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PRIVATIZATION OF AIR TRAFFIC CONTROL SERVICES IN THE UNITED STATES:
A COMPARISON OF PAST GOVERNMENT PRIVATIZATION EFFORTS IN THE UNITED
STATES AND OTHER COUNTRIES

by

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for the degree of

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The Faculty Advisor under whom the work has been done and is hereby approved, has read this independent study, submitted by Daniel Lindsey, in partial fulfillment of the requirements for the Degree of Master of Science from the University of North Dakota.

(Dr. Kim Kenville, Advisor)

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Abstract

The privatization of air traffic control (ATC) is one possible way to reduce the cost, increase the efficiency, and speed the innovation of ATC in the United States. However, studies from other countries in which ATC services have been privatized show mixed results in these areas and have often involved imposing some kind of fee-for-service pricing system. Furthermore, analyses of privatization efforts in other areas of government demonstrate that such efforts have been controversial and have not always resulted in lower service delivery costs. Therefore, a possible alternative would be to focus on reorganizing the FAA and consolidating services such as approach controls and en route centers.

Introduction

Privatization of air traffic control services¹, though possible, may or may not provide benefits in the areas of efficiency, cost, or innovation. Ascertaining whether or not these benefits would result from privatization requires analyzing the results of other government privatization ventures and looking past ideological arguments to determine the potential costs to aviation stakeholders and the general public and whether these costs justify privatization of air traffic control services.

The central question regarding privatization of air traffic control or any other service is not whether or not it *can* be done. Instead, the pertinent question is whether or not it *should* be done. Examples of ATC privatization in other countries (Canada, the United Kingdom and Australia, for example) demonstrate that cost to the public does not necessarily decrease unless user fees are adopted and rapid adoption of new technologies can lead to service disruptions. Also, efficiency may or may not improve as a result of private-sector provision of service.

This is not to say that privatization in general cannot accomplish the goals it sets out to achieve; rather, in the specific case of ATC it may not be the best method. As will be discussed below, the efficacy of privatization depends largely on the nature of the service to be privatized and the ability of government organizations to develop strong contracts that addresses issues such as cost, acceptable outcomes, and accountability. Proponents of privatizing ATC say that cost of the service would decrease due to market pressures, efficiency would improve through removing bureaucratic barriers to hiring, staffing and pay rates, and innovation would

¹ Air traffic control services include 3 areas of service provision: terminal (tower and approach/departure facilities), en route (air route traffic control center facilities), and flight service.

improve by allowing the private company to develop and purchase technology. Opponents to privatization counter that cost has not always decreased in other countries, the possibility of reduced wages or staffing could have a detrimental effect on safety, potential user fees would depress air travel, and rapid technological development could result in service outages that impact safety.

Statement of the Problem

The problem this study intends to examine is whether or not privatizing government services actually improves efficiency of the service or decreases cost.

On the issue of cost, we might further ask: decrease cost to whom? It is possible that the cost to the government might be decreased through privatization, and therefore to the public in general through reduced taxes. But cost to individual users might increase if a fee-for-service structure was implemented, which may not benefit the public if it causes users to reduce or eliminate services that benefit the public.

Using an extensive literature review, examples of privatization of government services in the US will be presented along with their impacts on the areas listed above. The impacts of privatization of ATC in other countries will also be examined, along with the privatization of some ATC components in the US, namely Flight Service Stations (FSS) and the partial privatization of air traffic control towers under the Federal Contract Tower Program (FCT). The thoughts of ATC managers and specialists in the US and other countries will also be discussed.

Research Questions

The main research question for this study is, “Would privatizing air traffic control in the United States lead to lower system costs and greater efficiency?”

Secondary research questions would be:

- a. What is the goal of privatizing government services?
- b. What do studies on other government privatization efforts in the US demonstrate?
- c. Would there be any measurable differences between a privatized system and the current system?
- d. What are current federal air traffic controllers’ opinions on privatization?

Literature Review

According to the Congressional Research Service (2006), privatization is “the use of the private sector in the provision of a good or service, the components of which include financing, operations (supplying, production, delivery), and quality control.” Thus privatization can take many forms, such as hiring a private janitorial company to clean a federal courthouse, a state Department of Motor Vehicles branch purchasing office supplies from a local vendor, the US Air Force contracting with Boeing to design a new aircraft, or the Department of Justice contracting with a software company to develop a new database program. In some cases, such as with Flight Service Stations, the entire service is contracted out to private companies.

The ideological underpinning of privatization is that the private sector will result in less cost for taxpayers and will be more efficient due to the nature of market forces and competition. Sclar (2000) says that this belief is rooted in the concept of the standard market model, an economic model that assumes a level playing field for all actors (buyers and sellers) and an inherent drive towards profitability and efficiency through competition and market forces. Though interesting in a theoretical sense, the standard market model may not be ideal for describing real-world economics:

The gaping intellectual hole in this formulation is that it is too simple...in a world where market information is less than complete, markets are less competitive than the ideal, and market participants are complex organizations instead of individuals, the model provides no way to predict how these complex actors will respond to any given market signal...Basing a policy intended to change organizational behavior on a theory that disregards all real-world complexity can and...does lead policy makers to use public contracting inappropriately (47).

In other words, the standard market model assumes a level playing field but in fact some players have access to information that others do not, one company may be better positioned to provide a service than another, or any number of other inequalities can exist in the real marketplace.

Many services at all levels of government (federal, state and local) either have been privatized or are being considered for privatization. Examples include state highway maintenance in Massachusetts (Sclar, 2000), prisons in Arizona

(Isaacs, 2012 and Kenny and Gilroy, 2013), Flight Service Stations, and firefighting services in Scottsdale, Arizona (Sclar, 2000). Privatization of other government services such as Social Security and Air Traffic Control have also been proposed in recent years.

From 2000 to 2006, spending on federal contracts to private companies increased from \$256 billion to \$415 billion, an increase of 69.1% (Edwards and Filion, 2009). In the same time period, Edwards and Filion (2009) found that contract employees increased from 1.4 million to 2 million, compared to 2.7 million federal employees, demonstrating that 43% of people doing work for the government were actually employed by private businesses. What have been the results of some government privatization efforts at the local, state and federal levels?

Arizona Prison System

Arizona began privatizing its prison system in the early 1990s as a response to overcrowding and increasing costs of inmate care, facility maintenance, and the construction of new facilities. Due to inexpensive land and favorable politics, several private prison operators soon opened facilities in Arizona. Other states also began transporting prisoners to Arizona in order to ease their own overcrowding problems. By 2010 just over 20 percent of Arizona's prisoners were housed in private facilities (Isaacs, 2012).

Controversy has resulted over the cost of the privatized prison services. According to studies by the Arizona Department of Corrections (ADOC), in 2008 the

state overpaid private prison operators by \$248,098 for minimum security prisoners and \$3,577,580 for medium security prisoners² for a total loss of \$3,925,768. The numbers were almost the same for 2009, and in 2010 the overpayment declined, with a total deficit of \$2,736,245 (Isaacs, 2012).

New York Times reporter Richard Oppel (2011) researched the Arizona prison issue and found similar budget problems. One reason he cites is that private prisons avoid taking inmates with extensive medical requirements.

Five of eight private prisons serving Arizona did not accept inmates with “limited physical capacity and stamina” or severe physical illness or chronic conditions...None took inmates with “high need” mental health conditions. Some inmates who became sick were “returned to state prisons due to an increase of their medical scores that exceeds contractual exclusions (3). This leads to significant costs for the state government, which by law must provide necessary medical services for inmates. Oppel (2011) says that because private prison operators only take healthier inmates, state inmate medical costs are an average of one-third higher than for private inmates.

Kenny and Gilroy (2013) disagree, stating that differences between private and public budgeting and accounting systems make comparing costs difficult. They contend that these differences conceal true cost savings by not taking into account, for example, that certain risk-management and other administrative costs may come out of other state agency budgets, so while the ADOC may not spend that money from its budget, the state itself still shoulders the total cost. Kenny and

² The state retained control of its maximum-security prisons.

Gilroy also argue that the ADOC report does not provide a system-wide analysis because it only averaged costs from a handful of public and private prison facilities instead of looking at the entire system. Since costs can vary considerably from one facility to another, this results in a skewed analysis. When correcting for “many of the factors” found deficient in the ADOC study, another study found that privatized prisons were saving the state between 14.3 and 22.3 percent over the long term (Kenny and Gilroy, 2013).

This example is instructive when examining the possibility of ATC privatization because in this case a state took a previously government-operated system and contracted it out to a private company. Depending on how the numbers are analyzed, it seems the state is either saving or losing money on the deal, but obviously it is not a clear-cut advantage to the state at least in financial terms. Also, the private prison company is allowed under the contract to pick and choose which prisoners it takes in some circumstances, such as health status, and because of this has the option to reject unhealthy prisoners that will cost it too much money. This illustrates the danger of allowing a contractor too much power to do what it wants to do, as opposed to what is in the best interests of the state (and by extension, taxpayers).

Roads and Maintenance

Government at the city, state or county level often considers privatizing roads or portions of roads and contracting out for construction and other upkeep. For example, in 1992 the state of Massachusetts began privatizing highway

maintenance. MassHighway, the state organization responsible for road maintenance, estimated the total cost of the services to be privatized at \$4.08 million for Essex County (Sclar, 2000). The estimate was not disclosed when the bidding process began and bids for the contract varied considerably, but the lowest bidder at \$3.7 million was awarded the contract.

Although the governor, who campaigned on a platform of reducing government size and spending, and his administration hailed the privatization effort as a success, others found problems with the cost and quality of the work. Because of a lack of government oversight and deficiencies in the language of the contract, the private contractor was allowed to set its own work priorities, some of which included obligations to projects in other counties and states. A field audit found that some work such as mowing, sweeping, and cleaning drainage systems either was not done at all or was incompletely done (Sclar, 2000).

A State Auditor's report on the cost of privatization in Essex County determined that the state actually spent \$1.15 million more for the privatized service than if MassHighway performed the work (State Auditor's Report on the Privatization of the Maintenance of State Roads in Essex County, 1995). The governor's administration hired a private firm to do another analysis, and their findings were that the state *saved* \$2.5 million by using the contracted services (Coopers and Lybrand, 1996). Sclar (2000) finds that unresolved discrepancies in the calculation of personnel costs, estimated prices, work done by state employees versus contract employees, and the final cost of the project renders the true financial impact of the privatization effort inconclusive.

A privatization success story is the Chicago Skyway, a toll road that was sold in 1995 for \$1.8 billion for a 99-year lease (Thornton, 2007). It was jointly purchased by Macquarie Infrastructure Group of Australia and the Spanish company Cintra. Privatizing public infrastructure is popular for cash-strapped state and local governments, and with private companies that see monopolistic advantages to the “rich cash flows that roads, bridges, airports, parking garages, and shipping ports generate.” However, there can be a downside to leasing or selling public infrastructure: “[other types of contract] deals typically play out over 5 to 10 years; infrastructure deals run for decades... with captive customers, the cash flows are virtually guaranteed” (Thornton, 2007). Indeed, tolls on the Skyway could be as high as \$5 by 2017. Nevertheless, the speed of maintenance and other improvements has increased considerably in this case.

As these examples demonstrate, once again financial savings under private contract are inconclusive. Did MassHighway save or lose money under privatization? It seems to depend on who is doing the accounting. Chicago is benefiting from the lease of the Chicago Skyway, as maintenance and road improvements have been accomplished as promised. However, the city has turned over control of part of its infrastructure to a private company until the year 2094. How this will affect users over the lifetime of the contract is unclear. Will prices increase? Will the companies who made the purchase still be in business after 50, 75, or 90 years? What happens to the Skyway if the private contractor does go out of business or merges with another organization?

Scottsdale Fire Department

Scottsdale, Arizona has utilized the services of a private firefighting company, Rural/Metro, since 1948. Though many cities explore the feasibility of private firefighting due to the large costs associated with providing the service, sometimes more than 20% of a city's budget (Sclar, 2000), few have done it with the apparent success of Scottsdale.

Rural/Metro's services were retained as the city grew and the company is now the sole provider of fire services for Scottsdale and some other surrounding communities. It holds a firefighting monopoly in the area: in lieu of competitive bidding, the city negotiates an exclusive annual contract with the company. Despite Rural/Metro's long history with the city of Scottsdale, the services provided are not significantly better or cheaper than a traditional municipal fire department.

Sclar (2000) cites two studies: the first in, 1976, compared Scottsdale's fire protection costs with those of three neighboring communities and found that Scottsdale's costs were one-third to one-half less than all of the other cities. The second study, in 1989, showed that Scottsdale's costs had increased significantly and was now identical to one of the other cities and only 25-30 percent less than the other two cities. He suggests that the increase in costs reflects an increase in population density, and that firefighting service cost is dependent more on the geographical distribution of population and less on who is providing the service. Or, in other words, firefighting costs are the same in higher population-density areas for both private and public providers.

Airports

Airport privatization in the United States has not, so far, been as popular or successful as in other countries. In fact, nearly every commercial airport in the US is owned and operated by states, local governments, or municipal authorities (Poole and Edwards, 2010).

The Airport Privatization Pilot Program was largely the result of the efforts of privatization lobbyists (Poole and Edwards, 2010). Congress passed the law in 1996, which allowed up to five US airports to apply for forgiveness of previous federal grant obligations, keep the proceeds of lease or sale agreements, and receive ownership of property acquired with federal assistance. The 2012 Reauthorization Act increased the number of airports allowed under the program from 5 to 10 (FAA, 2014). One airport can be a major hub, and one must be a general aviation airport. The purpose of the program is to see what the impacts of privatization would be at the airports in the program in order to determine the benefits and costs on a larger scale.

So far only a single airport went forward with privatization under the program. Stewart International Airport in Newburgh, NY participated in the program from March 2000-October 2007 under a 99-year lease agreement with the UK-based transportation company National Express Group (Poole and Edwards, 2010). The airport did not receive the necessary 65 percent approval from its tenant airlines, and so the state of New York had to use the revenue for airport improvements and maintenance. The lease was terminated by mutual consent in part because of the revenue problems and because National Express wished to focus

more on its rail and bus services (Poole and Edwards, 2010). Airport ownership reverted to the Port Authority of New York and New Jersey.

To date, only two commercial airports are actively pursuing privatization under the FAA's Airport Privatization Pilot Program: Luis Munoz Marin International Airport in San Juan, Puerto Rico (a US protectorate), and Hendry County Airglades Airpark in Clewiston, Florida. Eight other airports, including Chicago Midway and Louis Armstrong New Orleans International Airport, have either withdrawn applications or had their applications terminated (FAA, 2014).

Privatization of airports in the US has faced three main challenges, according to testimony before the House Subcommittee on Aviation³ (GAO, 1996). First, many of the services at airports are already owned or operated by private companies, like restaurants, janitorial services, retail stores, fuel services, aircraft handling and storage, and of course airlines. In 1996, less than three percent of employees at the three major airports operated by the Port Authority of New York and New Jersey, (Newark, LaGuardia, and JFK) were public employees. Second, as recipients of federal grants, airports generally cannot use revenue for things other than capital or operating costs (GAO, 1996) and municipalities cannot use proceeds from the sale or lease of an airport for their general funds (Poole and Edwards, 2010). Therefore the sale or lease of an airport to a private company could raise significant legal challenges and would be of dubious financial benefit to the city or state in question. Third, stakeholders have concerns over what the implications of airport privatization could mean in terms of user fees. If private airports were to be

³ Testimony by Gerald L. Dillingham, Associate Director, Transportation and Telecommunications Issues, Resources, Community, and Economic Development Division.

ineligible for certain kinds of federal money, the airport would likely need to increase landing fees, fuel surcharges, rates for renting terminal gates or retail space, and so on.

Airlines, concerned about increased fees and issues related to the solvency and longevity of a privately-owned airport, as well as possibly losing influence when it comes to lease terms and construction and improvement projects at airports, have lobbied against privatization efforts, including the 1996 Airport Privatization Pilot Program (Poole and Edwards, 2010). Though unsuccessful at preventing the passage of the program, the airlines did secure a provision that requires 65 percent of airline tenants at an airport to agree to any sale or lease agreements.

FAA Flight Service Stations

In February of 2005 the Federal Aviation Administration awarded a contract for operations of most Flight Service Stations⁴ to Lockheed Martin (LM), a defense and security contractor for a 5-year contract period (with an option for up to 5 additional years). Flight Service Stations provide a number of services to pilots (primarily GA), including preflight weather briefings, en route weather information, filing and termination of IFR and VFR flight plans, and assistance with search and rescue. LM began providing services on October 4, 2005,

The FAA expects to save \$1.7 billion to \$2.2 billion (Department of Transportation [DOT], 2007) over the life of the contract, an estimated 20 percent savings over FAA-provided service (Durden, 2005). However, after LM faced

⁴ The FAA retained control of FSS in Alaska.

numerous problems rolling out the service the company requested an additional 10 percent above the contracted price from the FAA, or about \$170 million (Durden, 2005). In addition to guaranteed rates paid under the contract, LM can earn bonuses for meeting operational objectives: for example, in 2006 the company earned an additional \$6 million for meeting some of its performance objectives. However, LM can also be fined for not meeting objectives: that same year, the company was fined \$8.9 million for failing to meet other key performance measures (DOT, 2007).

The savings over FAA-provided service stem from consolidation of 58 FSS facilities to three hub facilities and 15 stand-alone facilities, a modernized end-to-end computer operating system for processing flight plans, weather information and communications across all FSS facilities and hubs, and eliminating approximately 900 employees as a result of the new computer system and facility consolidation (DOT, 2007).

Since 2005 the service has improved greatly and LM was awarded a contract extension worth \$221 million for two years (Marketwatch, 2013), but at the beginning of the initial contract period the transition did not go smoothly. Department of Transportation (2007) found that LM was not meeting 13 of 21 performance measures. Issues included inadequate staffing and long delays in developing and implementing its new computer operating system. Despite the operating system not being completely operational, it was taken live and the result was lost flight plans, dropped phone calls, incomplete weather briefings, and other problems (DOT, 2007). As of 2007 most issues had been resolved and the system now appears to be working as intended.

The FAA retains regulatory authority over LM. It regularly reviews recordings, evaluates facilities, audits weather briefings, and oversees a group of Quality Assurance Evaluators who ensure LM is meeting service objectives (Washington, 2007). As mentioned above, the FAA has the authority to provide bonuses and levy fines if LM meets or falls short of performance objectives. An example of performance measures is abandoned calls: by the contract, the abandoned call rate is 7% or less (Washington, 2007). This kind of oversight is important because as DOT (2007) points out,

Although the Agency [FAA] has outsourced the day-to-day operations of its flight services, it is still ultimately responsible for the services that these facilities provide to general aviation users of the National Airspace System. Therefore, FAA needs effective controls in place over its contractor to ensure that the quality of services is maintained and that the estimated savings are achieved (4).

Contracting FSS to a private entity appears to be a success story thus far, at least in terms of service provision. Flight plans are being filed, pilots are getting weather briefings, and notices to airmen (NOTAMS)⁵ and pilot reports (PIREPS)⁶ are being filed and disseminated. In terms of economic savings, however, the success of privatization is not yet known. The FAA originally estimated a \$2.2 billion savings over 10 years, but the inspector general of the DOT (2007) puts the estimate of

⁵ NOTAMS include information on airport closures, runway and taxiway construction, closed or restricted airspace, navigational aids out of service, and many other pieces of information that pilots may need to know for a flight.

⁶ A PIREP is pilot-reported weather conditions such as icing or turbulence and are of great value because unlike a forecast it is real-time information.

actual savings closer to \$1.7 billion. Still a considerable sum, but \$500 million less than previously anticipated. The inspector general also points out that most of the contract savings are “expected to be achieved in the later years of the contract,” which requires the FAA to be vigilant to ensure that savings estimates are being met during each year of the contract. Interestingly, Washington (2007) anticipates the savings to be achieved over a 13-year period instead of the 10 provided by the contract (5 years guaranteed, 5 optional).

The greatest expense seems to be labor, which may reduce anticipated savings even further. During the period reviewed by the DOT (2007), LM had requested an additional \$102 million because it felt that the FAA had withheld actual labor costs during the bidding process. In 2006, the Department of Labor, at LM’s request, analyzed the wage rates for Flight Service Specialists and issued a pay scale that significantly increased pay for newly-hired specialists. The FAA appealed the decision but that appeal was denied in 2007. LM is expected to continue seeking adjustments to the contract for issues relating to labor costs (DOT, 2007). The actual transition from FAA to contractor-provided service also incurred significant cost, \$150 million in 2005 alone (US House of Representatives, 2006), further eroding actual savings of the privatization effort. The final cost savings will not be known until the end of the contract period.

Federal Contract Air Traffic Towers (FCT)

The FAA began the FCT program by contracting out a five small VFR towers⁷ in 1982. The program grew in following years, to 27 towers in 1993 and to 250 towers in 2012 (Guzzetti, 2012). FCTs are a mixture of towers fully funded by the FAA, some that operate under a cost-sharing program⁸, and a handful operated by the Air National Guard.

Controllers at contract towers must be FAA-certified and meet certain eligibility requirements such as maintaining medical certification. They must also adhere to applicable FAA regulations. Contract controllers are typically retired FAA controllers⁹, ex-military controllers, or controllers who have left the FAA for other reasons (T. Baribeau, personal communication, January 17th, 2013). Each facility is evaluated for safety and regulatory compliance and facility managers must conduct regular internal audits that evaluate operations and performance.

The contract period from February 1, 2010 to September 30, 2014 was worth almost \$600 million, \$138 million of which was requested for FY 2013 (Guzzetti, 2012). The Congressional Research Service (Moore, 2000) found that the FCT program saved the FAA \$250,000 per tower in yearly operating costs. An Office of Inspector General Audit Report in 2012 (Guzzetti, 2012) found that “the average contract tower [costs] about \$1.5 million less to operate than a comparable FAA tower.” The American Association of Airport Executives (2013) says that in FY

⁷ A VFR tower is one that provides strictly VFR services to aircraft. Controllers cannot provide any services such as vectoring or provide IFR separation services. IFR aircraft may still land or depart from the airport and the airport can have instrument approaches, but all IFR services are provided by the approach control or ARTCC that has jurisdiction outside the tower's airspace.

⁸ Under this program, an airport sponsor must provide some funding for the tower and the FAA must provide at least 80% of the remaining costs based on a cost-benefit ratio analysis. Cost-sharing allows towers to operate that would not otherwise qualify under the contract program.

⁹ FAA-employed controllers are required to retire at age 56, but this restriction does not apply to contract tower controllers.

2012, the FCTs “handled 28 percent of all US tower operations (14.8 million operations¹⁰), but accounted for just 14 percent (approximately \$133 million) of the FAA’s overall budget allotted to air traffic control tower operations.” The US Contract Tower Association (USCTA, 2013) cited a study showing that “the typical low-activity FAA tower costs 3.77 times as much to operate as a comparable contract tower.”

Air Traffic Control in Other Countries

Several countries have privatized their ATC services to varying degrees, including Canada, Australia, the United Kingdom, Australia, New Zealand, and Switzerland. Whether these systems are successful or not depends on the study in question.

Adams (2005) finds that amongst Australia, Germany, New Zealand and Switzerland, “two indicated a decrease in ATC operating cost, one subject showed an increase in ATC operating cost, and one subject showed no change in operating cost.” Others disagree with the findings on cost. NATCA (2002) and Sclar (2003) point out that the UK system was bailed out twice by the British government, at a cost of \$131 million. Staffing shortages in the UK resulted in “a single case of a controller on sick leave [that] precipitated the closure of a 200-mile belt of airspace” (NATCA, 2002). Sclar (2003) adds that in Canada user fees for passengers have increased to \$22 per segment in 2002. He also notes that “cost saving work rules have so infuriated controllers in Australia that a series of strikes have crippled air

¹⁰ An operation is a landing, takeoff, or overflight of an aircraft through tower airspace. An aircraft that does 3 touch-and-go’s would therefore count as six operations: one for each landing and one for each takeoff.

traffic movement for hours at a time,” and problems with new technology there have led to radar blackouts and traffic disruptions.

Management and labor representatives from Canada, the United Kingdom, and Australia discussed some issues relating to privatization at a recent conference in the United States¹¹. Dr. David Harrison, Safety Director for National Air Traffic Services UK (NATS) said that both service and safety had improved since the privatization of the UK system, citing around twelve losses of separation per year prior to 2001 and only one since then (NATCA, 2014). John Crichton, President and CEO of NAVCANADA said Canada went from a system plagued by wage freezes, cost overruns, and service deterioration to one that is more stable and self-sustaining. Despite conflict during the first few years of privatization, relations between labor and management have improved significantly, with a more-engaged workforce and a strong labor contract. Crichton said safety under the new system had improved by at least 50% (NATCA, 2014), although he did not elaborate on exactly what was wrong before or what had improved. Greg Hood, General Manager of Airservices Australia, did not comment specifically on safety after privatization versus before but did say that Airservices Australia and the controller’s union there have been making a great deal of progress on changing institutional culture as it relates to safety (NATCA, 2014).

Each member of the panel was asked about myths surrounding government versus private sector service provision. Harrison (UK) said people believed that the private company would be less safe than the government, but the opposite

¹¹ Communicating for Safety 2014, in Las Vegas, held on March 24-26 2014.

happened. He also said people were worried about funding, but that improved as well. Crichton (Canada) said people were afraid the private sector “would screw it up” (NATCA, 2014). Greg Myles, President of the Canadian Air Traffic Control Association, the union representing controllers there, said his members were worried about job security and lay-offs, but those issues did not materialize. Daryl Hickey, President of Civil Air Australia, a controller’s union, said people were concerned about safety oversight and regulations but that those areas are improving.

In each of those three countries, the government mainly serves as safety regulator of the private organizations. Each organization is slightly different in how it operates. NATS is a public/private partnership with the UK’s Civil Aviation Authority and is a board-governed, profit-making entity (in fact none of the ATC providers in these countries are non-profit). NAVCANADA is a non-share capital organization, which means there are no shareholders but the company is free to make as much profit as it likes providing that money is used within the organization (NATCA, 2014). Airservices Australia is expected to provide a profit for the Australian government (NATCA, 2014). All three organizations are funded through user fees.

User Fees

“User fees” basically means the user of a service pays directly for that service, just like buying a product in a store. Currently in the United States, airline passengers and aircraft operators do not pay the US government anything extra for

the air traffic control services they receive during their flight. All citizens pay for the service indirectly through income and other taxes paid to the federal government. Some find this arrangement unfair, and believe the people who utilize the service should be the ones who pay for the service. One counter-argument is that ATC is an enabler of economic activity from which all citizens benefit, and it is better for many people to pay a small amount than for a few to pay higher prices.

User fees are one possible way for a privatized ATC system to be funded, though they are not the only way. As discussed above, Lockheed-Martin with Flight Service and the companies that operate Federal Contract Towers are paid by the federal government out of tax revenue. But the strongest argument for a cheaper, more cost-effective ATC system seems to be a move to user fees, which is what has happened in other countries.

Robert Poole of the Reason Foundation, a libertarian think-tank, says “shifting from aviation taxes to direct user payments for ATC services is the *essential precondition* for commercialization [another term for privatization]. It frees ATC from the federal budget process and other federal constraints, while providing a bondable revenue stream to facilitate needed modernization investment” (Poole, 2006). In his view, funding from the federal government through a contract is not enough because this renders the private organization vulnerable to government budget problems, such as what happened during the government shutdown in 2013¹². Other nations seem to agree with this view.

¹² During the shutdown, federal contract towers were nearly closed since even though they are operated by private companies, their funding still comes from the federal government.

NAVCANADA and Airservices Australia assess a number of different fees, depending on whether an aircraft is IFR or VFR¹³, operating in certain classes of airspace, or operating out of certain types of airports. Charges are broadly based on aircraft weight¹⁴, distance flown, and if under VFR or IFR. Airports in those countries charge also landing fees based on weight. In Australia each airport has different landing fees. For example, Melbourne, as of 2008 charges \$5.06¹⁵ per metric ton (Airservices Australia, 2010). It should be noted, however, that Australia's largest airports (Adelaide, Brisbane, Melbourne, Perth and Sydney) charge a minimum landing fee of \$21.00 (thus large aircraft benefit from a lower per-ton fee but small aircraft pay higher fees). Instead of going airport-by-airport, Canada assesses a Terminal Service Charge that is calculated using a base charge multiplied by the aircraft's weight in metric tons. The current base charge is \$23.90 (NAVCANADA, 2013) and is applied only at the departure airport.

There are other charges as well. In Canada, owners of Canadian-registered propeller aircraft must pay annual charges based on the aircraft's weight, from \$68 for aircraft weighing 0.617 to 2.0 metric tons, to \$227 for those weighing 2.0 to 3.0 tons. In addition, these kinds of aircraft operating out of Canada's large airports (Calgary, Edmonton, Winnipeg, Toronto/Pearson, Ottawa/Macdonald, and Montreal/Trudeau) must pay an additional \$10 per day when arriving or departing at those airports (NAVCANADA, 2013). Propeller aircraft over 3.0 metric tons and small jet aircraft can opt to pay either a daily charge or movement-based charges.

¹³ Visual Flight Rules or Instrument Flight Rules, different regulations depending on weather conditions and different levels of control and separation responsibility on the part of ATC.

¹⁴ "Weight" is defined as maximum takeoff weight.

¹⁵ All prices listed are in native currencies.

The daily charge for propeller aircraft ranges from \$42 to \$2421 depending on the aircraft's weight, up to 21.4 metric tons, and small jet aircraft are charged \$159-\$333. (NAVCANADA, 2013). No charges are listed for aircraft weighing more than that, so this author assumes that for propeller aircraft weighing more than 21.4 metric tons and jet aircraft weighing more than 7.5 metric tons there is no daily charge, only movement-based charges.

"Movement-based Charges" are fees assessed based on a base rate, times the aircraft weight, times the distance flown (in kilometers). The base rate is \$0.03445 (NAVCANADA, 2013). So for a King Air 200 with a maximum takeoff weight of 5.67 metric tons flying 200km, the charge would be \$39.07. However, NAVCANADA deducts either 65 km or 35 km from the enroute distance depending on what ATC services are provided and the arrival and departure airport. So in this example if the King Air was departing from an airport with approach/departure services and arriving at an airport without those services, 100 km would be deducted from the enroute charge for a final enroute fee of \$19.53. The King Air would be subject to the Terminal Service Charge (TSC) at the departure airport, which again is \$23.90 times the aircraft weight. For the King Air, it is $\$23.90 \times 5.67$ which yields \$135.51 for the departure airport, for a total trip cost of \$155.04.

NAVCANADA (2013) includes some examples of larger aircraft charges. A Boeing 747-400 roundtrip from Seattle to London transiting Canadian airspace would be assessed oceanic and enroute charges for a total of \$5416.32. An Airbus 319 roundtrip from Calgary to Vancouver would be assessed enroute and a TSC for a total of \$1,750.50.

Australia's fees are somewhat different. Instead of a one-time TSC, Airservices Australia charges landing fees for each landing, practice instrument approach, and practice instrument approach followed by a landing (Airservices Australia, 2010). Their "Charges for Facilities and Services" guide lists each airport along with the charge, which is based on aircraft weight, as stated above. For example, as of 2008 landing at Darwin airport costs \$2.26 per metric ton (Airservices Australia, 2010). So if our King Air 200 landed there, the charge would be \$12.81. Darwin has an ILS¹⁶, so for a hypothetical training flight in which our King Air flies three practice ILS approaches the total charge would be \$38.43. At Melbourne, with a charge of \$5.06 per metric ton (Airservices Australia, 2010), the same three practice ILS approaches would cost \$86.07. At Essendon airport, where the landing fee is \$12.69 per metric ton (Airservices Australia, 2010), the practice session would cost \$215.86.

Airservices Australia (2010) also assesses a fee for Aviation Rescue and Fire Fighting (if available at the airport in question) based on aircraft weight in metric tons for each landing, practice instrument approach, or practice instrument approach followed by a landing. Our King Air would therefore be assessed an additional fee of \$1.81 per landing at Darwin (for a total of \$43.86) and Melbourne (\$91.50), but not at Essendon because no such service is available at that airport.

Australian enroute charges are assessed whenever all or part of a flight is conducted under IFR. No enroute charge is assessed to VFR flights (Airservices Australia, 2010). The formula for aircraft weighing up to 20 metric tons is the base

¹⁶ Instrument Landing System, a system that allows aircraft to navigate to a runway in low-visibility conditions.

rate x distance/100 x weight. For aircraft over 20 metric tons: base rate x distance/100 x square root of weight. The King Air 200, weighing 5.67 metric tons, would be charged under the first formula. For a flight from Melbourne to Brisbane (1266 km), the charge would be $\$0.93 \times 1266/100 \times 5.67$ for an enroute charge of \$66.76. Airservices Australia, like NAVCANADA, deducts a portion of enroute charges (55 km) based on whether control services exist at the departure or arrival airports. In our example, 110 km was deducted for the departure and arrival airports. If an IFR aircraft takes off and lands at the same airport with no landings anywhere else, it is charged for a 100 km flight.

Operators of aircraft weighing less than 2.5 metric tons can opt for a “Light Aircraft Option” annual payment based on the number of flights an aircraft operator expects to make. The payment covers either the terminal navigation facilities and services or both the terminal navigation facilities and services plus enroute charges and range from \$87-\$2070 (Airservices Australia, 2010).

The effect of user fees, at least in Australia, has been profound. Since 1990 hours flown per year for private/business flights have decreased from approximately 575,000 in 1990 to 400,000 in 2003 (Matthews, 2007). Some aircraft owners object to the multitude of fees, which also include \$145 for a required Aviation Security ID Card and \$75 for a medical certificate, on top of whatever the aviation medical examiner charges (Matthews, 2007). Due to the fee-for-service nature of aviation in Australia, Airservices Australia is very aggressive with inspections, audits, and enforcement, with fines for any infractions found.

Additionally, “any breach of Australian aviation law is administered under the criminal code” (Matthews, 2007).

At present, the US Government assesses the following basic taxes for domestic aviation: a 7.5% Domestic Passenger Ticket Tax (based on ticket price), a Domestic Flight Segment Tax (\$3.90 per passenger, per segment as of 2013 and not applicable at certain airports), a Domestic Cargo/Mail Tax of 6.25%, and fuel taxes. Fuel taxes are charged as follows: a General Aviation Fuel Tax of \$0.193/gallon for avgas, \$0.218/gallon for jet fuel, and \$0.141/gallon for fractionally owned aircraft. Finally, a Commercial Fuel Tax of \$0.043/gallon.

The King Air 200 from the examples above, operating in the United States, would be subject to fuel taxes and possibly other taxes if it is used for passenger or cargo services, but would not be subject to any other fees for air navigation services.

Tax revenue from the 7.5% ticket tax has been steadily declining as airline ticket prices have dropped over the past several years, negatively impacting the FAA’s budget (Poole and Edwards, 2010). Poole and Edwards (2010) and Poole (2006) argue that increasing federal funding to the FAA is virtually impossible due to the political situation in Washington, nor is it desirable because of the potentially negative impact it could have on the federal budget. Of course, politicians generally are reluctant to increase taxes and the various aviation taxes listed above are no exception.

Would a shift to user fees cost travelers and aircraft operators more or less than the current tax structure? This is a significant question, as we have seen a steady decrease in business aviation in Australia since user fees were introduced

there. Indeed, in the US, “the underlying concern is that replacing the traditional fuel tax with fees based on the cost of service and the amount used would increase the cost of flying, putting the viability of general aviation at risk” (Poole, 2006, 15). In his analysis of the potential impact of user fees on business jet travel, Poole (2006) found that the costs would vary if a weight/distance model is used, such as in Canada or Australia. For corporate-owned jets user fees would be higher in every kind of fee structure considered. For fractionally owned jets the costs would usually be less, and charter users would pay less under each fee structure considered. Despite the cost increase for corporate users, he proposes that better air route structuring and increased efficiency of a privatized ATC system would reduce overall operating costs for all users by reducing delay and consequently flight hours and fuel consumption:

...a fee structured like that of NAVCANADA could cost [fractional and charter] users about one-third less per year than the current aviation excise tax structure. And even for business jets that are part of a corporate fleet, that type of ATC fee would be a break-even proposition, compared with today’s fuel taxes, if the new [NextGen] ATC system reduced unnecessary flight hours by as little as 3 to 5 percent (23).

He further contends that “nearly all current user-fee proposals call for no ATC fees for the vast majority of piston planes...for recreational flying and mostly under VFR” (Poole, 2006, 31). However, as shown with Canada and Australia, those aircraft can and are charged a multitude of fees.

The impact of user fees in the United States is uncertain at this time. All we know is that in other countries they have resulted in higher airline ticket prices and sometimes steep charges for general aviation users, and in Australia in particular, a steady drop in general aviation flight hours.

Discussion

The results of this study as it relates specifically to ATC privatization are inconclusive for several reasons. Differences in how private companies and public agencies conduct their accounting and measure outcomes make it hard to judge specific numbers when it comes to claims about costs or savings. The highly partisan nature of the debate surrounding privatization also makes it hard to evaluate the implications of some findings, and it requires readers to carefully consider who undertook a particular study and what they or their organization are trying to demonstrate. The fundamentally different missions of private companies and public agencies also make it challenging to judge outcomes, as discussed below.

What is the goal of privatizing government services?

Privatization advocates cite two basic goals for moving government services to the private sector. The first is to reduce the size of government; the second is to provide an economic benefit. Some more extreme individuals believe that reducing the size of government should be the ultimate end regardless of the economic impact. But for the most part advocates, who tend to fall on the conservative end of the political spectrum, believe that reducing the size of government inherently

creates an economic benefit because market forces would stimulate businesses to provide the best and cheapest products and services for consumers. Liberals, for their part, tend to believe that government is a force for economic equality through market regulation, the provision of services to poor or disadvantaged groups, and by maintaining infrastructure, such as roads and bridges or airports and airways, that is vital to the national economy and national security.

Kosar (2006) lays out the fundamental issue faced by the public when it comes to privatization of government services:

Under the American theory of governance, political power originated with the people, who erected government and entrusted it to use this power in accordance with the law. Thus, the responsibility of those employed by government is to act in accordance with this fiduciary relationship...any effort to shift bureaucratic functions to the private sector may risk transferring away some governing discretion into the hands of private parties who are not accountable to the public and may not have its interests at heart (10).

And furthermore,

The private sector firm...has one essential goal: to pursue profits; all other goals are subordinate. Thus, it faces strong incentives to undertake activities that promote this essential goal. This can prove beneficial to the government, should the private firm devise more efficient means of production and develop new products and services. This might also

negatively affect the government, should the private firm lower its costs of production by reducing the quality or quantity of the product or service (21).

It is tempting to argue that a private firm providing a contracted government service would never reduce quality or quantity of a service because other firms in the market would force it to remain competitive or risk losing the contract to someone else, but Sclar (2000) cautions that this is often not the case. He describes what is called the “yellow pages test:” can one open a phone book and find a list of companies that provide a service and can compete with one another for a contract? For things like janitorial services, landscaping, computer maintenance and so on, the answer is likely yes. For other kinds of services, such as cable TV providers and waste management, the answer is probably no. Sclar refers to these kinds of services as “inherently monopolistic.” Take wastewater treatment, for example: “because a wastewater treatment plant represents an enormous fixed capital investment, it is most economical to construct a single plant large enough to serve an entire community. A municipality does not build lots of small plants” (Sclar, 2000).

Even if it did, the logistics of customers moving wastewater to the treatment plant of choice would hardly be economical. And so a municipality that wishes to contract out wastewater treatment is essentially creating a private monopoly. In the event that the private firm mismanages the service or fails to deliver on provisions of the contract, the municipality has few alternatives to rectify the problem. It could “fire” the private firm, but then what? It would bear the brunt of

citizen dissatisfaction and would ultimately have to try and provide the service itself or find another company to take over the contract. A likely result of this scenario is that the municipality would not terminate the contract, but would “bail out” the private firm to get services back on track, especially given the nature of wastewater treatment: the municipality would not be able to let such a critical public-health service deteriorate very far before acting. The contractor might face few, if any, consequences for its failures. In short, the municipality bears almost all of the risk of the contract while the private firm receives the benefits.

Sclar (2000; 2003) proposes that privatization is appropriate when the service to be contracted out can be done competitively and with specific contract language that lays out what the private firm is responsible for, allows the government agency to have proper oversight, and provides for enforceable penalties in the event the private firm fails to abide by the terms of the contract. When a service cannot be competitively bid, government agencies should take care to ensure that privatization is really in the best interests of the public.

What do studies on other government privatization efforts demonstrate?

As the examples in the literature review show, the effects of government privatization efforts have been varied and controversial.

The Arizona Department of Corrections’ own research showed that it was losing \$2.7 million on privatization of prisons in 2010 (Isaacs, 2012) while Kenny and Gilroy (2013) found that the state was actually saving 14.3-22.3 percent. The discrepancy stems from possible differences in accounting between the ADOC and

the private firms and the controversial practice of private firms declining to accept inmates with health problems. The presence of such a discrepancy shows that spending and savings figures are anything but clear-cut. Allowing private firms to refuse prisoners with health problems could also be an example of a weak contract that allows private companies too much leeway when it comes to one of the most costly types of prisoners.

When Essex County, Massachusetts, privatized its highway maintenance as part of a state-wide privatization effort, a state audit found that the contractor was performing less work than was mandated by the contract and that the contractor cost \$1.15 million more than if the state had done the work (Sclar, 2000). The governor's office hired a private auditing firm, which found that the state had saved \$2.5 million (Coopers and Lybrand, 1996). The discrepancies here relate to how prices were estimated, how personnel costs were calculated, and how work was shared between state and contract workers.

The city of Scottsdale, Arizona has received fire protection services from a private company since 1948. Over time the service has grown in cost as the city has grown. One reason the company's costs have not increased even faster relative to surrounding communities is because its firefighters work longer hours with fewer personnel, receive less training¹⁷, and are paid approximately \$6000 per year less than publicly employed firefighters in the region. It supplements the lower staffing numbers with reservists and volunteers, but suffers a 20 percent turnover rate versus almost no turnover at other municipal fire departments (Sclar, 2000).

¹⁷ Rural/Metro's firefighters receive only EMT certification, while most firefighters traditionally receive both EMT and paramedic certifications.

Privatization of commercial airports, popular in other countries, has so far failed to take off in the United States. Though the FAA launched the Airport Privatization Pilot Program in 1996, most airports have backed out. Reasons for the lack of success thus far include the fact that most services at airports are already provided by private contractors, airports receive federal money for certain maintenance and upgrade projects that could be jeopardized if the airport was owned by a private company, and opposition from airlines and other aviation stakeholders who fear the impact that increased fees might have on passenger revenue. And as seen from an example of airport privatization in New York, private companies may be inclined to walk away from a contract if they wish to focus on other aspects of their business.

Flight Service Stations were privatized in 2005 for \$1.7 billion, a 20 percent savings over the FAA-provided service (Durden, 2005). Despite initial problems and a bailout in the form of a 10 percent funding increase, the service functions better now and the company was awarded a \$221 million contract extension last year (Marketwatch, 2013). The cost savings were derived in part from reducing the number of FSS facilities from 58 to 18 (Department of Transportation, 2007). Final cost savings are uncertain due to ongoing issues related to labor costs.

Federal Contract Towers have been in service since 1982, and today account for 251 towers in the US (T. Baribeau, personal communication, January 17, 2013). The last contract was worth about \$600 million (Guzzetti, 2012) and the Congressional Research Service (2000) found that FCTs saved the FAA \$250,000 per

tower per year. Guzzetti (2012) found that on average FCTs were about \$1.5 million less expensive than comparable FAA towers.

What explains the cost difference? In a word, labor. Contract tower controllers are paid less than FAA controllers and receive fewer benefits (T. Baribeau, personal communication, January 17, 2013). Most contract controllers are retired FAA or ex-military controllers. What this means in practical terms is that the FAA or the military has already paid for their training, so the contractor pays almost nothing; it's simply a matter of getting the person up to speed in the particular facility at which they work. Compare that to the FAA, which in most cases is hiring people with no ATC experience and needs from one to four years to fully train and certify an individual¹⁸ (J. Muse, personal communication, February 4, 2014). Guzzetti (2012), in his audit of the FCT program, likewise commented that while contract towers were cheaper to operate than comparable FAA towers, "this cost difference is primarily due to fewer staff...who receive lower salaries."

The studies on ATC privatization in other countries are anything but conclusive when examining cost, innovation, and safety. In one study, only two of four countries considered showed a decrease in operating cost (Adams, 2005). The British government had to bail out its privatized system on two occasions at a cost of \$131 million (NATCA, 2002 and Sclar, 2003). Staffing shortages, possibly a result of cost-cutting measures, resulted in airspace closures in the UK (NATCA, 2002) and

¹⁸ Training time depends on individual ability, traffic volume and complexity at the facility, availability of staff for training, and other factors.

controller strikes in Australia (Sclar, 2003) while a switch to user fees in Canada has caused surcharges anywhere from \$9 to \$20¹⁹ on passenger tickets.

User fees seem a likely result of any privatization effort in the US. What form those fees take is uncertain, but in other countries there are charges for enroute and terminal services, and sometimes rescue/fire fighting charges, based on aircraft weight and distance flown. Poole (2006) states that no fee system currently proposed includes charges for recreational/VFR aircraft, but that has not been the case elsewhere. He also believes that at least for the business jet segment of the industry, cost increases would be offset by greater efficiency of the privatized ATC system. Naturally, airlines and charter companies can pass the cost along to the consumer, but recreational pilots cannot. Poole (2006) believes that efficiency improvements from NextGen would offset any additional costs incurred from user fees, but such improvements are not necessarily guaranteed.

What all these studies demonstrate is that the benefits of privatization are unclear and so privatization of ATC as a way to reduce cost is not an open-and-shut case. In fact, it is a far more complex proposition that depends on politics, who in the private sector is able to bid for ATC, how the contract is written, the size and complexity of the ATC system to be privatized, how employees are selected and compensated, how fees are to be determined and collected, and any number of other factors. None of the studies reviewed for this paper indicated how much a fully privatized US air traffic control system would, or should, cost. The likely reason is that there is really no way to know. FCTs appear to be less expensive (due mainly to

¹⁹ According to a ticket fare search on Air Canada's website, there is a "Navigation surcharge" of \$9, \$15 or \$20, based on distance, that goes to cover fees charged by NAV Canada.

labor costs), but one FAA study showed that fully privatizing the ATC system could result in at least a 30% cost increase “if the provision of equivalent levels of ATC services were provided by private contractors” (Sclar, 2003) and, presumably, no additional fees were imposed to pay for it. What is known is the FAA’s budget, \$16.4 billion in 2011 alone, of which \$9.7 billion was earmarked for operations²⁰ (Poole and Edwards, 2010). While there is a general feeling amongst proponents of privatization that the FAA costs too much, there appear to be no estimates of what an appropriate cost would be for ATC. Likewise, privatization proponents feel that the FAA cannot implement new technologies quickly enough and they usually result in significant cost overruns (Poole and Edwards, 2010), yet it is unclear how this would improve under a private entity, especially considering that most of those new technologies are in fact currently developed and built by private contractors.

Would there be any measurable differences between a privatized ATC system and the current system?

From a service perspective, it is difficult to imagine how different a private system would be from the present system. Some organization, presumably the FAA, would still be responsible for ensuring regulatory compliance and auditing the safety and service provision of a private system. ATC clearances and phraseology would likely not change. Safety standards such as required separation between aircraft and between aircraft and terrain would not change. The way an ILS or GPS approach works would not change. Though many hope that privatization would

²⁰ “Operations” includes air traffic control and safety/certifications.

reduce congestion and improve the efficiency of ATC, Sclar (2003) points out that unmanaged growth in air travel in the US is as much to blame for congestion as any deficiency in technology or infrastructure. Indeed, right now in the US, an airline can essentially schedule as many flights as it wants into an airport and controllers are expected to just deal with the traffic. Practical limits in the system include runway capacity (a runway can handle x number of airplanes per hour under given weather conditions and separation requirements) and gate or ramp space at an airport (for example, an airline only has 12 gates available, or an FBO can accommodate only 15 aircraft). Neither of these variables changes under a privatized system, nor does it change system vulnerability to weather or security threats. The recent sabotage of Chicago ARTCC²¹ shows how fragile the “hub-and-spoke” system is to disruption, and privatization changes nothing there either.

Sclar (2003) raises another key point: “the general argument [regarding privatization] is that the FAA, as a top-heavy bureaucracy, is incapable of making the desired improvements itself, and that the private sector is the best substitute...It is not immediately obvious why the problems of one (public) bureaucracy will not reassert themselves in another (private) bureaucracy.” He states that the very *nature* of ATC means it cannot be competitively bid: it is “too infrastructure dependent and far too vital to our national interest to set up multiple competitive systems.” Therefore, by definition, a private monopoly would be set up to run ATC, and this monopoly would be insulated from the competitive market pressures that privatization advocates promote as a benefit of transferring services to the private

²¹ In September 2014 a contract employee at Chicago ARTCC started a fire in the building, causing its evacuation and the shutdown of airspace around Chicago.

sector. It is difficult, then, to see what the point would be of privatizing ATC, unless the goal is simply to reduce the size of government.

What are current federal air traffic controllers' opinions on privatization?

This author spoke to two air traffic managers, a front-line manager, and a controller for this study. One air traffic manager is at an FCT. The other air traffic manager, front line manager, and controller were at an FAA facility. Interviews with controllers at the FCT were not allowed out of concerns for staffing at the time of the interview and company policy.

Tim Baribeau, manager of Double Eagle II (AEG) airport near Albuquerque, New Mexico, a Federal Contract Tower, is a veteran controller with 35 years of experience at facilities including military towers/approach controls and several FAA facilities. Like many controllers who decide to work at contract towers, he wished to earn income in addition to his FAA pension. Like everyone interviewed for this paper, he agrees that there are no differences in services provided by contract towers, nor would pilots know the difference between a contract facility and an FAA facility. When asked whether there was an advantage to a contractor providing ATC services over the FAA, he replied, "Other than cost savings because of fewer people, I can't think of any advantage to it." Controllers at AEG make about \$60,000 per year, plus adjustments for holiday pay, overtime, night differential, and Sunday

differential. Controllers at an equivalent FAA facility would be paid about \$65,000 plus the same adjustments and locality pay²².

He cited the same numbers regarding the cost of FCTs versus equivalent FAA towers as some of the other studies discussed earlier. According to him, those savings come mainly from personnel. AEG employs only six controllers. It has none of the staff support personnel that an FAA tower would have, such as an administrative assistant, quality assurance, or staff support specialist. Mr. Baribeau must perform all of those functions himself. He also does not have some of the technological tools at his disposal that one would find at an FAA facility. For example, his controllers must utilize paper timecards and Mr. Baribeau must manually track and submit payroll numbers. AEG also does not have any radar capability, so the controllers rely exclusively on eyeballs and binoculars. The FAA could require these technological systems under the contract, but presently does not.

When asked about the ability of ATC to be bid as a competitive service, he acknowledged what some other authors cited in this paper have said. "It's not like Sears vs. Penny's, so we're not competitive in that respect."

Jerry Muse was the acting Air Traffic Manager at Albuquerque International Sunport (ABQ) until October of 2014. He is a 40-year veteran with experience at several towers and approach controls, and he also served for a time as an instructor at the FAA Academy in Oklahoma City. He agrees that pilots would not know the difference between services at contract towers versus FAA towers, and that there is

²² Locality pay is a percentage added to base pay, based on cost of living. For example, locality for the San Francisco is 35.15% while Albuquerque is 14.13% (Office of Personnel Management, 2011).

no inherent advantage to a contractor providing ATC services although he does think FCTs can provide a better service in the sense that they can be more accessible to pilots wishing to do pattern work due to fewer air carrier and military operations at those airports. But, as a general rule, he says that “air traffic is air traffic” regardless of who is providing the service.

Mr. Muse also suggests that the companies who operate FCTs are vulnerable to many of the same economic factors that affect the FAA. For example, although FCTs are not subject to the congressional budget process in the same way that the FAA is, their money ultimately still comes from the Federal Government and that has a major impact on how they do business. For example, part of the sequestration/government shutdown issue last year was the threat of closing all Federal Contract Towers. Mr. Muse says, “Any facility subsidized by the FAA...is sensitive to government budgeting issues.”

On the issue of whether or not ATC can be a competitive enterprise, Mr. Muse cited the challenge in the United States involving the sheer scale of the ATC system, the complexity and traffic volume, and the amount of infrastructure involved. “When you look at contracting out ATC in the US...it’s a monumental challenge. I don’t think there’s any other company besides the FAA that’s capable of doing it.” He went on to say that the very nature of the service and the responsibilities associated with it are inherently governmental. “This job is more than just a paycheck; it’s a service to the public.”

Betsy Sutton is a front line manager at ABQ. Her 23 years of experience have come from time at Albuquerque Center and ABQ. Her impression is that the

government probably spends more money on contractors than it would if it provided some services directly and that the contracting process takes too long, but concedes that FCTs are cheaper because of fewer staff and lower salaries. However like Mr. Muse, she points out that FCTs are subject to some of the same budgetary problems the FAA faces, for example sequestration and threats of government shutdowns. As far as an advantage for contractors providing ATC services, "The only thing I can think is financial...I don't think they provide better services." She does not believe that competitively contracting ATC services is possible, or appropriate. "You can hire a contractor to mow your lawn...anybody can cut grass. Not anybody can do this."

Molly Maxton, a 30-year ATC veteran at Wichita (ICT) and ABQ, also questions the value of privatizing ATC. On the one hand, contract facilities might have an advantage from less bureaucracy. On the other hand, the FAA has an advantage in that it is not motivated by profit. She concurs that pilots do not know the difference in services provided by FCTs and FAA towers, but is ambivalent about what advantages there might be under private sector provision of ATC services: it could provide an opportunity to reduce cost through lowering pay and might allow for a fresh start to ATC in the United States. But, "I still don't think the tradeoffs would be worth it." What are those tradeoffs? Pressure to be profitable; which she believes could lead to cutting corners and compromising safety standards. Also, contract controllers do not enjoy the same job protections as FAA controllers. For example, they cannot utilize anonymous safety reporting systems such as the Air Traffic Safety Action Program (ATSAP). They can use the Aviation Safety Reporting

System (ASRS) but are not afforded the same protections that pilots receive when reporting deviations and safety incidents. Ms. Maxton feels that even if it were possible for ATC to be a private system separate from the FAA it would be detrimental to the system because “it’s better to have one entity for uniformity of services.”

Conclusions and Recommendations

The main research question for this paper was: Would privatizing ATC in the US lead to lower system costs and greater efficiency?

It is almost impossible not to discuss this issue in polarized terms, given the current state of politics in the United States. Those in favor of small government, i.e. Republicans, tend to be in favor of anything that purports to achieve that aim, including privatization of ATC. Those who believe government should have a larger role to play, i.e. Democrats, tend to favor retention of services within the federal government. Perhaps the biggest problem in public discourse surrounding this or any other issue right now is that the rhetoric from both sides often obscures the key issues at play. Likewise, politicians and pundits seeking to win the war of sound bites often grossly oversimplify very complex issues. ATC privatization is such an issue, and in order to determine its actual benefits or drawbacks we must endeavor to cut through the political noise and get to the facts at the heart of the debate.

The benefits of privatization in the case of air traffic control in the United States are unclear. Proponents of privatization thus far have failed to provide a compelling case that air traffic control costs too much: we know what the FAA

spends and what other countries spend, but no one seems to have specific ideas about what ATC *should* cost, particularly in the US, the world's largest and most complex system. How much is ATC worth? How much does one unit of ATC cost? How much *should* one unit of ATC cost? No one has laid out those numbers, and indeed it may be impossible to quantify exact costs. ATC is a service, in the same way customer service or technical support is a service. How much does customer service contribute to a company's bottom line? We might broadly assume that good customer service increases a company's revenue while bad customer service decreases it, but to assign a real dollar value is difficult. Finally, like a customer service experience, airlines or GA pilots cannot "return" the service if they do not like it or if the service was poor or unsafe. So instead the debate is over whether it should be the government, airlines, the public, or some combination of stakeholders paying the cost.

Furthermore, privatization advocates have failed to provide a good argument as to why it would be beneficial to privatize such an enormous part of the US transportation infrastructure. If the debate is over whether or not the government should be involved in the production of goods and services, then this issue comes down to how one views the role of the FAA in air transportation. If one thinks that the FAA is the regulator and caretaker of the national airspace system (NAS) and that the NAS is part of the nation's transportation infrastructure, in just the same way that an interstate is part of that infrastructure, and that infrastructure facilitates economic trade, then it is appropriate for the federal government to provide air traffic control services. If one thinks that ATC has a direct impact on the

production of air transportation services, through expeditious or delayed service for example, then it is not the government's place to provide air traffic control services.

The reality is that both conceptions are true. The NAS certainly is a critical part of the nation's transportation infrastructure, and as such should be carefully regulated by the federal government. ATC services directly impact the ability of NAS users to provide their services and products to consumers. This is the crux of the argument that ATC services should be separate from the regulator (the FAA) and operated by the private sector. However, this may be a purely philosophical debate. The cost savings from the transition from a government to a private monopoly are unclear. If there is not a strong economic case for privatizing ATC, it seems to make little sense to do so.

While a self-sustaining ATC system supported by some kind of user-fee structure sounds enticing, the effects of those fees on travelers and the aviation community as a whole must be taken into account. What will be the effect on flight training at local flight schools and collegiate training programs? Prospective pilots from all over the world come to the US for flight training. Could there be a reason they come here instead of training at home? If the same kinds of user fees appear in the US, will we lose those pilots? As for the potential reduction in ticket taxes paid by consumers, it is possible that "Privatization of air traffic control would not remove [airline ticket] taxes...Some portion of today's taxes would simply become user fees" (Airline Business Report, 2005). Since airline profits are highly elastic, any increase in ticket prices could have an impact on the number of travelers and airline profits, which would then impact hotels, car rental companies, and countless

other components of the tourism and business industries that depend on affordable air travel.

Poole (2014) cites a World Economic Forum Global Competitiveness Report ranking of the US as 18th in the quality of aviation infrastructure, which he notes includes ATC and airports. Privatizing ATC would move *service* provision into the private sector but would do little to fix the *infrastructure* problems. Efficiency improvements in the ATC systems of other countries are hard to define and the results of the studies cited in this paper show that reduced staffing led to an airspace closure in the UK and controller strikes in Australia over working conditions, which caused delays and closures there as well. Efficiency improvements from NextGen are hard to quantify at this time, as they are based on the deployment of new procedures and technology that have yet to be completed.

Therefore, the answer to the main research question has to be that we do not know if privatizing air traffic control services would lead to lower system costs or greater efficiency. Costs may be reduced if user fees are introduced, but those fees could lead to a reduction of services if aircraft owners and operators are unable afford them. Privatizing ATC may be proposed simply as a way to reduce the size of government, but that does not necessarily provide a benefit to the public. Other studies on government privatization have shown that costs have not always been reduced, and both federal and privately employed air traffic controllers agree that there would be few, if any, measurable differences between a private system and the current system.

Alternative to Privatization

Instead of privatization, reorganization and consolidation within the existing system would provide more predictable outcomes that may be just as beneficial, or more so, than privatization. Mr. Baribeau (personal communication, January 17, 2013) and Mr. Muse (personal communication, February 4, 2014) both predict future consolidation within the FAA. As mentioned earlier, radar information can be sent from a radar site to anywhere in the country, so an approach control does not necessarily have to be located near the airport it serves. This is already done at en route centers. Albuquerque Center is located in Albuquerque, but provides service to most of Arizona, New Mexico, and part of Colorado and Texas via a network of radar sites whose information is sent to Albuquerque and displayed to controllers. This kind of set-up allows 26 en route centers to control airspace throughout the US and its territories, instead of needing one or more facilities in each state. Since Southern California TRACON (SCT) opened in San Diego in 1994 approach control services for all airports in southern California are provided from a single facility. A second facility, Northern California TRACON (NCT), then took over services for airports in the northern part of the state. Boston TRACON was moved from Boston to Nashua, New Hampshire and controls traffic at Boston-Logan International Airport and Manchester, New Hampshire with additional room to expand. Another form of consolidation exists in the form of joint military-civilian use facilities. Examples include Albuquerque Tower, which is located on Kirtland Air Force Base but is staffed by FAA employees and provides tower and approach services for the base and civilian airport. Grand Forks Approach, located at Grand Forks Air Force

Base, is staffed by both military and civilian controllers and provides radar service for the entire Grand Forks area.

The idea of consolidation is not new. The FAA considered facility consolidation as part of its 1982 NAS Plan (Poole, 2006), but the proposals found significant opposition in Congress. Similarly, the kind of consolidation undertaken by Lockheed-Martin after it assumed control of the FSS contract had been previously recommended by aviation stakeholders and the DOT Inspector General's office (Department of Transportation, 2007).

Slcar (2000) found that the cost of firefighting is based on population density, and that the price differences between privatized and municipally-funded services decreased as the population density increased. This phenomenon may prove relevant when considering ATC privatization. If firefighting costs correlate to population distribution and cost the same for public and private providers in high-population areas, but are cheaper for private providers in low-population areas, then two outcomes are possible for ATC. One, cost of service provision in high-volume airspace and major airports may be the same as it is now and only smaller facilities should be privatized, as has already happened to with the FCT program. Two, instead of privatizing small facilities, they could be consolidated into larger ones. For example, many small radar approach controls could be moved to larger facilities, as discussed earlier in this paper. Research is already under way to do basically the same thing with control towers, utilizing high-definition cameras and remote communication systems, with one such tower already in operation in Sweden (Saab, 2014).

While privatization can be highly beneficial for some government services, those services that are inherently monopolistic or that are related to infrastructure tend to be less effective and in some cases quite costly when privatized. Given the inconsistent results of government privatization efforts, the difficulties in contracting out a highly complex public safety function, and the philosophical problem of placing a vital part of national infrastructure in the hands of a company that would constitute a private monopoly with little or no public accountability, privatizing air traffic control may not be desirable. Furthermore, significant cost reduction may not be possible without imposing some kind of user-fee system, which has in Canada and Australia resulted in increased cost to aviation users.

Instead, reorganization of the FAA such as consolidating more facilities, reform of the contracting process, and increased investment in airport infrastructure (runways, terminals, gate and ramp space) would be more beneficial and speed the modernization of air traffic control in the United States while achieving many of the cost savings of privatization. If those savings can be achieved without creating a new private monopoly, incurring the costs of transferring service, and imposing a potentially burdensome user fee system on passengers and aircraft operators, then these alternatives to privatization appear to be of greater benefit to the government and citizens of the United States.

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