Kurt M. Joseph, and David J. Schroeder. *Pilot Age and Accident Rates Report 4: An Analysis of Professional ATP and Commercial Pilot Accident Rates by Age*. Oklahoma City, OK: Civil Aeromedical Institute, June 27, 2003.

While no formal safety study examining airline pilots older than age 60 worldwide is available, a 2005 survey by the International Civil Aviation Organization (ICAO) provides insight into the experience of other countries that allow airline pilots older than age 60.<sup>19</sup> Of the 112 countries completing this survey, nine of them do not have any upper age limit, while 55 countries indicated having upper age limits ranging from 62 to 72 years. The most frequent upper age limit among these states is 65. Some 36 countries indicated that they explicitly restrict pilots age 60 and older from operating as airline pilots. Most countries that allow airline pilots to fly past the age of 60 adopted their upper age limits greater than 60 during the 1990s, with the most frequently cited year being 1999 and the average centered on 1996. Based on the survey data, ICAO believes the total number of airline pilots older than 60 flying worldwide to be more than 3,000, and estimates that more than 15,000 pilot-years have been accumulated by airline pilots flying past the age of sixty.

<sup>19</sup> International Civil Aviation Organization. "Agenda Item 4: Review the operational aspects of the Standard in Annex 1, paragraph 2.1.10 concerning the curtailment of privileges of pilots who have attained their 60<sup>th</sup> birthday." Flight Crew Licensing and Training Panel (FCLTP) Second Meeting, January 31 to February 11, 2005: Montreal, Quebec, Canada.

Despite this extensive experience with older airline pilots worldwide, information regarding the safety of these older airline pilots is largely anecdotal. Forty-two of the 64 countries allowing airline pilots age 60 and older indicated that their experience with pilots in their sixties was good, while 22 countries indicated that it was difficult or impossible to evaluate their experience with the older pilots. Twenty-seven of the 64 countries indicated that they possess sufficient data to assess accidents and incidents among these pilots. Seventeen of those countries indicated that their experience with older pilots was good. Despite having sufficient data, the other 10 of these countries indicated that it will be difficult or impossible to assess their experience with older pilots. More detailed assessments of the available worldwide accident and incident data may provide a useful comparative risk analysis of airline operations using pilots age 60 and older. While comparative accident and incident rates for these pilots are yet to be published, so far no specific safety concerns regarding the use of older airline pilots have been raised.

## Risk of Incapacitation

In promulgating the Age 60 Rule, the FAA highlighted the safety risk of sudden incapacitation as a major consideration in establishing this age restriction. The FAA noted that

“...there is a progressive deterioration of certain important physiological and psychological functions with age, that significant medical defects attributable to this degenerative process occur at an increasing rate as age increases, and that sudden incapacity due to such medical defects becomes more frequent in any group reaching age 60.”<sup>20</sup>

The FAA has continued to express these concerns in defending the Age 60 Rule. In 1995, the FAA noted that cardiovascular disease rises steeply as a function of age between the ages of 55 and 65.<sup>21</sup> In the FAA’s opinion, the increased incidence of cardiovascular disease presents a risk for unexpected threatening events that can incapacitate pilots. The FAA found that while such events are rare, they have been observed at a relatively consistent rate over the years and have, on rare occasions, resulted in general aviation accidents.

Other experts have not agreed with the FAA assessment of risk associated with sudden incapacitation. For example, the FAA-sponsored Hilton Study concluded that “[s]udden incapacitation, while intensively studied, has been shown to be a relatively unimportant factor in aviation accidents. Thus, studies of the relationship between age and cardiovascular fitness in pilots are somewhat tangential to the questions of whether the probability of an accident increases with age.”<sup>22</sup>

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<sup>20</sup> Federal Aviation Administration. *Federal Register*, (24), December 5, 1959, p. 9767.

<sup>21</sup> Federal Aviation Administration. “The Age 60 Rule.” *Federal Register* (60)244, December 20, 1995, pp. 65977-65986.

<sup>22</sup> D.T. Hyland, E.J. Kay, J.D. Deimler, E.B. Gurman, Civil Aeromedical Institute. *Age 60 Study, Part II: Airline Pilot Age and Performance – A Review of the Scientific Literature*. DOT/FAA/AM-94/21. Washington DC: Federal Aviation Administration, Office of

Estimates have placed the overall risk of an aviation accident resulting from incapacitation at one accident per 8.3 billion flight hours.<sup>23</sup> Given that there is a system redundancy in place by requiring two pilots for all airline operations, the overall risk of medical incapacitation is sufficiently small that it would generally meet the engineering criteria of an acceptable risk.<sup>24</sup> Internationally, ICAO considers a safety level in which the probability of an incapacitation event is one percent per year, or one every 876,000 hours, or less to be acceptable in multi-crew operations. This is referred to as “The 1% Rule.” ICAO contends that male pilots are likely to approach this upper risk level near age 65, and female pilots around age 68 or 69. Applying this rule, the probability that both flight crew members of a two person crew would become incapacitated during the same one-hour flight period would approach one in one trillion ( $10^{-12}$ ), which is widely regarded as an acceptable level of risk.<sup>25</sup>

A 2004 FAA study examined in-flight medical incapacitation and impairment events involving U.S. airline pilots.<sup>26</sup> Results indicated a significantly larger number of incapacitations as a function of increasing age, particularly for those with neurological or cardiac causes (see **Figure 3**). However, none of the 39 incapacitation incidents examined resulted in an accident. Furthermore, age of the incapacitated pilot had no influence on whether the safety of flight was seriously impacted by the event. Thus, while the data show a positive and statistically significant relationship between airline pilot age and the risk of in-flight incapacitation, whether this poses a meaningful and unacceptable risk to the overall safety of airline operations remains a highly contentious issue. The Aerospace Medical Association concluded that given the infrequency of occurrence and negligible impact on flight safety – in contrast to various other pilot-related accident causes such as judgment, decision making, and communication – pilot incapacitation does not pose a significant risk in airline operations and is largely mitigated by the presence of two qualified pilots.<sup>27</sup>

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<sup>22</sup> (...continued)

Aviation Medicine, October 1994.

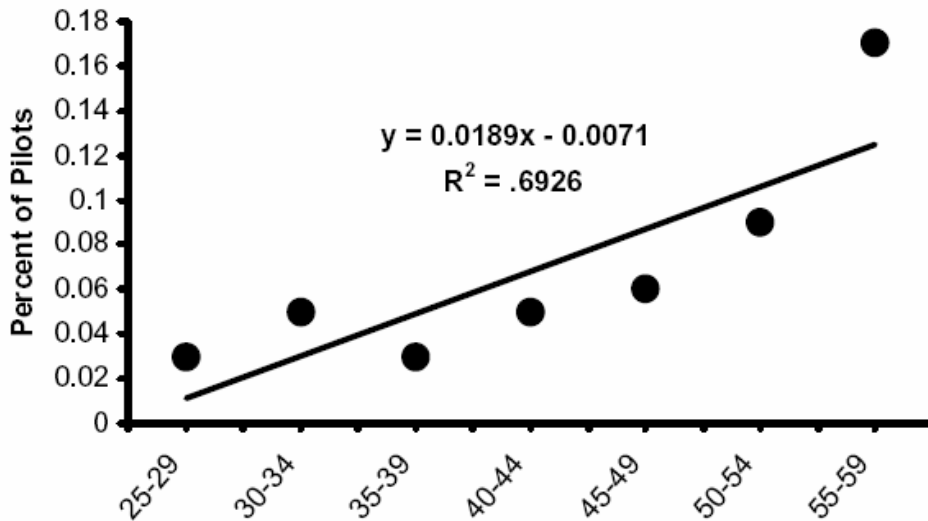
<sup>23</sup> Pamela S. Tsang. “Assessing Cognitive Aging in Piloting.” In Pamela S. Tsang and Michael A. Vidulich (Eds.), *Principles and Practice of Aviation Psychology*, pp. 507-546. Mahwah, NJ: Lawrence Erlbaum Associates, 2003.

<sup>24</sup> Generally, engineering standards aim to minimize the probability of failure of a flight critical component to a one in one billion ( $10^{-9}$ ) chance of occurrence and design these flight critical systems to have sufficient redundancies and fail-safe modes to prevent such failures from leading to a catastrophic loss of the aircraft. For system components, these probabilities are usually expressed in cycles rather than flight hours.

<sup>25</sup> International Civil Aviation Organization. “Agenda Item 4.”

<sup>26</sup> Charles A. DeJohn, Alex M. Wolbrink, and Julie G. Larcher. *In-Flight Medical Incapacitation and Impairment of U.S. Airline Pilots: 1993 to 1998*. Washington, DC: FAA Office of Aerospace Medicine, October 2004. DOT/FAA/AM-04/06.

<sup>27</sup> Aerospace Medical Association. *Position Paper – The Age 60 Rule*. Alexandria, VA, January 15, 2004.

**Figure 3. In-flight Incapacitation As a Function of Pilot Age**

Source: Charles A. DeJohn, Alex M. Wolbrink, and Julie G. Larcher. *In-Flight Medical Incapacitation and Impairment of U.S. Airline Pilots: 1993 to 1998*. Washington, DC: FAA Office of Aerospace Medicine, October 2004. DOT/FAA/AM-04/06.

While it has been demonstrated that age is a significant factor in the risk of incapacitation, a central question in the debate over mandatory upper age limits for pilots is whether the risk of in-flight incapacitation can be adequately assessed and mitigated through medical screening alone. Airline captains are required to maintain first class medical certificates and, in practice, most airline pilots maintain first class medical certification. First class medical certificates are good for six months, and pilots required to have first class medical certificates must consequently be examined by a flight physician on a biannual basis. To obtain a first class medical certificate, pilots older than age 40 must submit to annual electrocardiogram exams to demonstrate the absence of myocardial infarction or any other significant abnormality.<sup>28</sup> The Civil Aviation Medical Association (CAMA), a professional organization representing civilian flight physicians who evaluate the medical fitness of pilots, contends that "...if the pilot passes the FAA appropriate physical examination requirements (placed on all pilots regardless of age), the age 60 limitation placed on airline pilots is unjust and unfounded."<sup>29</sup>

### The Effects of Age on Piloting Skills and Abilities

While medical examinations may be effective in screening for latent cardiovascular and neurological risk factors, there is concern that the effects of aging on pilot performance may be more difficult to detect and diagnose. Various mental skills and abilities thought to be important attributes for pilots have been shown to decline gradually across the life span. In light of these research findings, several questions arise regarding

<sup>28</sup> Title 14 CFR §67.111.

<sup>29</sup> Civil Aviation Medical Association. Press Release, March 5, 2001. Oklahoma City, OK.

the relevance of these age related declines in establishing an appropriate upper age limit for pilots. These questions include

- To what extent does experience mitigate or compensate for age-related declines in performance;
- Do pilots exhibit the same age-related decline in performance observed in samples taken from the general population;
- Are pilot medical exams, proficiency checks, periodic observations, and airline monitoring programs adequate to detect performance deficits on an individual basis; and
- Can an age be identified at which deterioration of component mental skills and abilities critical for pilot performance are sufficiently degraded in the pilot population that they introduce an unacceptable increase in risk?

Despite extensive research examining the effects of aging on performance, research examining the performance of aging pilots is relatively limited and has not always produced consistent results. Consequently, the answers to these questions are not clear cut. In a very general sense, age-related declines in cognitive functions considered essential for piloting begin to appear as individuals enter their 30s and continue throughout the life span. While groups of pilots have demonstrated less age-related deterioration in performance compared to samples from the general population in some studies, they are still prone to these age-related declines. Research has also shown that experience and expertise can compensate for some age-related declines in piloting skills and related tasks, but they cannot entirely make up for the effects of aging, with the possible exception of the ability to divide attention among multiple competing priorities.<sup>30</sup>

Research has not attached any particular significance to age 60 in terms of identifying an age at which pilot skills and abilities markedly decline and pose a safety risk. Pinpointing an appropriate upper age limit is further complicated by large individual differences in aging effects. Research suggests that as age increases, so does variability in performance across individuals. Therefore it appears that as age increases, age by itself becomes a poorer predictor of an individual's performance. One review of the literature summarized the current knowledge of age-related declines in pilot skills by concluding "...there is not one age when all cognitive capabilities decline for everybody...The prevailing data strongly suggest that the quest for determining a specific cutoff age that could be applied generally is likely to be futile."<sup>31</sup>

## Economic Considerations

Amid these unresolved deliberations over an appropriate, scientifically-based upper age limit for pilots, public policy interests have often shifted to a consideration of the economic ramifications of the Age 60 Rule. Several economic factors, including ongoing

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<sup>30</sup> See Pamela S. Tsang. "Assessing Cognitive Aging", and Aerospace Medical Association. *Position Paper*, for more detailed reviews and summaries of research findings on the effects of aging on piloting skills and abilities.

<sup>31</sup> Pamela S. Tsang. "Assessing Cognitive Aging.", p. 535.

airline furloughs, and the financial uncertainty of many airline pension funds and retirement benefit programs make the prospect of retirement at age 60 a significant challenge for increasing numbers of pilots. Besides the economic impact to the livelihood of retired pilots and future retirees, the Age 60 Rule has also been tied to the debate over growing concerns that the United States may face a future shortage of qualified pilots to replace an aging workforce. These economic factors are likely to place increasing strain on the FAA to justify the Age 60 Rule, but are not likely to be sufficient justifications by themselves for modifying or removing pilot age restrictions which have always been rooted in concerns over safety.

## Career Advancement and Retirement Benefits

Today, the potential economic impacts of the Age 60 Rule to retiring pilots and the pension and retirement benefit programs that support them are becoming more salient as life expectancies continue to increase. When the Age 60 Rule was promulgated in 1959, average total life expectancies in the United States for those reaching age 60 were 75.9 years for men and 79.5 years for women.<sup>32</sup> At that time, almost all pilots were men, so the average life expectancy beyond the age restriction would have been about 16 years for a typical pilot. Today, life expectancies are considerably longer. The average total life expectancy for a 60 year-old male is 80.2. So, the average number of years a male pilot can be expected to live beyond the age restriction is now more than 20 years. For female pilots, who currently make up about 3% of the airline pilot workforce, the average life expectancy beyond the upper age limit of 60 is 23.5 years. In light of this trend of increasing longevity, there is growing concern among pilots that airline pensions and retirement savings may be insufficient to sustain them financially for these longer periods. There is also growing concern that the equity in pilot pension and retirement benefit programs at major airlines will be insufficient to support large number of retiring pilots for these extended retirement durations. These concerns have been heightened by the fiscal uncertainty in the airline industry.

Historically, large pilot organizations such as the Air Line Pilots Association (ALPA) have supported the Age 60 Rule because it afforded their core membership of younger and mid-level pilots with opportunities for career advancement, and the existence of the rule provided the unions with a clearly defined target for negotiating retirement benefits.<sup>33</sup> However, in the current economic climate of instability in the airline industry, many older pilots no longer view their pension plans as being stable, reliable income sources to carry them through their retirement years. A few major carriers have already turned their pension programs over to the PBGC. This effectively reduces the pension annuities of many pilots. Also a growing number of pilots flying for low-cost carriers do not have defined benefit pension plans, and will have to rely solely on investments in retirement savings plans upon reaching age 60. Furthermore, pilots must cease Part 121 flight activities before they are eligible for social security benefits. Currently, pilots, like other workers who contributed to the social security system, can begin receiving reduced benefits at age 62 and full benefits between age 65 and age 67, depending on their year

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<sup>32</sup> Elizabeth Arias. "United States Life Tables, 2002." *National Vital Statistics Reports*, 53(6), November 2004. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Vital Statistics System.

<sup>33</sup> Gavin Francis. "How ALPA Fought."



of birth based on a phased-in increase to the social security full retirement age. This creates a gap that could last as long as seven years in which pilots might not receive a social security benefit to supplement these pension annuities and retirement savings. Even a pilot electing to receive reduced benefits would have to wait two years before becoming eligible for such entitlements. These multiple financial considerations may make full retirement at age 60 difficult for increasing numbers of pilots in the future necessitating that they seek other employment. The long term impact of these financial factors could make it more difficult to recruit future generations of pilots. This and other factors could lead to future pilot shortages.

## Possible Future Pilot Shortages

It is hard for many to imagine that airlines could be facing a shortage of qualified pilots in the near future given the current status of the industry, which has left many pilots on furlough. However, according to the Bureau of Labor Statistics, as the economy expands, the demand for pilots is expected to increase at a rate consistent with overall job growth during the next seven years. In 2002, there were about 79,000 pilots employed by the airlines and this number is expected to grow to 94,000 by 2012. Growth in demand for pilots is likely to be fueled by increasing demand for air travel as well as a shift toward using smaller-sized aircraft on domestic flights. Thus, the largest growth in demand for pilots is likely to be for commuter airlines that might find it difficult to recruit and retain highly qualified applicants amid an increasing availability of pilot slots at major airlines.

Besides an overall projected growth in demand for air travel, airlines are faced with an aging workforce (see **Figure 4**) with a steady stream of retirements expected over the next 5 to 10 years. According to a recent analysis of labor statistics, airline pilot jobs are expected to be the leading occupation impacted by “baby-boomer” retirements. Retirements among airline pilots and navigators were expected to increase by 173 percent during the period from 2003 through 2008 compared to 1993 through 1998.<sup>34</sup> Growing demand on the one hand and an aging population of pilots on the other could contribute to a future shortage of qualified pilots. To address this shortage, Congress may consider programs to attract future generations to careers in aviation, and in the current context, may also consider whether changes to the Age 60 Rule can help alleviate potential shortages of highly qualified pilots.

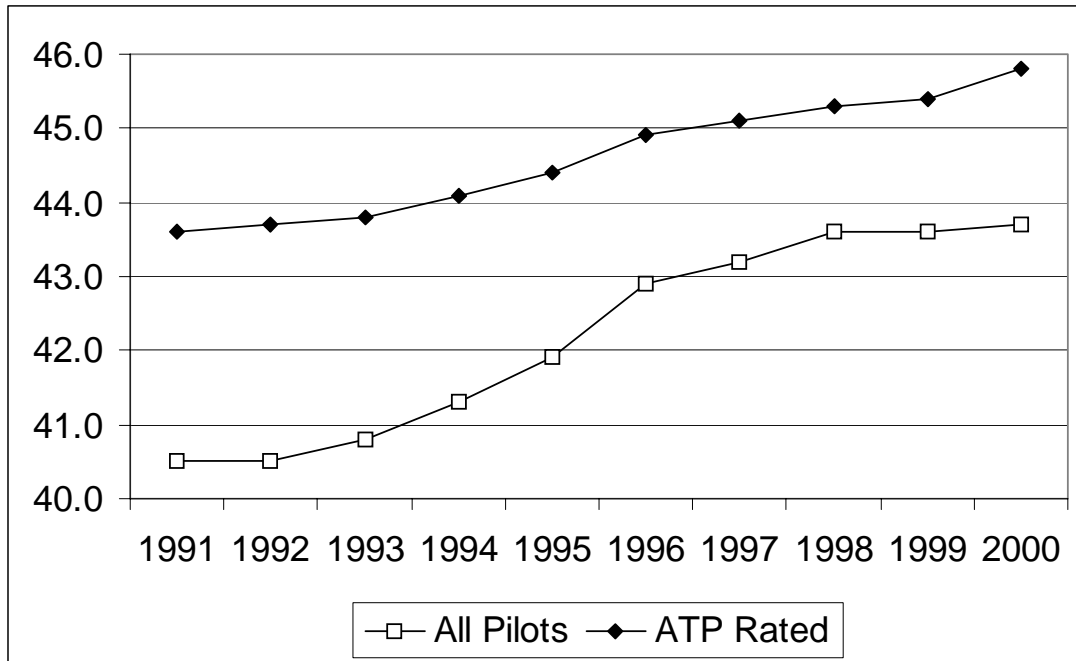
The prospect of a future pilot shortage could certainly complicate the public policy debate regarding the Age 60 Rule. This is because if airlines are faced with significant growth in the demand for pilots, they may be forced to lower their hiring standards. While all airline pilots must meet rigorous FAA minimum standards, pilots hired by major air carriers and commuter operators in today’s competitive job market are usually said to far exceed these minimum qualifications. Thus, there is considerable room between the minimum acceptable qualifications and the qualifications needed to be considered for a pilot position at a major airline or a large commuter airline. From a policy standpoint, one might consider the potential safety tradeoffs of airlines becoming less selective by hiring younger, less experienced pilots as a result of a shrinking labor pool on the one hand versus the alternative of maintaining high levels of competition for

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<sup>34</sup> Arlene Dohm. “Gauging the Labor Force Effects of Retiring Baby Boomers.” *Monthly Labor Review*, July 2000, pp. 17-25.

more limited pilot jobs by raising the maximum age limit. This tradeoff is likely to be quite subtle and difficult to predict. However, analysis of recent safety data reported by the FAA at least suggests that the level of risk posed by an airline transport pilot under the age of 30 is roughly equivalent to the risk posed by a pilot between the age of 60 and 63 (See **Figure 1** and **Figure 2**). In other words, raising the age limit to 63 does not appear to pose any greater risk than hiring younger pilots (under age 30) to fill those slots vacated by pilots reaching age 60, although more thorough analyses may be needed to substantiate this comparison.

**Figure 4. Average Pilot Age (1991-2000)**



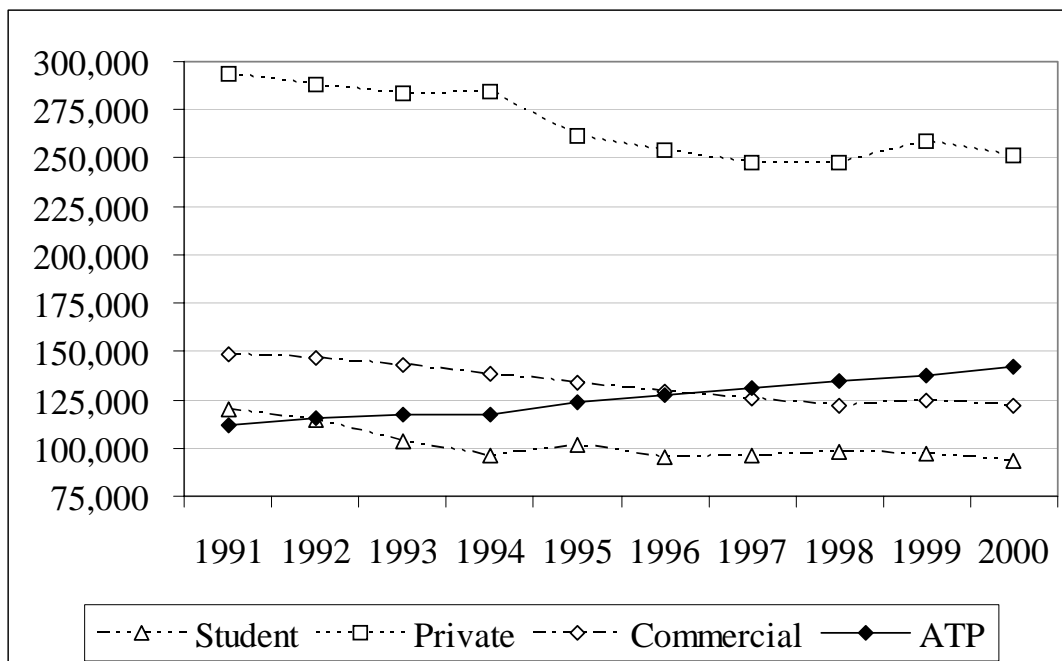
Source: Federal Aviation Administration, Office of Aviation Policy and Plans

The availability of highly qualified younger pilots may also be tempered by persisting uncertainty in the airline industry and the promise of greater job opportunity in other high technology fields. While pilot careers have been viewed for many years as high-paying and intrinsically rewarding, current economic turmoil and uncertain job outlooks for pilots may make it somewhat more difficult to attract highly qualified individuals to pursue careers as airline pilots. Evidence that such a trend may be emerging is reflected in the declining number of student pilots, as well as private and commercial pilots<sup>35</sup>, compared to the early 1990s (see **Figure 5**). However, such a conclusion may be premature, because while fewer students are initiating flight training compared to the early 1990s, more of these students could be planning careers as professional pilots rather than simply learning to fly for recreational purposes. Such a possibility may account for the growth in the number of airline transport pilots (ATPs) over the past decade.

<sup>35</sup> Pilot certifications are arranged in a tiered system, so to become certified as an airline transport pilot (ATP), one must first obtain a student pilot certificate followed by a private pilot certificate followed by a commercial pilot certificate.

While increasing numbers of professional flight schools are tailoring their programs to appeal to prospective career pilots, these programs may not adequately compensate for the large decline in the numbers of highly trained military pilots who have historically transitioned to civilian pilot careers to meet the needs of the airlines. From the end of World War II to the mid-1990s, about 80 percent of airline pilots were military trained compared to only 40 percent in 2001.<sup>36</sup> This decline in military trained pilots transitioning to airline cockpits may continue as the armed services take steps to retain their cadre of highly qualified pilots. Whether civilian flight schools will continue to provide adequate numbers of highly qualified pilots to make up for the declining numbers of military pilots transitioning to airline careers remains an issue of considerable interest. In the current context, policy makers may consider whether raising the maximum age for airline pilots can alleviate potential shortages of qualified pilots in light of these changing demographic trends for new hires.

**Figure 5. Active Pilots by Certificate Type (1991-2000)**



Source: Federal Aviation Administration, Office of Aviation Policy and Plans

## Possible Options for Statutory or Regulatory Change

A variety of options to address upper age restrictions for airline pilots are available to policymakers. These options range from eliminating age-based restrictions altogether to maintaining the current Age 60 Rule, or possibly expanding it to other types of commercial flight operations. These options are discussed below along with options to increase the age limit for airline pilots as has been done in other countries and is currently under consideration by ICAO for adoption as an international standard.

<sup>36</sup> Statement of L. Nicholas Lacey, Director of Flight Standards Service, Federal Aviation Administration, Before the Senate Committee on Commerce, Science, and Transportation, on the Age-60 Rule, March 13, 2001.

## Raising the Age Limit for Airline Operations

Two identical bills to raise the upper age limit for airline pilots (S. 65 introduced by Senator Inhofe and H.R. 65 introduced by Representative Gibbons) have been offered in the 109<sup>th</sup> Congress. These bills would effectively raise the age at which pilots can continue flying for air carriers to be equal to their full retirement age under the social security system. Some airline pilots aged 65 ½ and under could potentially return to the cockpit if either of these bills were enacted. For current airline pilots, the age at which they would be required to leave the cockpit would range from 66 to 67 according to the graduated scale of full social security retirement age based on birth year. However, these ages could increase if social security laws were changed to increase the age at which full benefits become available.

Legislative proposals offered in prior Congresses sought to establish a fixed retirement age, typically coinciding with the pilot's 65<sup>th</sup> or 64<sup>th</sup> birthday. This option would set the upper age limit for airline pilots in a manner that would not be altered by actions taken for unrelated purposes such as raising the social security retirement age as a means to maintain solvency in the social security trust fund. The FAA-sponsored Hilton Study concluded, based on limited data from age-related accident trends in general aviation, that “one could cautiously increase the retirement age to age 63.”<sup>37</sup>

Several other countries have implemented various other approaches designed to limit the potential risk of raising pilot age limits. For example, in 1997, Japan increased the upper age limit to 63, but required that at least one pilot in the cockpit be younger than 60. The European Joint Aviation Authority (JAA) permits airline pilots to fly up to age 65, but also requires that the other pilot on a flight be younger than 60. However, not all European countries agree with this approach. France, in particular, has maintained its maximum age limit of 60 for airline pilots, and like the United States, is of the opinion that this is the most appropriate upper age limit.<sup>38</sup>

Adopting the JAA approach worldwide was recently proposed by ICAO. In ICAO's survey of member countries, the large majority, 72 out of 112 countries, indicated that 65 is the most appropriate upper age limit for airline pilots.<sup>39</sup> Several countries indicated that the upper limit of 65 should be limited to multi-crew operations (i.e., flights with two or more pilots) and predicated on having one pilot under the age of 60 in the cockpit. Some countries also suggested that pilots over the age of 60 be subject to more rigorous medical checks and not be granted any flexibility in meeting medical qualifications.

If the suggested amendment to the ICAO standards on pilot licensing is adopted, the recommended practice would be to allow pilots to continue to fly in the capacity of pilot-in-command in commercial operations so long as the other pilot in the cockpit is under

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<sup>37</sup> E.J. Kay, D.J. Hillman, D.T. Hyland, R.S. Voros, R.M. Harris, J. D. Deimler. *Age 60 Study, Part III*, p. 6-3.

<sup>38</sup> International Civil Aviation Organization. “Agenda Item 4.”

<sup>39</sup> *Ibid.*

age 60.<sup>40</sup> Currently ICAO recommends that pilots age 60 and over not be permitted to act as pilot-in-command in commercial operations, but only suggests that this age limit also be applied to co-pilots.<sup>41</sup> Because, ICAO standards are merely recommendations, countries around the world have adopted varied approaches to pilot age limitations and many countries already have older maximum ages or no age restrictions at all for airline pilots. However, the ICAO rules do have bearing on international flights in that the in the absence of specific age restrictions for pilots of foreign carriers set in regulation or statute, the ICAO rules would apply. In other words, while the United States may continue to limit the age of pilots on U.S. carriers under existing regulations, older pilots of foreign carriers operating to and from the United States would typically be allowed to operate so long as they meet the applicable ICAO standards including the proposed maximum age of 65 if it is adopted.

## Implementing a Trial Program of Waivers

Another approach would be to implement a trial program in which a limited number of airline pilots could be granted waivers to the age 60 limitation. Under such a program, pilots volunteering for the program could be subjected to close scrutiny that may include detailed medical, physiological, and psychological testing, and detailed performance reviews. This would permit data to be collected about older pilots enabling more informed decisions.

Similarly, increases in maximum pilot age could be phased-in over time by adopting a “go-slow” approach. The Israeli Civil Aviation Authority implemented such an approach. In 1990, Israel began allowing pilots aged 60-65 to continue flying for El Al Israel Airlines, but these pilots were initially only permitted to serve as first officers. Then, in 1995, pilots aged 60-65 were permitted to serve as “cruise captains” where they could operate as pilot-in-command on long haul flights when the aircraft was operating above 20,000 feet, but could not operate as pilot-in-command during takeoffs and landings. In May 1999, based on review of the safety and medical fitness of those pilots over age 60 flying for El Al, the Israeli regulations were again expanded to permit pilots aged 60-65 to serve as pilot-in-command during all phases of flight.<sup>42</sup> Currently, 50 Israeli airline pilots over the age of 60 are flying.<sup>43</sup>

One possible option for implementing a trial program would be to allow only pilots of all-cargo airlines to participate. All-cargo operations would offer a platform to examine potential implications before expanding the trial program to passenger airlines or raising the age limit for all air carrier pilots. However, there are likely to be some concerns regarding such an approach because the schedules and types of operations of all-cargo carriers are not representative of passenger operations. All-cargo pilots often work

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<sup>40</sup> International Civil Aviation Organization. “Proposal for the amendment of Annex 1 to increase the upper age limit for pilots.” Montreal, Quebec, Canada: February 25, 2005.

<sup>41</sup> International Civil Aviation Organization. *Annex 1 to the Convention on International Civil Aviation: Personnel Licensing*. §2.1.10.1 and 2.1.10.2.

<sup>42</sup> Robin Wilkening. “The Age 60 Rule: Age Discrimination in Commercial Aviation.” *Aviation, Space, and Environmental Medicine*, 73(3), March 2002, pp. 194-202.

<sup>43</sup> International Civil Aviation Organization. “Agenda Item 4.”

late night shifts and fatigue is often a prominent issue. Because some research has suggested a potential interaction between age and stressors such as fatigue, any observed age-related effects in all-cargo pilots might not generalize well to pilots engaging in passenger airline operations. Furthermore, pilot groups may argue that adopting varied standards for cargo operations is contrary to their efforts to promote one uniform level of safety across the entire air carrier industry.

The concept of initiating a trial study examining changes to the Age 60 Rule in the United States is not new. A similar approach was proposed by the FAA in 1982 in response to the National Institute on Aging's recommendation that the FAA or some other appropriate federal agency engage in a systematic study to collect medical and performance data for use in considering whether to relax the Age 60 Rule. Despite this recommendation, the FAA ultimately scrapped the idea of a trial study because, in its opinion, a valid selection test for identifying the test group did not exist and consequently conducting such a study would raise the safety risk to unacceptable levels.<sup>44</sup>

## Eliminating Age Limits

Another alternative would be to fully eliminate any regulatory or statutory reference to age with regard to issuance of pilot medical certificates or qualifications to act as an airline pilot. Under such a plan, any qualified pilot could serve in the capacity of an airline pilot so long as he or she could demonstrate medical fitness and flight proficiency. Currently, Canada and Australia and a few smaller nations have no upper age limit for commercial pilots.<sup>45</sup> In Canada, more than 1,300 airline pilots are older than 60.<sup>46</sup>

By eliminating an upper age restriction, the FAA and airlines would rely solely on a pilot's medical certification and demonstrated flight proficiency to assess his or her continued fitness to fly. Pilots typically undergo biannual medical examinations and are observed routinely by other pilots and company and FAA check pilots, so there are many opportunities to detect age-related medical factors or substandard performance. While such an approach has been advocated by the Civil Aviation Medical Association (CAMA) and others, there are some possible drawbacks to such an approach.

First, sophisticated medical and psychological testing to detect latent age-related degradation of pilot-related cognitive abilities are not conducted during medical exams, and agreed-upon measures of cognitive ability related to piloting an airplane are generally lacking. Furthermore, available cognitive tests may not be sensitive enough to detect subtle cognitive deficits that may only manifest themselves under certain conditions. Also, there may be a reluctance among younger pilots to report safety-related incidents involving the performance of older, more senior pilots. Therefore, detection of those older pilots posing a significant safety risk may not be optimal. The Aerospace Medical Association (AsMA) suggests that enhanced cognitive screening and neuropsychological testing may show promise for accurately evaluating older pilots, but admits that a

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<sup>44</sup> Federal Aviation Administration. "The Age 60 Rule." *Federal Register*, 60(244), 65977-65986. December 20, 1995.

<sup>45</sup> International Civil Aviation Organization. "Agenda Item 4."

<sup>46</sup> *Ibid.*

considerable investment would be needed to implement non-age-based criteria for determining the fitness of older pilots.<sup>47</sup>

## Keeping the Age 60 Rule in Place

The most conservative approach would be to keep the existing Age 60 Rule in place because maintaining the status quo would not introduce any potential for increased safety risk. The existing age restriction is weakly supported by the research associating pilot age with a slight increase in risk. While research has generally failed to demonstrate statistically significant differences in risk among pilots in their early 60s compared to pilots in their late 50s, a significant U-shaped trend indicating elevated risk among older, as well as younger, pilots has been demonstrated in recent analyses of accident data. However, because the increased risk associated with increased age is subtle, there is no clear guidance for where such an age restriction should be set. In general, research has generally placed the “elbow” of the U-shaped curve, where accident risk begins to increase more steeply as a function of age, in the mid-50s. This certainly gives some basis for the selection of age 60 as an upper limit. However, because the increased risk associated with advancing age is subtle and not statistically significant, this evidence is not overly compelling. Furthermore, because pilots over the age of 60 may no longer serve as airline pilots, comparative accident risk has been based on flight operations that have historically been more risky than scheduled airline operations. In light of this limited evidence, one might consider whether it would be prudent to expand the Age 60 Rule, or some other appropriate age limitation, to these riskier types of operations, particularly charter or air tour operations where older pilots may seek employment after completing airline careers. The U-shaped trend at least suggests that pairing older pilots with young inexperienced pilots, which may commonly occur in these types of operations, could increase risk. However, it is unlikely that age alone would increase the risk factor associated with crew pairings to unacceptable levels. Using older pilots in single-pilot charter and air tour operations, however, could raise significant safety questions regarding possible incapacitation because this risk is not mitigated by the presence of a second pilot.

While one key consideration is the types of operations that should be subject to age restrictions, the more fundamental question is what the appropriate age limit should be or whether such age limitations should exist at all. The FAA Federal Air Surgeon, Jon L. Jordan, noted that “...the selection of age 60 as the appropriate age at which one should no longer serve as a pilot in air carrier operations was somewhat discretionary. ... Few people like inflexible, discretionary rules, and I am among them. Unfortunately, how to solve the problem of deterioration in performance with aging and its impact on aviation safety in an enigma. I only wish I knew the answer.”<sup>48</sup> Despite years of research and public policy debate, an acceptable answer that strikes a balance between safety on the one hand and concerns over financial impacts and perceived discriminatory practices on the other remains elusive.

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<sup>47</sup> Aerospace Medical Association. *Position Paper*.

<sup>48</sup> John L. Jordan, MD, JD. “The Federal Air Surgeon’s Column. Age 60: An Enigma.” *Federal Air Surgeon’s Medical Bulletin*, Spring 2000.