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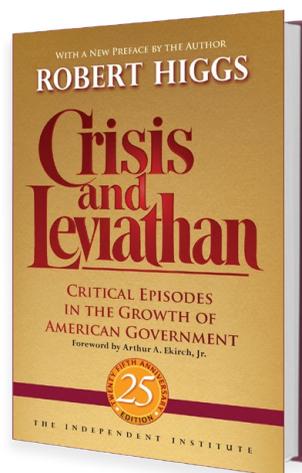
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The Failure of Federal Aviation Administration Regulation

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PAUL A. CLEVELAND
AND JARED R. PRICE

The attacks on New York City and Washington, D.C., in 2001 raised many questions about security in the United States. At that time, the nation's defenses were compromised by Islamic terrorists who commandeered commercial aircraft and used them as weapons. In view of the hundreds of billions of dollars the federal government spends on defense each year, how were these attacks possible for hijackers armed only with box cutters (see Higgs 2002)? One possible reason can be found in the bureaucracy of the Federal Aviation Administration (FAA). According to its rules, commercial airline pilots were prohibited from arming themselves on their planes. As a result, the pilots of the hijacked planes could not mount an adequate defense against even the very lightly armed terrorists. Although we cannot be certain that the airlines left to their own devices would have adopted security arrangements sufficient to have thwarted the terrorists, it is at least possible that they would have done so.

Beyond the possibility that the FAA's ban of weapons on planes compromised the nation's security in the September 11 hijacking episodes, the agency's bureaucratic control has been the unseen source of flight delays and airline inefficiencies. The U.S. airline industry has been under some kind of regulatory control almost from the beginning of air travel. In 1958, the Federal Aviation Agency, which later became the Federal Aviation Administration, was created with the passage of the Federal Aviation

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Act. In essence, Congress created the FAA as an independent federal agency spun off the Civil Aeronautics Board (CAB). The new agency was established to operate a nationalized air-traffic control (ATC) system and to adopt and oversee standardized safety requirements for air travel (Burkhardt 1967). The FAA's key functions under Title 49 in the United States Code remain the same today. Its purpose is to regulate the industry in order to promote safety and security and to develop and maintain a safe, secure, and efficient air-traffic management system. Indeed, the FAA itself claims to be an institution of nearly fifty thousand people dedicated to providing "a safe, secure, and efficient global aerospace system that contributes to national security and the promotion of U.S. aerospace safety" (FAA 2001a). However, if meeting these objectives is the FAA's mission, then it has failed in nearly every respect.

Ludwig von Mises, F. A. Hayek, and Israel Kirzner greatly expanded our understanding of the core problem of central planning. Specifically, they pointed out that central planning would always tend to fail because it could not overcome the basic knowledge problem. Whereas private planners can utilize market prices as a means of making and correcting their plans and ensuring the rationality of those plans, government planners are trapped in the plans they make because their own actions undercut the market and distort prices. Central planners typically are unaware of their own ignorance of the facts relevant to their social plans. Furthermore, because central planners, like all other planners, cannot know everything about the situation they are attempting to deal with, their working knowledge must take the form of what they think they know about the dispersed bits of knowledge that can be obtained. They use these bits to implement their social plans, unaware of other, equally relevant bits of knowledge. Because no one is omniscient, it is impossible for central planners to know where to find or even how to look for all the dispersed bits of information needed to achieve their goals. Moreover, because the central-planning approach essentially abandons free-market planning, the market prices that private planners use to such good effect are not available to, or are severely distorted by, central planners. The tragedy of central planning with regard to industrial policy is that even the best-intentioned central planner remains unaware of this problem because he does not appreciate his ignorance of his own ignorance (Kirzner 1992). In contrast, market entrepreneurs' awareness of what they do not know enables them to make progress in achieving certain objectives because they rely on observed market prices to make decisions. "[T]he insoluble knowledge problem confronted by central planners tends to dissolve through the entrepreneurial-competitive discovery procedure" (Kirzner 1992, 159, emphasis in original).

Although the FAA's mission is to provide a "safe, secure, and efficient global aerospace system" (FAA 2001a), the agency fails to achieve its goals because it lacks the knowledge required to construct a rational, comprehensive plan for their attainment. An appreciation of the knowledge problem helps us to understand why the best public policy for promoting safety and efficiency in air travel would be either to eliminate the FAA or to privatize it.

The History of Regulatory Control

From 1938 to 1978, the CAB regulated the airline industry. It had the authority to assign city-pair routes to particular airlines and to control the fares charged on those routes (Cleveland 1985). That control limited competition strictly and kept airfares well above those that would have been maintained in a free market. The CAB's rationing of routes favored certain firms and kept possible competitors out of certain markets or out of the industry entirely. Fortunately for air travelers, the Airline Deregulation Act of 1978 phased out the CAB and eliminated its control over routes, flights, and prices. After the CAB was abolished, the only regulatory control that remained was that administered by the FAA (Rothbard 1995). The Airline Deregulation Act of 1978 allowed market forces to function in a large segment of the air-travel system (pricing and routing decisions), but it failed to liberate the infrastructure on which the airlines operated daily, the airports, and the ATC system (Poole and Butler 1999).

Although deregulation remained incomplete, air-transport markets benefited greatly from the new freedoms firms had to set prices and to develop route structures. In the decade after this partial decontrol, employment in the industry grew by 32 percent and passenger travel by 55 percent. Along with these increases, the real cost of travel dropped by approximately 17 percent on the major routes. By the end of the second decade of deregulation, ticket prices had fallen more than 20 percent in real terms, and the total number of passengers had increased from 275 million to 600 million (Button 1998). Consumers saved some \$19.4 billion per year, thanks to the lower fares brought about by a more competitive marketplace (Poole and Butler 1999).

The elimination of the CAB led to a more efficient air-travel system. At first, the airlines adopted hub-and-spoke networks. Deregulation allowed firms the freedom to focus on the development of their own operations and gave them the ability to explore better operating systems. When route structures were controlled, the airlines had been coerced to operate linear systems: route awards were given on east-west or north-south corridors. With decontrol, the airlines began to employ hub-and-spoke delivery systems that offered greater flexibility and generally utilized their equipment more efficiently. They found that consumers benefited in terms of travel ease and flight frequency, even though most routes required one stop. Through the entrepreneurial competitive discovery process, the airlines found out that by adopting this new method of providing the service they were more efficient and could provide their service at substantially reduced prices.

The hub-and-spoke delivery system thereafter became the standard by which the major airlines operated. Even today, major U.S. airlines have hub airports in certain cities, and the airlines channel passengers through these hub airports to their final destinations. Adoption of the hub-and-spoke system resulted in cost savings to airlines by allowing them to fill a greater proportion of their seats—load factors rose substantially above their levels during the time of regulatory control (Bailey 1992)—and it enabled them to use their planes more hours each day. Greater intensity of use of their equip-

ment, in turn, cut the airlines' cost per passenger, and average ticket prices fell as the now more-efficient firms competed for customers. In addition, the airlines could centralize aircraft maintenance, which allowed them to employ labor more efficiently. Finally, the hub-and-spoke system gave customers more flight-time options between frequently traveled city-pair routes (Borenstein 1990). Today, the entrepreneurial process of discovery continues in the industry as airlines scramble to match the efficiency of Southwest Airlines, which has profited from its adoption of a modified system that combines a series of direct and hub-and-spoke routes.

The Current Situation: Problems Associated with Continued Regulatory Control

The ATC System

Although improvements in route structures have contributed to greater airline efficiency, tremendous inefficiencies remain in the industry as a whole, as indicated by recent data showing that more than half of all domestic flights are not on time (Carey 2000). Why has this problem arisen, and how might it be remedied? The problem stems essentially from the remaining regulatory controls. If the airlines were free of FAA control, then those airlines with continuing delay problems would be eliminated by the entry of more efficient carriers into the market. The airline industry, however, is not operating in a truly free market. The FAA has been given monopoly power over the ATC system, within which it has established security rules that must be followed at airports and aboard commercial aircraft. Inquiry into the nature of these controls reveals the reason for many of the continuing problems in the airline industry (Poole and Butler 1999).

The efficiency gains made by the airlines in the aftermath of the decontrol of prices and route structures put pressure on the ATC system. Because this system is critical to the day-to-day operations of the air-travel system in the United States, it is important that it operate effectively by employing the latest technologies and equipment if the industry is to function smoothly (Poole and Butler 1999). Currently, the FAA's air-traffic management system holds the industry captive. As the National Commission to Ensure a Strong and Competitive Airline Industry stated, "In the history of American business there has never been a major commercial industry whose minute by minute operating efficiency was capped by the daily operating efficiency of the federal government—except for the airlines" (qtd. in Kahn 1993). Because the Department of Transportation and the FAA are managed in a top-down bureaucratic style, the development and the implementation of technological modernization of the ATC system has been hindered (Poole and Butler 1999). The FAA, as it exists today, cannot provide "the industry with the state-of-the-art air traffic control system that it badly needs" (Kahn 1993). A study by Jenkins and Frechtling has found that up to half of all

delays are potentially due to the antiquated ATC system the FAA employs (Poole 1993). It has been estimated that as a result airlines lose approximately \$3 billion a year in fuel and crew time. This estimated loss does not include the several billion dollars that passengers lose in terms of the value of their time (Poole 1997).

Robert Poole has identified five principal problems with the current ATC system. First, because the system is part of the FAA, it receives its funding through annual congressional appropriations that are tied unpredictably to the federal budget process. The variability in ATC funding makes difficult any long-term planning for capital investments. Second, the FAA is subject to close oversight by several congressional committees because of the industry's public visibility. Moreover, because the agency is part of the executive branch, it is subject to oversight by both the Department of Transportation and the Office of Management and Budget. This multiple oversight results in conflicting priorities. Third, FAA employees are recruited and trained by a one-size-fits-all civil service system that was intended for filling bureaucratic desk jobs. Such bureaucrats, however, are not well suited for the business of maintaining and improving a complex, high-tech ATC system. Fourth, the ATC system has severe procurement problems and has to go through a great deal of bureaucratic red tape to make any kind of purchase to improve the system. As a result, modernization programs are predictably years behind schedule and always over budget. Finally, the FAA's roles as safety regulator and operator of the ATC system conflict with each other. As safety regulator, the agency is responsible for promoting safety, but because the ATC system is critical to that objective, in reality the FAA is basically regulating itself. The FAA has a regulatory role over the industry, but it also has to advance the health of the industry by improving the ATC system at the same time (Poole 1993).

Beyond the agency's inability to incorporate new technology, its resulting safety rules have become another source of inefficiency. Most flights continue to traverse the country on a limited number of straight-line paths set by areas of ground-based beacons called *vors*. The straight-line paths are additionally constrained by a safety regulation known as the in-trail separation rule, which sets a minimum distance between aircraft in the landing or takeoff queue. This regulation was implemented so that an aircraft would avoid the turbulence from the wake of the aircraft ahead. The in-trail separation rule diminishes the capacity of an airport runway from sixty operations per hour (its theoretical maximum) to approximately forty.

This issue is important because the turbulence created for a smaller plane taking off behind a larger aircraft can be devastating. In the 2001 crash of American Airlines flight 587 in New York, initial reports indicated that such turbulence played a significant role in causing the structural damage that brought the plane down. In this case, flight 587 took off in the wake of a larger Boeing 747. Flight recorders indicate that the aircraft encountered two abrupt waves of turbulence. Investigators have theorized that the pilots' response to that turbulence put too much stress on certain parts of the

plane, which ultimately gave way, causing the plane to crash (National Transportation Safety Board 2002).

Global positioning systems (GPS), a technology that already exists, might allow many more planes to approach a single runway from several directions at the same time rather than in long, straight lines. This approach arrangement would allow planes to avoid the wake of other aircraft by never traveling in their paths. GPS technology would also allow pilots to select their routes in flight, which would open up a wide array of alternative options. In addition, it might increase capacity at major congested airports by as much as 50 percent and greatly expand the available air space for accommodating the growing amount of air traffic (Poole and Butler 1999). In the private sector, GPS technology has been applied already to products such as automobiles and even golf carts. If this technology can give precise yardage for golfers, just imagine how useful it might be in air-traffic navigation. Because the FAA is bogged down in bureaucracy, however, GPS navigation in aviation remains a futuristic dream. Today, the agency's current plan aims to have such a system fully operational by 2007 (FAA 2001b). The current plan notwithstanding, GPS integration by 2007 is probably just the agency's hopeful guess and most likely will not be realized until years later.

If the ATC system were privately managed, economic incentives would drive technological change, and use of GPS navigation would be adopted quickly. Made up of investor-owned firms, the ATC system would be able to raise capital in financial markets to fund an investment that would be paid for rapidly from revenues garnered by charging airline user fees (Poole 1993). Profit incentives would motivate firms to use their entrepreneurial insight to discover and implement new technology quickly and effectively. More than fifteen countries have switched from government-controlled air-traffic management systems to commercialized systems. They have reaped "the benefits of faster technological modernization, reduced delays, and lower costs over time" (Poole and Butler 1999). In the United States, however, because of central planning, the entrepreneurial competitive discovery process has been displaced by a central plan that kills the market's ability to get past the bureaucracy that prevents the adoption of a more efficient ATC system.

Safety

Although government regulation has resulted in several efficiency problems in the airline industry, nothing has raised more doubts about the FAA's ability to ensure aviation safety than the September 11, 2001, hijackings. People flying on airlines want to obtain services that are safe and dependable, and they would like to have reliable assurance of quality and safety. Can the FAA formulate and enforce regulations that assure both quality and safety with its top-down bureaucratic style (Klein 1998)? In view of the September 11 events, the evidence would seem to indicate that the cur-

rent system has major flaws and that safety assurance is questionable. One of the major problems is that the present system muddles liability. For events such as the September 11 attacks, the airlines can blame the FAA and say that they were only following the agency's orders, and the FAA can blame the airlines for not enforcing its regulations well enough. When everyone is in charge of security and safety, in effect no one is in charge (Hudgins 2001).

One likely factor in the airlines' failure to thwart the terrorists was that the FAA did not allow them to protect their property by arming their employees. Box cutters were the most deadly weapons on the planes used in the attacks because the FAA prohibited the pilots from being armed. As a result, the hijackers easily commandeered the aircraft. Had the pilots or the cabin crew had access to superior weapons, they might have been able to use them to protect their lives and the airlines' property. However, "Title 14, Code of Federal Regulations, Part 108.11 only allows armed planes with the approval of the FAA" (Tucker 2002). Because the FAA has not allowed guns on planes since the end of Nixon's sky-marshal program in 1973, airplanes have been susceptible to hijacking for years. This situation provides a clear example of the basic knowledge problem of central planning. Jane Garvey, an FAA administrator, reported to the *New York Times* (September 25, 2001) that permitting guns on planes was not even considered and never would have been approved before the attacks of September 11 (cited in Tucker 2002). Although the FAA briefly considered altering its rule, it nevertheless stood firm and decided to continue its ban. This action is precisely the kind of know-it-all thinking engaged in by central planners who refuse to acknowledge their own ignorance. Although Congress has overcome this ban by authorizing a trial period during which a small number of pilots will be armed, this authorization is more a political gesture than a substantive policy reversal.

If safety is to be enhanced in the industry, institutional changes must be made in order to provide better incentives for the provision of security by clarifying the assignment of liability (Poole and Butler 2001). The airports, which are largely government owned and government operated, need to be privatized and put in charge of their own security. This action has been taken in several other countries, where the airports are legally liable for any security lapse (Hudgins 2001). This arrangement would create a vested interest for airports to provide the most efficient and effective security possible, through the most innovative firms, because they would be financially responsible for their failures (Murphy 2001). Because of the basic knowledge problem, we do not know what the best airport-security measures will be, but we know that they can be discovered more readily through the competitive entrepreneurial process.

Today, the FAA is not being held responsible for failure, so liability is obscured. Liability for certain failures ought to be clearly identified beforehand. Instead, the FAA now is getting more involved in aviation safety and security, muddling the liability question even further. The FAA's approach to providing safety and security in the

industry has not changed essentially. The agency intends to maintain its monopoly over the ATC system and to beef up its security screening system at the airports while continuing its ban on weapons aboard aircraft. Such government-imposed monopolies only assure resistance to innovation while maintaining inefficient operational methods.

For example, consider how the ATC system undermines safety and security in air travel. In particular, the operational inefficiencies in the system also pose a significant threat to the safety of the traveling public. The ATC system has created safety hazards for years. It currently uses archaic radar and 1960s mainframe computers that run on vacuum tubes. The equipment is so antiquated and prone to failure that the FAA has to preserve safety margins by “artificially increasing the spacing between flights, imposing ground holds, and using other techniques that reduce system capacity” (Poole 1997). The obsolete ATC equipment, in conjunction with the increase in air traffic since 1978, has been the source of the increase in the number of collisions and near misses on runways (McKenzie 1991). The FAA’s monopoly of the ATC system has tended to undermine the safety of everyone involved in air travel.

The FAA is also undermining safety by promoting a perimeter shield at airports and thus obscuring the assignment of liability. In a free market, consumers would not have to keep up with the safety records of airlines. The insurance providers in the industry, the ones with the most liability, would have a vested interest in monitoring their clients. Insurance companies would check to make sure that the airlines complied with the insurer’s safety standards. If certain airlines failed to do so, then they would suffer direct financial penalties in the form of larger insurance premiums (Murphy 2001). The FAA lacks both financial liability and profit motive, so it also lacks incentive to provide the best safety standards, and its safety and security programs fall far short of those that private institutions would have adopted (Klein 1998).

Despite the failure of its safety and security measures, the FAA remains determined to continue to follow the same path it has been treading and has argued effectively before Congress that if it had more control over the process, greater safety and security would be achieved. As a result, Congress has decided that passenger screening should be an FAA function. Turning this job over to a federal bureaucracy gives rise to several problems. First, federalizing passenger screening does nothing about regulating access granted to private employees of the airport. Federal investigators have been able to get around the perimeter security of airports and onto the tarmac one out of three times in the past. Second, under a federal civil service bureaucracy, the ability to attract and keep competent workers is limited. The rules that govern the hiring and firing of employees of government agencies are known to be far more cumbersome than those used by private businesses. In addition, the incorporation of new technology is hindered. Even when it can be incorporated, dismissing the civil service workers whom the new technology renders redundant is difficult. Third,

under the federal government's one-size-fits-all security plan, accommodating all airports is difficult because of their varying sizes and designs (Poole 2001).

The recent federalization of airport security under the FAA will turn out to be a new source of compromised safety and greater inefficiency in the industry. The only difference between the system that failed on September 11 and the new system is that the new one is more thoroughly owned and operated by the federal government, so it will be even more bureaucratic and will further obscure liability. The government's one line of defense is to screen all passengers time and again at the airports. In the past, once travelers passed through metal detectors and their baggage cleared the X-ray machines, they were considered to be in a weapons-free zone and thus deemed "safe." The only change made in the system is that now passengers are subject to additional searches before they board aircraft, which makes the whole process that much more cumbersome. In this system, each traveler is assumed to be a potential hijacker and treated as such. Treating everyone as a possible terrorist makes the system tremendously inefficient in terms of the time and money required to provide daily enforcement. The FAA's assumption that each passenger represents an equal marginal risk will do very little to increase the chances of catching real terrorists, who can observe a screening approach and look for opportunities to circumvent it (Anderson 2001).

Airports and airlines should be able to enter into voluntary contracts that determine who is liable in the case of security lapses. When private firms determine the terms of these agreements on their own, insurance companies can then underwrite the contracted liabilities on the basis of those terms. Both the airports and the airlines would have to provide adequate safety and security measures based on the requirements of the insurance companies. Both would have either to hire firms to supply this security or to provide it themselves. Consumers would not have to worry about quality and safety assurances because the insurance companies would have a vested interest in making sure that airports and airlines were meeting certain standards. The airports and the airlines, in turn, would have a vested interest in providing quality and safety because the underwriters of the risk would penalize them financially in the form of higher insurance premiums if they failed to do so. Competition and the entrepreneurial discovery process in the free market would drive all the firms involved to provide the most effective and efficient safety measures at the lowest cost to the consumer. However, because the FAA mandates the imposition of its own safety and security system and because it is not financially liable for the failure of that system, there is little likelihood that its system will be safe, secure, or efficient. The agency has no real incentive to change its plan even in the face of overwhelming evidence that it has failed. In fact, the perverse political nature of the situation has allowed this bureaucracy to lobby successfully to expand its size and to extend the range of its control even though it had already failed miserably. As long as a government agency remains in charge of the efficiency and safety of the aviation industry, we can expect increasing flight delays and more disasters like the one on September 11.

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