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# Understanding Air Traffic Control Financing

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**April 2005**

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**Ruth Marlin, National Air Traffic Controllers Association, AFL-CIO**

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## **About the Author**

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Ruth Marlin, the executive vice president of the National Air Traffic Controllers Association, has made her career one of firsts: In 2000, as the first woman in the organization's history elected to the position and subsequently, in 2003, when she became the first person ever reelected to the office.

In 1999, Marlin completed her first extensive research project on air traffic control issues. Her findings on controller retirement were later validated by the Federal Aviation Administration's workforce plan, as well as reprinted extensively, distributed internationally and translated into two languages.

Marlin holds a Bachelor of Arts in Labor Studies from the National Labor College and a Masters in Public Administration from the University of Baltimore. She is a member of the honor society Pi Alpha Alpha and a Doctoral Candidate in Public Administration. Her academic achievements led to her selection for Who's Who in American Universities and Colleges.

## **Acknowledgments**

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## Executive Summary

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The prime objective of air traffic services, as defined by the International Civil Aviation Organization (ICAO), "is to prevent collisions between aircraft, whether taxiing on the maneuvering area, taking off, landing, en route or in the holding pattern at the destination aerodrome."<sup>1</sup> ICAO also emphasizes that notwithstanding the organizational or financial structure of the service provision, air traffic control services remain a State obligation.

Over the last two decades, many air traffic control service providers have restructured from traditional government bureaucracies into organizational structures designed to be more responsive to the needs of system users. Restructuring may have been in response to financial pressures, air traffic congestion, a desire for regional harmonization, or part of broader government reforms. As a result there are a variety of different structures for both funding and corporate governance currently in place.

Developing an appropriate funding structure has presented new challenges for many States. The term privatization is broadly and imprecisely used to describe many different types of structures including commercialized entities that are wholly State owned. Within the air traffic community it is recognized that among major air traffic service providers, only the Canadian system is truly privatized while the United Kingdom system is part privatized. That is not to say that there is no common ground between the structural frameworks. Both privatization and commercialization address the funding mechanisms and corporate governance of the service provider.

In order to ensure that a national economy is able to maximize the benefits provided by a vigorous aviation industry, a reliable and robust air traffic control system is necessary as it is a critical component of the infrastructure. As air traffic control modernization in particular requires long term planning, a stable and predictable

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<sup>1</sup> International Civil Aviation Organization, *The Convention on International Civil Aviation Annex 11-18*. [online] [http://www.icao.int/gil/goto\\_m.pl?icaonet/anx/info/annexes\\_booklet\\_en.pdf](http://www.icao.int/gil/goto_m.pl?icaonet/anx/info/annexes_booklet_en.pdf).

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funding mechanism is required. Any funding mechanism constructed for the purpose of air traffic control service provision must meet the fundamental tests of providing both adequate and stable resources.

This study examines the major structures in place for the provision of air traffic services in North America, Europe, and Australia including their individual funding mechanisms. The purpose is to provide a fact-based framework for future policy discussion on the topic of air traffic control financing as States move to address weakness in the existing structures.

## Introduction

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The prime objective of air traffic services as defined by the International Civil Aviation Organization (ICAO) "is to prevent collisions between aircraft, whether taxiing on the maneuvering area, taking off, landing, en route or in the holding pattern at the destination aerodrome."<sup>2</sup> ICAO also emphasizes that notwithstanding the organizational or financial structure of the service provision, air traffic control services remain a State obligation.

The ICAO assembly is comprised of 188 contracting States established to promote civil aviation through cooperation and standardization:

*One of ICAO's chief activities is standardization, the establishment of International Standards, Recommended Practices and Procedures covering the technical fields of aviation: licensing of personnel, rules of the air, aeronautical meteorology, aeronautical charts, units of measurement, operation of aircraft, nationality and registration marks, airworthiness, aeronautical telecommunications, air traffic services, search and rescue, aircraft accident investigation, aerodromes, aeronautical information services, aircraft noise and engine missions, security and the safe transport of dangerous goods. After a Standard is adopted it is put into effect by each ICAO Contracting State in its own territories. As aviation technology continues to develop rapidly, the Standards are kept under constant review and amended as necessary.<sup>3</sup>*

ICAO, as an agency of the United Nations, provides recommendations to contracting States, however, the actions of ICAO do not usurp the autonomy of sovereign States. Within the broad recommendations and guidance offered by ICAO, nations have adopted various organizational structures and funding mechanisms for air traffic service provision. This study will examine the dominant structures currently in

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<sup>2</sup> Ibid.

<sup>3</sup> ICAO's Aims: Standardization, [http://www.icao.int/cgi/goto\\_m.pl?icao/en/aimstext.htm](http://www.icao.int/cgi/goto_m.pl?icao/en/aimstext.htm)  
#Standardization.

8  
operation.

## **United States Model**

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### **An Overview**

The United States air traffic control service is provided by the Federal Aviation Administration, a federal agency funded through the authorization and appropriations process used for most federal agencies. In addition to allocations from the general treasury, this process includes the distribution of revenue from the Airport and Airway Trust Fund.

The FAA is not a stagnant agency tied to a specific organizational structure. It has undergone substantial reforms to remain responsive to changing demands in civil and military aviation. The most recent reform takes advantage of several legislative steps in the process of creating a Performance Based Organization within the FAA. Recent reforms have gone beyond organizational structure and have included significant changes in both funding and corporate governance.

In the 1990's the FAA was granted sweeping exemptions from federal sector personnel and procurement regulations through HR2002, *The FY1996 Department of Transportation Appropriations Act*, and other legislation that provided minor amendments to its provisions. This Act provided the FAA with the flexibility to design personnel systems specific to the agency's mission without regard for most personnel regulations and systems in other parts of the Department of Transportation or the Federal Government. The Act sought to de-politicize the management of the FAA by establishing a five-year term appointment for the FAA administrator - extending beyond the elected term of the President making the appointment, and created the FAA Management Advisory Council (MAC) as well as the Air Traffic Services Subcommittee (ATSS). The MAC is an 18-member board that provides recommendations on aviation spending, policy, regulation and management, while the ATSS was constructed by Congress to oversee the Administrator's management of the air traffic control system.

In 2000, *The Wendell H. Ford Aviation Investment and Reform Act for the 21st*

*Century* sought to ensure that all revenue from aviation related taxes were expended for aviation purposes, rather than allowing large surpluses to continue to build up. These surpluses had traditionally been retained as an accounting device to reduce the appearance of the federal deficit. The Act also created the position of Chief Operating Officer (COO) within the FAA, for the air traffic control system. Later that year, the President issued Executive Order 13180 creating the Air Traffic Organization under the Chief Operating Officer. The COO is appointed to a five-year term to promote continuity of leadership, even though the term does not necessarily coincide with that of the Administrator.<sup>4</sup>

Rather than separate air traffic control services, the ATO consolidated the functions previously performed by separate lines of business within FAA. By consolidating Air Traffic Services, Research and Acquisitions, and Free Flight organizations, the ATO is able to manage both resources and decision-making related to air traffic service provision and investment. The COO reports directly to the FAA Administrator.

### **Financial Framework**

The Airport and Airway Revenue Act of 1970 established the Airport and Airway Trust Fund for the purpose of funding the development of a nationwide airport and airway system and to fund investments in air traffic control facilities in order to meet the current and future projected growth in aviation.<sup>5</sup> The Act allowed aviation related excise taxes to be deposited in a trust fund for aviation activities. The primary taxes on passenger tickets and aviation gasoline were already in existence (since 1941 and 1932 respectively) and were previously deposited into the general fund. The Act created three new taxes on international tickets, air-freight waybills, and aircraft registration.

The Airport and Airway Trust Fund expired on October 9, 1980 at which point aviation-related excise taxes could no longer be deposited into the fund, leaving only the accumulated surplus from previous years. The Airport Improvement Act of 1982

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<sup>4</sup> Federal Aviation Administration, *FAA Air Traffic Organization*, November 17, 2003 (photocopied).

<sup>5</sup> General Accounting Office, *Airport and Airway Trust Fund*, (Washington, DC: GPO, 2003).

re-established the Airport and Airway Trust Fund and deposited \$134 million from the general treasury into the Fund.

The *Omnibus Reconciliation Act of 1990* increased the passenger ticket tax from 8% to 10% of the fare, increased the cargo tax from 5% to 6.5%, and increased the rate for noncommercial jet fuel from 14 cents to 17.5 cents per gallon.<sup>6</sup>

In 1994 and 1996, a series of short-term reauthorizations extended the expenditure authority from the Trust Fund until January 1, 1997. The authority lapsed and was not reinstated until October 1, 1997, with the passage of the *Taxpayers Relief Act of 1997*. This Act reinstated the aviation excise taxes for ten years and set rates for taxes, gradually reducing the domestic passenger tax rate to 7.5% by 1999 while increasing flight segment fee to \$3.00 by 2002 and indexing for inflation starting in 2003. The Act also set rates and indexing for the international passenger ticket tax, rural passenger taxes, special taxes for flight to Hawaii and Alaska, added other miscellaneous aviation related excise taxes and shifted the 4.3-cent per gallon aviation fuel from the general fund to the Trust Fund.

The *Wendell H. Ford Aviation Investment and Reform Act for the 21st Century*, enacted in April of 2000, substantially increased the annual funding for the Airport Improvement Program (AIP). It was intended to ensure that all revenue from aviation related taxes was spent on aviation programs through 2003. It allowed airports to raise passenger facility charges up to \$4.50 and increased both the minimum and maximum annual funding available to large airports as well as raising the state apportionment and guaranteeing funding to general aviation airports for the first time.

The Trust Fund provides 100% of the funding for FAA airport grants (AIP), facilities and equipment, and research, engineering and development. Resources from the

Trust Fund, as well as an appropriation from the general fund, support FAA Operations. The percentage of Federal Aviation Administration operations that has

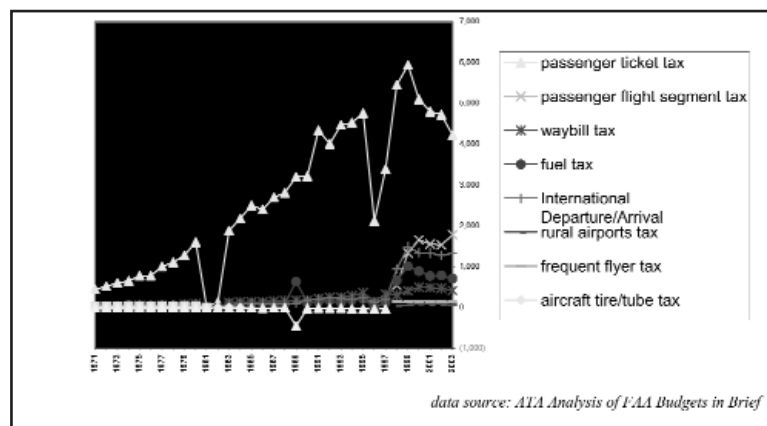
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<sup>6</sup> Eric Henry, *Excise Taxes and the Airport and Airway Trust Fund 1970-2002*, (Washington, DC: Statistics of Income Bulletin, 2003).

been funded from Trust Fund revenue has fluctuated from year to year from 0% to 100% depending on Congressional Action.<sup>7</sup> Trust Fund revenue is currently supported by ten dedicated excise taxes:

- ♦ 7.5% tax on the price of domestic airline tickets
- ♦ 7.5% tax on the value of awards or reduced-rate airfares (frequent flyer tickets)
- ♦ 7.5% tax on the price of domestic airline tickets to "qualified rural airports" (flight segment fees do not apply if this tax is levied)
- ♦ \$3 on each flight segment, indexed to inflation starting in 2003<sup>8</sup>
- ♦ 6.25% tax on the price charged for transporting cargo by air
- ♦ \$0.043 per gallon tax on commercial aviation jet fuel
- ♦ \$0.193 per gallon tax on general aviation gasoline
- ♦ \$0.218 per gallon tax on general aviation jet fuel
- ♦ \$13.40 tax on international arrivals, indexed to inflation<sup>9</sup>
- ♦ \$13.40 tax on international departures, indexed to inflation

**Figure 1: Airport and Airway Trust Fund Revenue by Source<sup>10</sup>**



<sup>7</sup> Federal Aviation Administration, Airport and Airway Trust Fund (AATF), 2004 (photocopied).

<sup>8</sup> In 2004, the flight segment fee increased to \$3.10.

<sup>9</sup> In 2004, the International Departure and Arrival Taxes were \$13.70.

<sup>10</sup> There have been structural changes in the AATF since its inception, creating and eliminating certain types of taxes; all types of taxes have not necessarily been in effect every year.

As one can see from the chart in Figure 1, since its inception, there have been fluctuations in Trust Fund revenue. Minor fluctuations are likely the result of economic cycles, however, major fluctuations can be attributed to external factors including policy decisions. From 1981-1982, the *Airport and Airway Redevelopment Act of 1970* expired causing the authority to transfer revenue from the excise taxes to the Trust Fund to lapse and in 1996 the ticket taxes expired awaiting congressional action on FAA reauthorization (which included the authority to collect the tax). These fluctuations are the result of policy actions, or inaction, that affected the treatment or collection of revenue and not necessarily the general availability of the funding from the source. Smaller fluctuations are more likely source based rather than policy based as can be seen as a result of temporary declines in air travel, including those as a result of the 1991 Gulf War and the September 11 terrorist attacks, the subsequent war in Iraq, and the international outbreak of Sudden Acute Respiratory Syndrome (SARS). However, as the fluctuations have been temporary in nature, the structure of the Trust Fund, permitting structural surpluses, has allowed funding for aviation programs to continue with steady funding levels.

The percentage of the FAA operations that is funded from Trust Fund revenue (and consequently the amount of Trust Fund revenue that is expended) is determined by Congress and has been subject to a number of policy and statutory restraints. From 1982 to 2000, Trust Fund based funding of operations was limited by tying it to levels of capital investment funding. Under the *Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR 21)*, specific limitations were put on distribution of Trust Fund revenues specifically requiring that the Airport Improvement Program (AIP) and Facilities and Equipment (F&E) receive Trust Fund allocations under a formula before an allocation for operations is made, and data from 2004 to 2012 (projections) are based on the FY05 President's budget. The projected percentage of funding from the general fund is limited by the President's proposed cap of 13% of operations, which represents historically low levels.

The question of appropriate use of the Trust Fund is not new. From 1973 to 1976 the Trust Fund was prohibited from financing FAA operations and maintenance. In

1976, Congress capped the amount of Trust Fund revenue available for operations and maintenance and included a penalty clause, which remained in place until 1990. In 1984, the annual appropriations bill specified that only general treasury funds would be used for FAA operations. In February of 1999, the General Accounting Office responded to an inquiry from Representative Frank R. Wolf, then Chairman of the Transportation and Related Agencies Subcommittee of the House Appropriations Committee, who asked the General Counsel's office to review the legislative history and advise whether the Airport and Airway Trust Fund was created solely to finance aviation infrastructure.

The GAO isolated several pertinent parts of the Act, specifically referencing section 208 (f) (1) (B) which stated that Trust Fund balances could be used for "planning, research and development, construction or operation and maintenance of - (i) air traffic control, (ii) air navigation, (iii) communications, or (iv) supporting services for the airways system." The GAO concluded in its response to the inquiry:

*The trust fund as it was enacted in 1970 was not created solely to finance aviation infrastructure. Throughout its history, it has financed some non-infrastructure expenses, such as administrative expenses incident to the administration of the airport development program and research and development. With the exception of the time period during fiscal years 1973-1976, it has also funded some costs of maintenance and operation of air navigation facilities.<sup>11</sup>*

While earlier debates focused on whether the Trust Fund could be used to fund portions of FAA operations, more recent debates focus on whether the Trust Fund should provide the sole source of funding for FAA operations. This dramatic shift in how the Trust Fund is viewed with regard to operations funding has sparked recent debate about the long-term viability of the Trust Fund.

In November of 2004, Chief Operating Officer of the FAA Air Traffic Organization Russ Chew stated that the amount available from the Aviation Trust Fund is falling, and increasing pressure on the General Fund means top-up money will be harder to

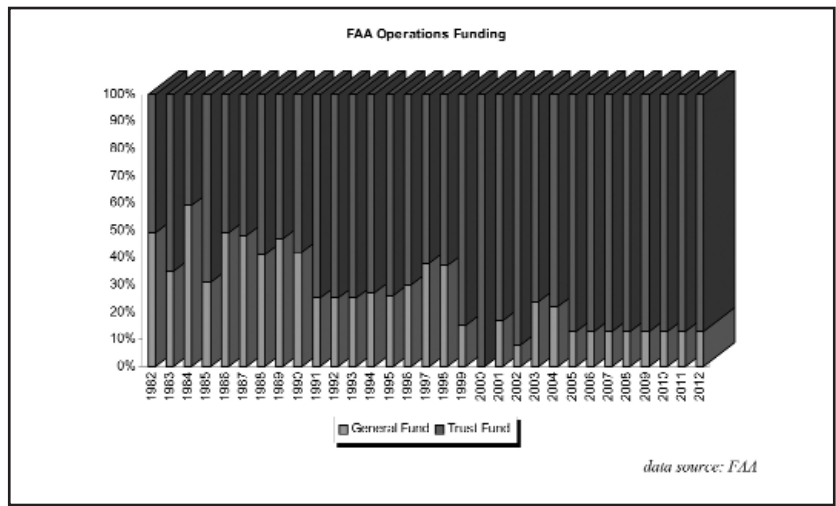
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<sup>11</sup> Robert P. Murphy, General Counsel, General Accounting Office, Correspondence (12 February 1999).

justify.<sup>12</sup> This treatment of a General Fund contribution as "top-up" or extra funding for operations illustrates a new philosophical view of how the Trust Fund is to be treated with regard to operations funding. Further evidence of this philosophical shift is seen in press coverage of FAA funding issues in late 2004. Ken Mead, Department of Transportation Inspector General, said, "When trust-fund revenues are less than the FAA budget, the President's proposal and Congress' appropriation can make up the gap with money from the general fund, allocation of trust-fund surpluses built up in previous years, or a combination of both."<sup>13</sup> Russ Chew was reported as saying that in order to match revenue predictions the ATO operating budget would have to be reduced by 21 percent by 2009.<sup>14</sup>

Throughout the Trust Fund's history the revenues have routinely exceeded allocations from the fund, creating large surpluses causing the administrations and lawmakers to consider options available for reducing the aviation trust fund balance as reflected in GAO studies in 1988 and as recently as 2003.

**Figure 2: FAA Operations Funding by Source**



<sup>12</sup> Adrian Scofield, "Chew Says More Cost Controls Needed to Match Revenue Drop", *Aviation Daily* (5 November 2004).

<sup>13</sup> David Bond, "Collision Course: FAA's Trust Fund Isn't What it Used to Be, but Airlines Want Cost Reductions - Not a Fix" *Aviation Week and Space Technology* (22 November 2004).

<sup>14</sup> "Chew Says More Cost Controls Needed to Match Revenue Drop" *Aviation Week's The Weekly of Business Aviation* (8 November 2004).

## The Public Interest

The division of funding between the Trust Fund and the general fund is more than a question of availability of resources, although the traditional surpluses in the aviation trust fund have provided an attractive option during periods of federal deficits. Rather this is a question of appropriate allocation of costs. This poses a more complicated set of issues revolving around the fundamental question, "who are the users of the system?" An overly simplistic view would consider the users to be limited to the aviation industry. Clearly a closer examination is warranted; the air traveler (or shipper in the case of air cargo) is more appropriately defined as the consumer of the airspace services, while the airline or operator provides the traveler with the means by which he is able to consume the service.

The US air transportation infrastructure provides benefits to a much broader constituency than the direct consumer of air transportation. In many cases, an individual may be completely unaware that he has consumed an aviation service. Our robust and vital air transportation network is present in the day-to-day lives of nearly all Americans. From mail delivery to fresh produce the aviation network permeates our lives. The concept of protecting public safety through aviation goes beyond the prevention of aircraft accidents as it extends to protecting our borders, combating wild fires, national defense and law enforcement. Whether or not an individual is a direct consumer of air travel, all of the residents of the United States benefit from our national airspace system.

In evaluating the public interest in the air transportation infrastructure, one cannot ignore the economic benefits it provides. According to the United States Congress:

*The total impact of civil aviation on the United States economy exceeds \$900,000,000,000 annually and accounts for 9 percent of the gross national product and 11,000,000 jobs in the national workforce. Civil aviation products and services generate a significant surplus for United States trade accounts, and amount to significant numbers of the Nation's highly skilled, technologically qualified work force.*<sup>15</sup>

This is not to say that the air traveler or air cargo user should not bear a significant

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<sup>15</sup> HR2115, *Vision 100- Century of Aviation Reauthorization Act*, (2003).

portion of the cost of operating and maintaining the system, but rather they should not be required to fund the entire cost as there is a portion of the costs that is clearly in the public interest and therefore appropriately funded by the general treasury. The concept of allocating costs to the public sector is neither new nor has it necessarily been a partisan issue. In 1978, under President Carter, and in 1986, under President Reagan, the FAA produced studies attempting to segregate the activities of the FAA that are in the public interest.<sup>16</sup> The reports did not agree entirely on the appropriate distribution of costs, particularly with regard to the cost of regulation, however there is considerable agreement on the major provisions as well as the underlying concept. The 1986 report stated:

*In the course of meeting its legislated responsibilities, the FAA performs a certain number of tasks which benefit not only the aviation community, but also the public at large. The costs incurred in performing such tasks should not be allocated to any particular private sector aviation user group, but rather should be assigned to the public sector.*<sup>17</sup>

Both the 1978 and 1986 studies identify five categories of expenditure that should be allocated to the public sector. There is consensus between the reporting administrations over the first three items identified as:

1. The provision of air traffic control services at low activity airports. These towers are defined as those that fall below the cost-benefit formula that would warrant continued operation by either FAA staff or FAA compensated contractors. The report argues that the towers are kept open by Congressional action and therefore operate primarily to benefit the public interest and not the system users.
2. The use of FAA services by the military.
3. The use by non-aviators of weather data collected by the FAA.

The fourth item, the benefits received by the public from the FAA's safety, medical, and environmental regulatory programs, is considered fully public in the Carter

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<sup>16</sup> Federal Aviation Administration, *Airport and Airway Costs Allocated to the Public Sector 1985-1997*, (NTIS, Springfield, VA) 1986.

<sup>17</sup> *Ibid.*

Administration report, while the Reagan Administration argues that it is neither a purely public nor purely private sector expense. Instead the 1986 report advocated the use of a distribution formula.

The fifth item in the 1978 report, the operation of Washington National and Dulles International airports, was rejected as a public cost in the 1986 report. As the FAA is no longer responsible for the operation of either airport, the point is moot for the purpose of a current discussion of the allocation of costs to the public sector. The Reagan Administration reported identifies as a fifth category, the costs associated with civilian government use of the airport and airway system.

The consideration of the costs associated with the identified categories extended beyond operations to include the costs of facilities and equipment to provide the services. The study did not hesitate to allocate the tangible costs of the services consumed by the public interest to the public sector. The report went further to consider the basic safety service provided by air traffic control, stating that there is "theoretical justification for allocating the costs of these programs to the public at large on the grounds that there is a public interest in avoiding catastrophic loss of life."<sup>18</sup> The report goes on to cite as evidence that the major event leading to the formation of the FAA was a mid-air collision between two airliners over the Grand Canyon forty-nine years ago. Essentially, the argument is that if a major accident is cause for a public response to accelerate the formation of the agency itself, then it stands to reason that the service the agency is to provide is a de facto public service.

This question of public policy and the allocation of costs to the public (general fund) or private (trust fund) sector is an important question that should be evaluated in a comprehensive manner. The use of our airspace and airways has changed considerably in the last 20 years and while the earlier reports provide a starting point, a modern assessment should consider whether there are different elements that should be considered today.

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<sup>18</sup> Ibid.

**The Current Debate: Revenue Issue or Policy Shift?**

FAA officials are on the record stating that Trust Fund revenues are declining in discussing budget issues at the end of 2004 and into 2005. While it is undeniable that the Trust Fund experienced a sudden and steep decline from 2000 to 2003, it is equally clear that 2004 shows Trust Fund revenue increasing. In addition, the dramatic increases in Trust Fund revenues in 1998 and 1999 put the fund itself at record highs. One could argue that the decline in 2000, which is unrelated to the terrorist attacks, represented a correction rather than a structural decline. While there is no denying that the Trust Fund revenues suffered a decline during the post September 11 recession, there is no indication that revenues are still in decline. In contrast, FAA forecasts for revenue growth are positive and in 2003, the House of Representatives, Senate, and President were considering various aviation tax holiday scenarios. The Government Accountability Office reported that the financial outlook for the Aviation Trust Fund is positive but suspending all taxes accruing to the Trust Fund would eliminate the Trust Fund's uncommitted balance. The GAO's analysis was based on FAA's aviation forecasts, which were published in November 2002. In its 2003 report GAO stated:

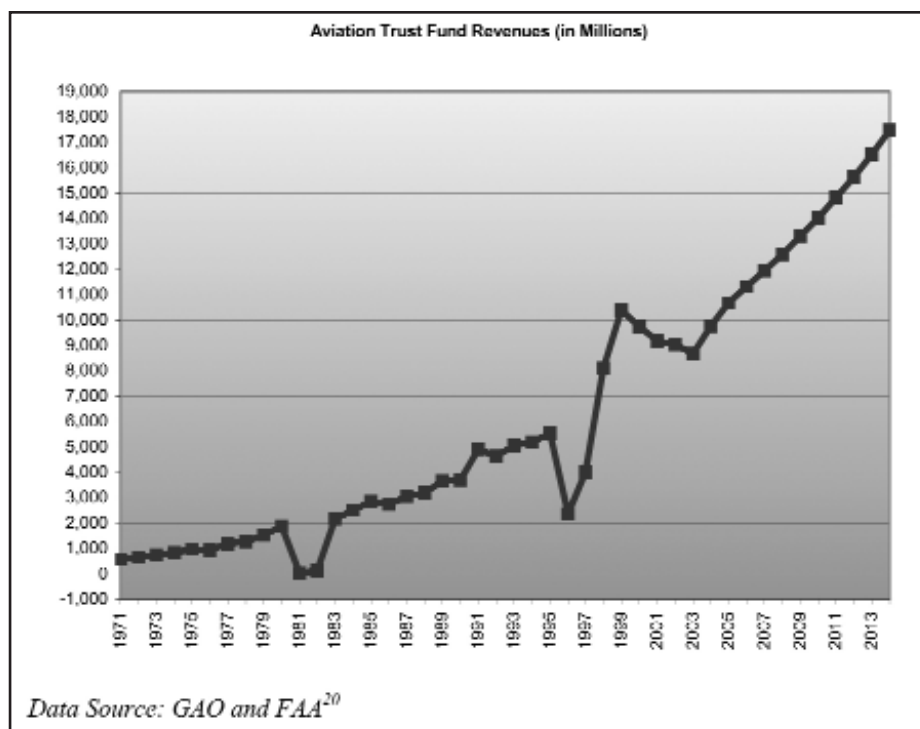
*Although expenditures exceeded revenues in fiscal year 2002, since its creation in 1970, Trust Fund revenues have generally exceeded expenditures - resulting in surplus (or an "uncommitted balance" as it is usually called). For example, at the end of fiscal year 2002, the Trust Fund's uncommitted balance was nearly \$5 billion. The Trust Fund's uncommitted balance represents money against which there is no outstanding budget commitment or authority to spend and, subject to congressional approval, is the amount available to finance FAA accounts in the future. It was also used to offset foregone revenue when the Trust Fund taxes lapsed in 1996 and to fund new airport security requirements resulting from the September 11, 2001 terrorist attacks.<sup>19</sup>*

**Ops Accounts vs. Trust Fund Growth**

Since the mid 1990's the Department of Transportation Inspector General has been

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<sup>19</sup> General Accounting Office, *Airport and Airway Trust Fund*, (Washington, DC: GPO, 2003).

**Figure 3: Aviation Trust Fund Revenue**

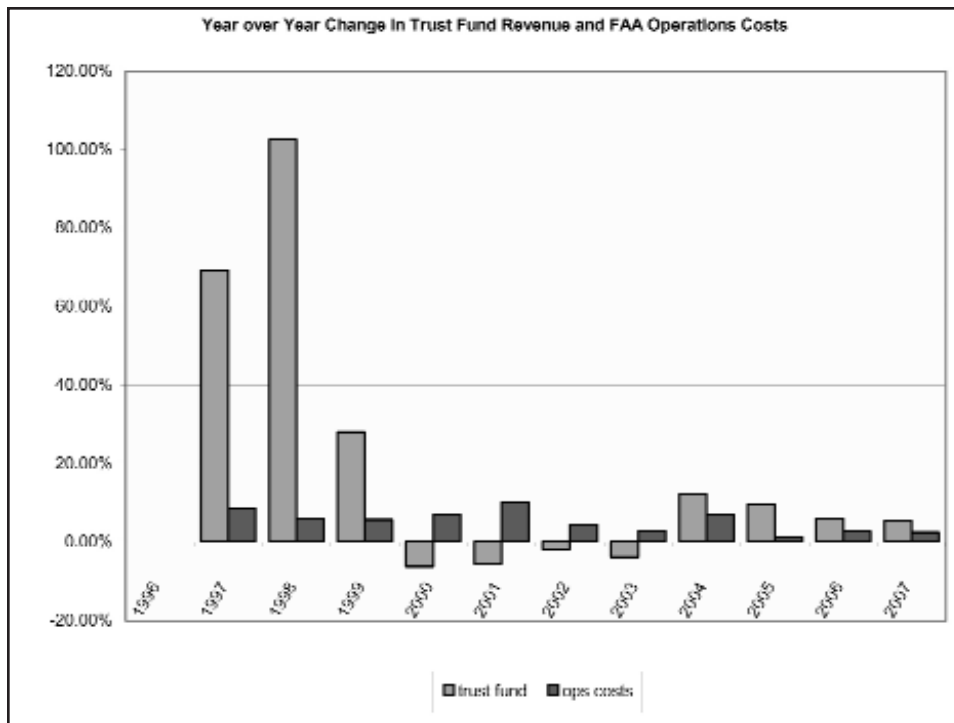
highlighting the growth in the FAA operations budget. Trust Fund revenue is the most direct indicator available of the demand placed on the system as it comes directly from the users of the system. So while periodic reviews of the growth in the operations budget have compared it to other FAA budgeted categories, so far the comparisons have not compared the budget growth to the growth in demand and corresponding revenue.

Various reports from the DOT Office of the Inspector General select 1996 as a base year for operations when examining the growth in the budget. The reason for selecting 1996 as the base year is not explicitly stated in the reports, however the year corresponds to the first year under legislation establishing a five-year term for the FAA Administrator. Accepting 1996 as a base year and comparing the change in the

<sup>20</sup> Historical data for Trust Fund Revenue obtained from Government Accountability Office reports, projections (2004-2014) are produced by FAA APO-200 for submission to OMB to become part of the President's Projection for Treasury. [online] [http://apo.faa.gov/Trust%20Fund%20Website/AATF\\_Home.htm#Data](http://apo.faa.gov/Trust%20Fund%20Website/AATF_Home.htm#Data). (Accessed November 16, 2004).

operations budget to the change in the aviation Trust Fund one observes year over year fluctuations that, absent the 2000 correction and 2001-2003 post September 11 decline, the growth in the Trust Fund outpaces the growth in the operations account. That is forecast to continue through 2007, when the taxing authority is scheduled to expire. At that time, Congress will have to consider whether to continue the current funding system or introduce alternatives. Under the current system, both FAA and GAO data illustrate that when revenues are in a normal state (not reacting to a catastrophic event) there remains a healthy relationship between the increase in both operations costs and Trust Fund revenue.

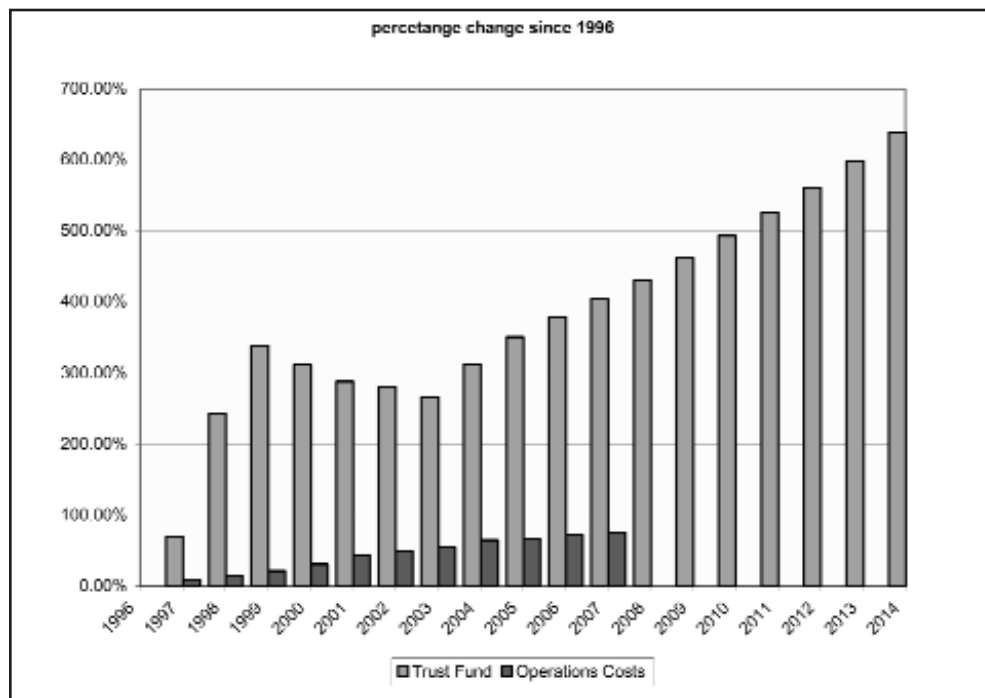
**Figure 4: Annual Changes in Trust Fund Revenue and Total FAA Operations Costs**



While these have been brief periods during which the Trust Fund was in decline, yet operations cost increased, the overall picture is quite stable and presents an extremely favorable outlook. Rather than a year-by-year analysis, it is instructive to evaluate both costs and revenue growth over a longer term.

However, this approach presents three distinct challenges. First, out-year estimates

**Figure 5: Cumulative Trust Fund Revenue and FAA Operations Cost Changes**<sup>21</sup>

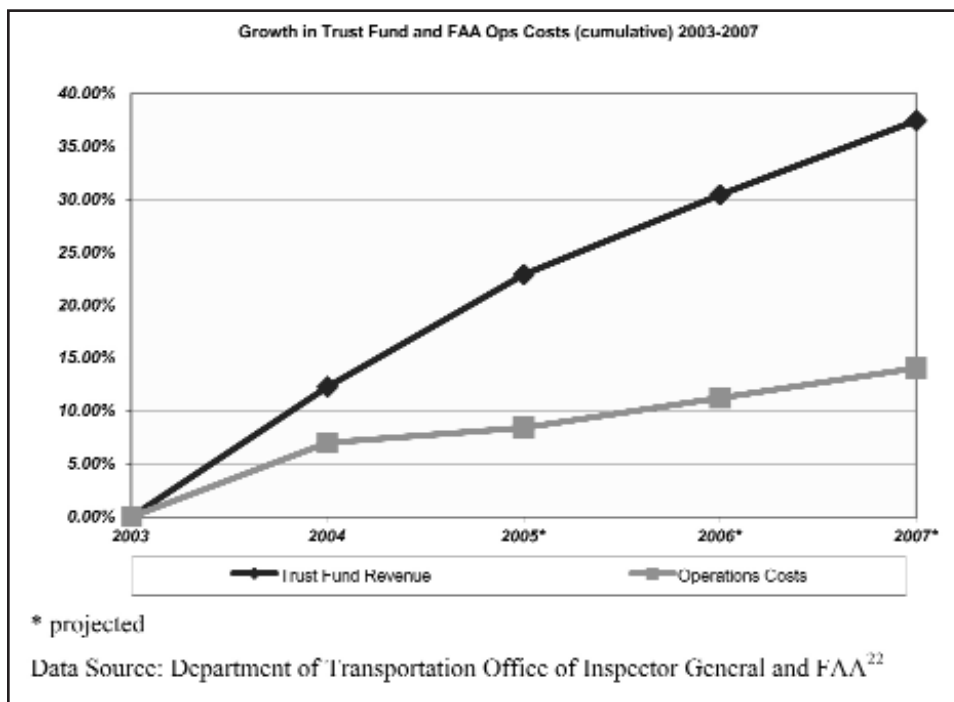


(2008 and beyond) are based on an estimated percentage increase each year under assumptions of the Office of Management Budget and it is difficult to determine the validity of these assumptions used in making the long term forecast. Second, in 1996 the authority to collect Trust Fund taxes lapsed and was not reinstated until mid-year in 1997. As the revenue levels were depressed in these two years as a result of the policy decision rather than reflecting market conditions, the following year, 1998 showed a corresponding dramatic increase in revenue. It is not that the market con-

<sup>21</sup> The Trust Fund authority expires in 2007, this chart assumes reauthorization of current excise tax and fee structure. Revenue projections are provided by FAA APO-200 as in note 19.

ditions changed, but rather that it was a full year in which revenues were collected. Third, the terrorist attacks of September 11, 2001, caused an increase in operations costs to support security related activities in 2001 and 2002 until most security functions were appropriately transferred out of the FAA. These policy decisions affecting revenue in 1996 and 1997 and expenditures in 2001 and 2002 caused distortions in the model unrelated to market based fluctuations in aviation. Unfortunately, eliminating the years dramatically affected by policy changes and out years only allows for a short-term assessment.

**Figure 6: Growth in Trust Fund Revenue and FAA Operations Costs 2003-2007**



<sup>22</sup> A single document projecting both operations and trust fund revenue was not available with current data. The delayed recovery from 9/11/2001 substantially shifted trust fund revenue forecasts downward, invalidating earlier projections, therefore the FAA APO-200 FY05 President's Forecast for Treasury is used for projected data as it is both the most current and the most conservative estimates for revenue. Projected operations costs are taken from DOT Inspector General testimony regarding FY2004 Transportation appropriations.

## Stability

There is no escaping the conclusion that the expiration of the Trust Fund authority in 1996 followed by the sudden decline post September 11, 2001, and the associated increase in security related spending in 2001 and 2002 has caused a reduction in the uncommitted balance of the Aviation Trust Fund. However, it is the existence of that surplus that allowed the aviation system to continue to operate without raising aviation fees or taxes. The structure of the US system that combines a trust fund contribution with a public sector (general fund) contribution has provided the FAA with a stable source of funding through policy changes, economic fluctuations, and catastrophic events.

It has been argued that the annual appropriations cycle is disruptive to planning, particularly for capital investment, in that the annual FAA budget is not known in advance. In recent years the FAA budget has been unknown even after the fiscal year has begun, while the appropriations process involved numerous continuing resolutions before a final appropriations bill was enacted. While this is not an ideal situation, it introduces no more uncertainty than that which is experienced by organizations financed through other revenue streams that are not guaranteed. One could just as easily argue that the annual appropriation provides considerably more predictability than revenue driven models based on traffic projections considering that if revenue fails to meet predictions it would require more frequent adjustments to planned investment.

FAA data illustrate that while the Airport and Airway Trust Fund suffered a brief but predictable decline as a result of the reduction in air travel post September 11, 2001, it is equally clear that as air travel is increasing, so too is the Trust Fund and continued growth is forecast by the FAA. The question of available resources for FAA operations is limited by policy choices rather than Trust Fund forecasts. The question of Trust Fund allocation and what percentage of FAA operations is appropriately funded from the general treasury vs. the Trust Fund, more so than Trust Fund revenue itself, will determine whether adequate resources are available to meet the demands placed on the system.

**An Overview**

The terms privatization, commercialization, corporatization and liberalization are used somewhat interchangeably and imprecisely in describing broad categories of air traffic service providers under various types of government structures, charging regimes, regulations and ownership. While many different providers share certain characteristics, there is not one common structure that defines the majority of service providers. However, the vast majority of so-called privatized air traffic service providers are in fact not privatized, but rather government owned entities. Detailed information in English is not easily accessible for all providers making comparisons difficult, however this overview provides examples of different frameworks currently in place.

ICAO has published recommendations on appropriate charging mechanisms for international civil aviation. These recommendations are general in scope allowing for adaptation by individual States. In general, ICAO considers that, "providers may require the users to pay their share of the related costs; at the same time international civil aviation should not be asked to meet costs which are not properly allocable to it."<sup>23</sup> In its charging recommendations, ICAO distinguishes between commercialization and privatization. According to the glossary of terms, commercialization is referred to as an approach to management of facilities and services in which business principles are applied, while privatization is the transfer of full or majority ownership of facilities and services to the private sector.<sup>24</sup> Under these definitions, the US system, structured under the ATO, could be classified as commercialized.

Just as the organizational structures for air traffic control service providers vary, the scope of services provided also varies widely. In the United States, the FAA provides services to both military and civil aircraft and controls both en route and terminal (airport) air traffic. In other countries airports may be controlled by a separate

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<sup>23</sup> ICAO, *ICAO's Policies on Charges for Airports and Air Navigation Services - Seventh Edition*, (Montreal: ICAO,2004).

<sup>24</sup> *Ibid.*

entity than en route and the civil provider may coordinate with, but remain separate from the military authority. This can be true in both traditional public and corporatized structures. However, in the case of civil and military operations there is a clear trend emerging to consolidate the service provision in order to maximize airspace efficiency, similar to the United States model.

### **Charging Regimes**

ATC providers that utilize user fees as a charging mechanism generally assess one or more of the following types of fees:

- ♦ En Route Charge - en route charges are generally determined using a formula that considers the weight of the aircraft and the distance flown, with weight determined by formula and distance determined by either actual distance flown or great circle route distance between departure and arrival point. In the European systems, most countries follow the guidance issued by EUROCONTROL in the document, "Principles for Establishing the Cost-Base for Route Facility Charges and the Calculation of Unit Rates" and revenue collection is facilitated by the Central Route Charges Office. However, each country retains the authority to set its own Global Unit Rate (or Chargeable Service Unit) and there is wide disparity between the rates with Switzerland, the most expensive in Europe in 2004, charging a rate that is nearly three times that of Ireland, with one of the lowest rates.
  
- ♦ Terminal Charges - terminal charges are calculated considering the maximum take off weight of the aircraft and some providers may charge a different rate for foreign registered and domestic registered aircraft.
  
- ♦ Landing Fees - landing fees are general collected and retained by airport operators, which may be entirely separate from the air traffic service provider.

### **Government Owned Models**

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#### **Airservices Australia**

In 1995, the Australian Civil Aviation Authority split into two separate government bodies, the Civil Aviation Safety Authority and Airservices Australia which is a gov-

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ernment owned corporation providing air traffic control services in upper airspace over Australia and to the Pacific Island Flight Information Region over the Solomon Islands and Nauru as well as air traffic control services at 26 Australian airports. Unlike most European providers, Airservices Australia also provides firefighting services at 17 Australian airports.<sup>25</sup> It is governed by a board of directors appointed by the Minister for Transport and Regional Services. In addition to en route and terminal navigation charges, Airservices Australia also collects fees for aviation rescue and firefighting charges.<sup>26</sup> These fees are assessed if the services are available for use at time of landing or at anytime while the aircraft is in circuit training. En route charges are applied for the entire flight if any part of the flight operates under Instrument Flight Rules.

Airservices Australia also collects the Meteorological Service Charge and the Noise Levy Charge on behalf of other government agencies. All charges are billed to the owner of the aircraft unless liability is assigned through the execution of an Acceptance of Liability for Airways Charges document. In addition to its core functions, Airservices Australia operates a multi-profit center business to sell its services to external customers. Recently the commercial operation was successful in winning bids to take over contract tower services at six FAA locations in the Pacific.

Airservices Australia retains 40% of its profit for reinvestment programs and the government receives a dividend on retained earnings. In 1998 and 1999, the government provided a cross subsidy of \$11 million to support below cost pricing at small regional and general aviation airports in recognition of the public interest.<sup>27</sup>

### **European Structure**

ATC corporatization in Europe gathered support as a means for coping with unprecedented European air traffic increases. Corporatization allowed for the systems to introduce new charges to generate additional revenue to fund ATC infrastructure investment by shifting greater portions of the costs onto the users to allevi-

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<sup>25</sup> Airservices Australia, *Corporate Overview: From the Ground Up*, [online] <http://www.airservicesaustralia.com>

<sup>26</sup> Airservices Australia, *Charges for Facilities and Services*, (January 2005).

<sup>27</sup> Civil Air Navigation Services Organisation, *Corporatisation of Air Navigation Services: A Special Report*, (August 1999).

ate pressures on State treasuries. Sovereign boundaries surrounding relatively small geographic areas led to a complex patchwork of systems and charging structures. A desire for harmonization in regional en route charges led to the establishment of the EUROCONTROL Central Route Charges Office (CRCO). The basic principles for a common system to allow a single charge per flight were adopted by Member States in 1969, implemented in 1971 and the common policy for establishment and calculation of route charges builds on the principles of multilateral agreements effective in 1986. The CRCO also provide billing and collection services for terminal charges to Member States and will provide air navigation billing and collection services to non-Member States on a bilateral basis.<sup>28</sup>

The centralization of fee collection may have provided an impetus for corporatization of air traffic service provision across Europe as the individual providers did not have to establish independent infrastructures for the calculation, billing and collection of charges, yet the States remained free to set the rates of charges within the guidelines specified in multilateral agreements conforming to the EUROCONTROL publication "Principles for Establishing the Cost-Base for Route Facility Charges and the Calculation of the Unit Rates" which specifies the costs that can be considered in determining the costs to be recovered from the users. (See Appendix 1)

The national unit rate is determined by dividing the forecast number of service units into the forecast cost-base for the relevant year. Each flight is then charged based on a formula that multiplies the distance factor, the weight factor and the relevant unit rate. The distance factor is equal to one hundredth of the distance, in kilometers, of a direct route flown between the point of entry to the point of exit in the Flight Information Region (or aerodrome if departing or landing in the airspace). The weight factor is the square root of the quotient obtained by dividing the number of metric tons of maximum take off weight by fifty.<sup>29</sup>

As the unit rate is determined by forecast traffic, an unanticipated downturn in traffic will cause a revenue shortfall, which can be disruptive to planning. In addition,

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<sup>28</sup> Central Route Charges Office, *The EUROCONTROL Route Charges System* [online] [http://www.eurocontrol.int/crco/public/standard\\_page/intro\\_rcs.html](http://www.eurocontrol.int/crco/public/standard_page/intro_rcs.html)

<sup>29</sup> Ibid.

this demand-based method necessarily causes unit rates to be higher during periods of low demand and lower during periods of high demand. This methodology sub-

stantially increases the likelihood that fees will increase when users are least able to pay, as high demand is indicative of a healthy aviation industry while low demand for air traffic services is reflective of an economic downturn for the industry.

Under the centralized system, the CRCO will calculate, bill and collect fees that represent the total route charge for a given flight and redistribute the fees to Member States based on the portion of the flight within the State's FIR. While the charge may seem homogeneous to the user, the fees collected by each State may be substantially different even if comparable amounts of services were consumed in each FIR (see Appendix 2). Additionally, as the calculation is based on a point-to-point route and not necessarily the route flown, services may be provided by one State while the associated revenue may be retained by another.

#### **Luchverkeersleiding Nederland (LVNL) - Air Traffic Control - the Netherlands**

LVNL is a fully government owned corporation supervised by a board appointed jointly by the Minister of Transport and the Minister of Defense. The restructuring of the LVNL to become independent from the Civil Aviation Administration was a seven-year process during which the option of privatization was considered and subsequently rejected because of the public nature of ATC service provision.<sup>30</sup> LVNL provides civil air traffic control services within the boundaries of the Netherlands Flight Information Region in en route airspace up to 24,500 feet above mean sea level and approach control and tower services at Amsterdam Schiphol, Rotterdam, Maastricht and Groningen airports. Military air traffic control services remain under the jurisdiction of the Ministry of Defense.

Although government owned, the LVNL is subject to strict regulation, reporting and oversight by the Ministry of Transport, which remains politically responsible for aviation safety and setting regulations. In addition, the government regulates capacity and noise related issues.

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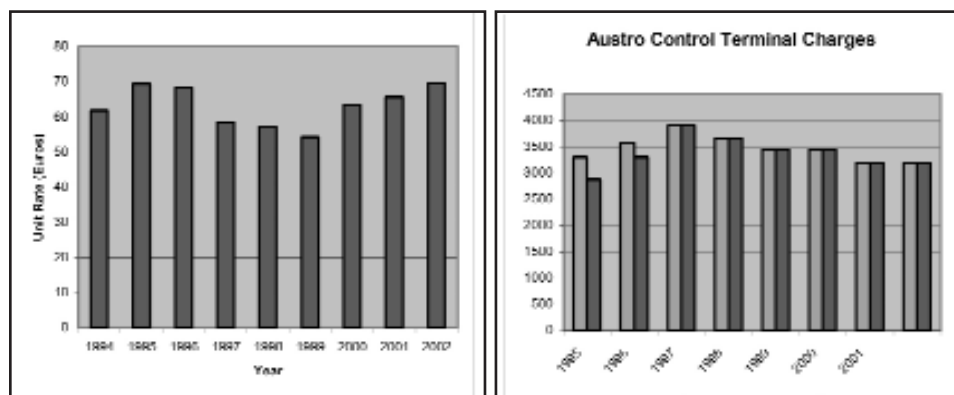
<sup>30</sup> CANSO Corporatisation Report - LVNL (2002).

LVNL has no shareholders and is not permitted to retain or invest any profits. Capital investment is funded through bank loans, revenues are derived from terminal charges collected by the airports authorities and en route charges collected by the EUROCONTROL Central Route Charges office. Fees for ATC service provision are proposed by the supervisory board and subject to approval by the Ministry of Transport.

### Austro Control GmbH

Austro Control GmbH is a limited liability company, founded in 1993, for which the Austrian Government retains 100% of the shares. Austro Control funding is derived from en route and terminal charges as well as a contribution from the government paid on a cost recovery basis for duties executed on behalf of the government.<sup>31</sup>

**Figure 7: Austro Control ATS Charges**



Data source: Austro Control, GmbH

<sup>31</sup> CANSO Corporatisation Report - Austro Control GmbH (2002).

The fluctuations in charges, particularly in the unit rate for en route charges, may have an adverse effect on system users by introducing volatility into the user cost structure. This effect may not be recognized as quickly in the case of Austria as the distance flown traversing the airspace is small.

### **Skyguide**

Skyguide provides air traffic control services to civil and military aircraft in airspace over Switzerland and designated portions over neighboring countries and at Zurich, Geneva, Bern and Lugano airports. Corporatization of air traffic control in Switzerland is not a new concept as primarily state owned corporations have operated air navigation services in Switzerland since 1921. The ownership of the Swiss ATC provider has undergone several reorganizations and government ownership has fluctuated from a low of 51% to the current high of 99.85%. In 2001, Swisscontrol underwent not only a name change to Skyguide, but also added the responsibility for military air traffic control.<sup>32</sup> Currently, it is a non-profit organization for which the Swiss government holds 99.85% of the shares with the remaining 0.15% owned by other public entities in aviation, such as airports.

The system is funded through en route and terminal charges. The unit rate is set by Skyguide and subject to approval by the Ministry of Transport. Revenue is derived from en route charges, collected by EUROCONTROL's Central Route Charges Office and terminal charges collected by the airports, with the exception of Lugano where Skyguide is the direct collector of the charges. Skyguide's investments are financed through cash flow as well as private bank loans and loans from the Swiss government.

The Skyguide restructuring promised, and delivered, initial reductions in route charges, which resulted in pressures to achieve cost reductions. Unfortunately, Skyguide suffered a catastrophic mid-air collision between two aircraft under its control. Subsequent investigations have identified a series of cost cutting measures that weakened backup systems on both a technological and procedural level. The air

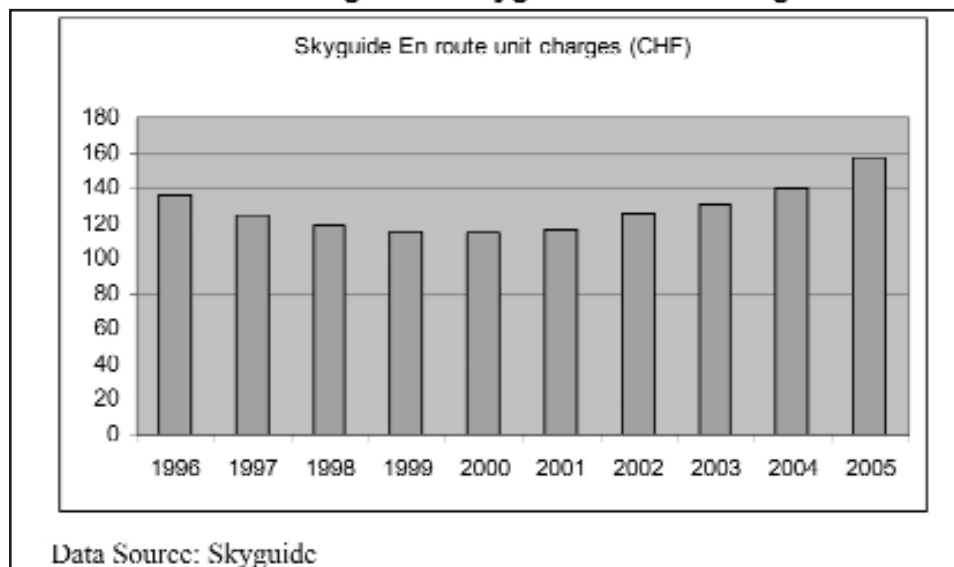
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<sup>32</sup> CANSO Corporatisation Report - Skyguide (2002).

traffic controller involved was subsequently murdered by a family member of a passenger killed in the crash and is unable to provide additional insight into the systemic breakdowns that lead to the catastrophic loss of life.

As of their 2002 report, the reductions in the unit costs immediately following the restructuring from Swisscontrol to Skyguide were anticipated to return to pre-restructuring levels by 2003 and continue to climb in the near future. Skyguide currently has the highest route charges in Europe.

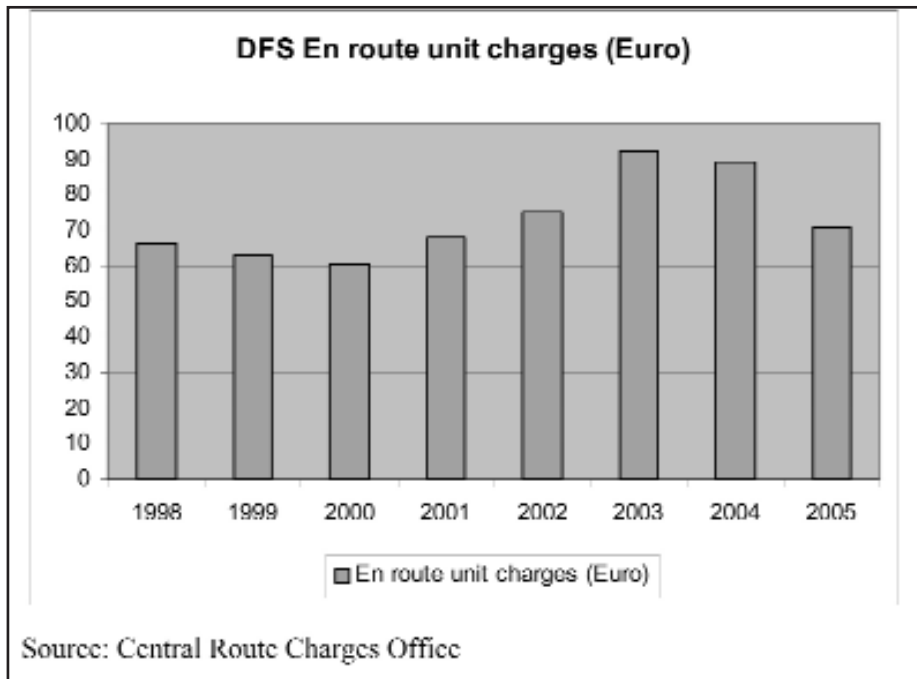
**Figure 8: Skyguide Route Charges**



### Deutsche Flugsicherung GmbH - DFS (Germany)

DFS, created in 1992, began operation as a wholly state owned corporation in 1993 to provide air traffic control services in Germany. Currently, DFS provides air traffic services to civil and military aircraft in en route airspace over Germany and at 17 international airports. The integration of military air traffic control has provided DFS with increase flexibility in the use of airspace. DFS attributes this to the corporatization.<sup>33</sup> The Ministry of Transport decides how much profit, if any, is retained by the state or deposited into DFS capital reserves.<sup>34</sup> Unlike other state owned providers, DFS is required to make a profit. Like other providers using the European charging regimes, rate reductions in the late 1990's proved unsustainable in the face of declining traffic and subsequently unit rate charges experienced dramatic increases.

**Figure 9: DFS Route Charges**



<sup>33</sup> Statement of Deiter Kaden, Chief Executive Officer and Chairman of the Board of Managing Directors DFS Deutsche Flugsicherung GmbH, before the U.S. House of Representatives, Subcommittee on Aviation (20 April 2005).

<sup>34</sup> CANSO Corporatisation Report - DFS (2002).

The corporation is headed by a Chief Executive Officer, supported by three managing directors and has a supervisory board consisting of six elected employee representatives and six representatives of the owner (the Federal Republic of Germany).<sup>35</sup> It is clear from DFS documents that the government structure prior to corporatization did not allow flexibility in either personnel or procurement processes and that flexibility was not available under other statutory provisions.

Europe is currently in the process of a sweeping effort to harmonize ATC service provision driven by a concept of operations that would allow European airspace to operate more like the US structure and move toward efficiencies currently achieved by the FAA, as European ATM costs are considered high in relation to the US.<sup>36</sup> The implementation of the Single European Sky will eliminate sovereign boundaries for Air Traffic Service provision and allow privatized providers to bid for services in any State. In order to take advantage of that opportunity, DFS has implemented a privatization plan in which the government will sell 74.9% of DFS to private investors to be completed in 2006.

## **Supranational Providers**

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### **EUROCONTROL**

EUROCONTROL's primary function as the European Organization for the Safety of Air Navigation is to facilitate the development of a pan-European air traffic management system. It works with States and providers toward harmonization and is not currently working to supplant existing providers. EUROCONTROL has 34 Member States and operates one air traffic control center controlling the upper airspace over Belgium, the Netherlands, Luxembourg and part of Germany. It is currently in the process of developing a second center to control the upper airspace over eight States in Central Europe.

The Maastricht center became operational in 1972 and while it is part of the EURO-

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<sup>35</sup> Ibid.

<sup>36</sup> EUROCONTROL Performance Review Commission, *A Comparison of Performance in Selected US and European En-Route Centres*, (May 2003).

CONTROL organization, it is managed and financed solely by the four participating States.<sup>37</sup> The costs for services are added to the participating States' national cost basis and incorporated into the route charges.

## **Public Private Partnership**

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### **Overview**

The term public-private partnership is broadly used to describe any collaboration between the public and private sector. Public-private partnerships exist in many countries and across industries. While the PPP can take many forms it is most commonly seen in large construction projects where the private sector provides initial financing for capital projects and recoups the investment either from a designated revenue stream (like a highway toll or special taxation district) or rents the project back to the public sector.<sup>38</sup>

### **National Air Traffic Services (NATS) - United Kingdom**

In 1996, National Air Traffic Services was corporatized as a wholly owned company under the Civil Aviation Authority in preparation for a proposed privatization. The government considered several options, including privatizing the system as a regulated monopoly, a non-profit trust, a public corporation or under the Private Finance Initiative. In 1999, it was decided to proceed with a public-private partnership that was completed in 2001. The initial structure provided the government with a 49% share and veto power on key strategic issues and retention powers to deal with national emergencies and to ensure public service obligations are met. A 5% stake was held for employees and 46% stake was sold to a consortium of seven British airlines.<sup>39</sup>

Under this structure civil and military operations were divided and military air traffic control fell under the Ministry of Defense. While most providers consider civil-military integration to be a critical step in enhancing efficiency, the introduction of

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<sup>37</sup> EUROCONTROL, *Frequently Asked Questions*, [online] [www.eurocontrol.int/muac/public/faq/FAQmaastricht.html](http://www.eurocontrol.int/muac/public/faq/FAQmaastricht.html)

<sup>38</sup> BBC News, *What are Public Private Partnerships?* (12 February 2003).

<sup>39</sup> CANSO Corporatisation Report - NATS (2002).

the PPP necessitated the separation of these services that had been integrated in the government model.

The NATS model differs from other European providers in that it is also subject to an economic regulator. Seventy-five percent of NATS income is derived from en route charges calculated under the EUROCONTROL model, other revenue is derived from aerodrome navigation charges collected from aircraft operators or charges paid by the airport company.

NATS has experienced considerable financial difficulties from the beginning of the privatization process. After the Airline Group was selected as the private sector partner, it notified the government that it could not afford the price it had bid and reduced the initial proceeds to the government by £87 million. The initial structure caused the NATS debt to more than double from £330 million to £733 million. The initial projections all assumed continual growth in air traffic and facing an almost immediate downturn compromised the financial viability of NATS while simultaneously threatening the solvency of its private partner - the airline consortium.<sup>40</sup> This structure proved particularly fragile as the both NATS and the Airline Group are adversely affected by the same externalities.

Less than a year after the creation of the PPP, NATS required significant financial restructuring in order to avoid alternative outcomes perceived as less desirable. These potential outcomes included:

- ♦ Putting the company into administration, which would threaten the equity stake of both the Government and the Airline Group and put the banks that had financed the PPP at considerable risk.
- ♦ Returning the company to public sector ownership.
- ♦ The banks curtailing access to capital, forcing NATS to shed parts of the business not related to meeting the statutory obligation and limiting future investment.

The composite solution required concessions from all parties and took over 18 months to complete, eventually resulting in a restructuring of the ownership equity

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<sup>40</sup> National Audit Office, *The Public Private Partnership for National Air Traffic Services, Ltd: Report by the Comptroller and Auditor General* (House of Commons: 24 July 2002).

and new investment of £65 million from the UK government to match the £65 million investment from a new equity investor, BAA plc. BAA plc joined as a minority shareholder in NATS with voting rights of less than 5% and the right to appoint two non-executive directors to the 17 member board of NATS. In achieving the restructuring the Airline Group reduced its equity share to 41.94% and the Government reduced its share to 48.87% in order to afford BAA plc a 4.19% share in exchange for its investment. Although the government increased its investment, it reduced rather than increased, its equity stake.

Notwithstanding the substantial government infusion of cash into NATS, this restructuring is not purely a government bailout. The UK government refers to the PPP restructuring as a "composite solution" as all parties contributed to the solution, many of whom made considerable concessions.

- ♦ The Government invested £65 million on the same terms as BAA plc, tolerated a dilution of their equity stake, and provided a temporary £30 million loan facility.
- ♦ BAA plc invested £65 million and accepted constraints on voting rights.
- ♦ The Civil Aviation Authority agreed to relax the economic regulation and price caps, allowing NATS to raise its prices automatically to recover a portion of lost revenue due to traffic decline. These concessions are expected to cost airlines £100 million between 2003 and 2010.
- ♦ The Airline Group enlisted support from airlines for higher prices and accepted dilution of their equity stake.
- ♦ The banks agreed to relax some loan terms and reinstate the investment facility.
- ♦ NATS cut costs by £170 million, agreed to heavier penalties for delays and more financial reporting to the CAA.<sup>41</sup>

While the financial picture for NATS is substantially more robust than the previous structure, the organization continues to carry heavy burdens for debt service. NATS's 2004 financial reports indicate secured and unsecured loans totaling £114,157,000 in 2004 up from £107,899,999 in 2003 at an interest rate of 8.5% repayable in 2031.

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<sup>41</sup> National Audit Office, *Refinancing the Public Private Partnership for National Air Traffic Services: Report by the Comptroller and Auditor General* (House of Commons: 7 January 2004).

The NATS financial crisis following the transition to PPP should be ascribed to overly optimistic forecasts, notwithstanding the September 11 downturn. A dispassionate analysis reveals that the traffic downturn began well before the terrorist attacks on the United States as evidenced by the change in the offer by the Airline Group prior to completion of the arrangement. This change based on traffic forecasts should have given pause to those involved in the structuring of the PPP. Additionally, UK air traffic levels are historically volatile, having experienced greater and more abrupt traffic fluctuations than it did as a result of September 11, 2001.

The overly optimistic views that led to the fragile financial structure of the NATS PPP are indicative of difficulties being faced by most corporatized or privatized providers. According to the Civil Air Navigation Services Organisation (CANSO) there are fundamental weaknesses in the charging mechanisms, in that the current Air Traffic Management finances are not designed for a downturn.

## **The Privatized Model**

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### **Overview**

Under a fully Privatized model, all assets are transferred to the private company. In the Canadian privatization, the national air navigation system, as well as air traffic control equipment, was sold for CDN \$1.5 billion to NAV CANADA. In addition to the public policy questions, the sale of infrastructure assets raises questions regarding the obligation of system user to bear the cost of that transfer. Ostensibly, infrastructure assets are initially purchased with government resources obtained through previously paid aviation taxes. Through privatization schemes a private sector provider will utilize debt financing to purchase the system from the government. The debt is then repaid through future user fees, essentially requiring the users to pay for through fees, that which they had already purchased through aviation taxes. If aviation taxes are not allocated solely for aviation purposes and instead serve as general revenue, as is the case in many countries, then the purchase price is reimbursement to the taxpayers and not necessarily double billing to the aviation users.

**NAV CANADA**

NAV CANADA was established in 1996 as a non-share capital corporation and is a fully privatized provider of air traffic control services. NAV CANADA purchased the air traffic control business and assets of Transport Canada for CDN \$1.5 billion. The impetus for commercialization in Canada was in response to concerns that the Canadian government operated system was "under funded, procurement practices were slow and costly, and the employment practices were inflexible."<sup>42</sup>

NAV CANADA is governed by a 15 member Board of Directors plus a President and Chief Executive Officer. The financing plan includes provisions for a variety of term bank debt, commercial paper, and hedging instruments. NAV CANADA entered into a CDN \$3 billion credit arrangement with a syndicate of banks to provide the initial funding for the company, NAV CANADA states that it is "by and large responsible for establishing and regulating its own safety practices" and that the current framework essentially allows for self-regulation rather than an economic regulator.<sup>43</sup> The Civil Air Navigation Services Commercialisation Act allows the company to recover its costs and prudent financial reserves through user charges. Like other providers, user charges are based primarily on a weight distance formula, subjecting revenue to fluctuations in conjunction with traffic changes. In addition, it is financed through bond markets with CDN \$2.2 billion in fixed income securities.<sup>44</sup> NAV CANADA maintains a rate stabilization account so that temporary fluctuations in traffic do not dictate changes in user charges. A surplus in the rate stabilization account is treated as a liability as it is returnable to users through reduced future charges and a negative balance is treated as an asset as it is recoverable through increased future charges.

At the end of 2001, the rate stabilization account had a positive balance of CDN \$75 million, but by the end of 2003, the account had a negative balance of CDN \$116

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<sup>42</sup> Civil Air Navigation Services Organisation, *Corporatisation of Air Navigation Services: A Special Report*, (August 1999).

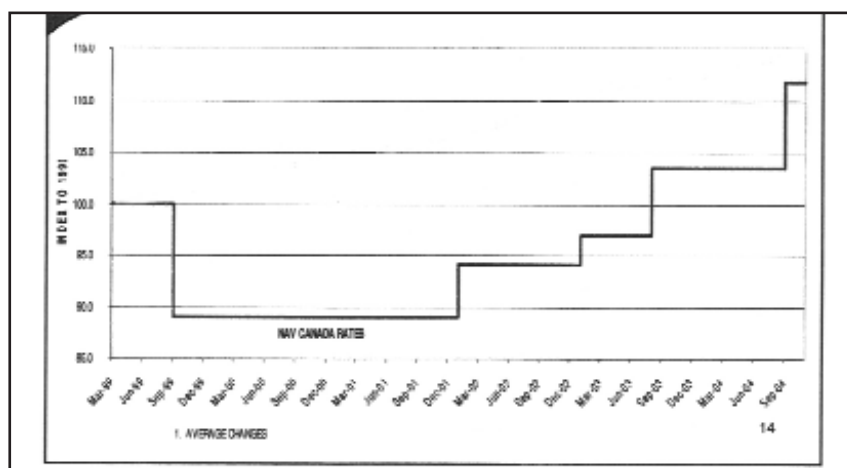
<sup>43</sup> *Ibid.*

<sup>44</sup> *Statement of John Crichton, President and Chief Executive Officer, NAV CANADA, before the House Aviation Subcommittee, (20 April 2005).*

million,<sup>45</sup> even though NAV CANADA had increased charges three times between the end of 2001 and the end of 2003<sup>46</sup>, provoking strong reactions from system users. Air Canada appealed one of the fee hikes, describing the fee increase as "completely out of touch with industry realities" and that fee increases "continue unabated on their unstable, upward spiral."<sup>47</sup> Giovanni Bisignani, CEO of the International Air Transport Association joined the criticism of NAV CANADA stating that it "is no longer delivering value for money" and called for increased government regulation of "private monopolies."<sup>48</sup>

Recently, NAV CANADA has taken advantage of a capital leasing transaction that provided CDN \$56 million increase in net present value. Under this arrangement NAV CANADA entered in to lease/leaseback transactions of the company's air navigation facilities with no real transfer of assets.<sup>49</sup> Like NATS, NAV CANADA is heavily burdened with debt and incurred interest payments of CDN \$136 million in fiscal year 2004.<sup>50</sup>

**Figure 10: History of NAV CANADA Rate Charges**



Data source: NAV CANADA

<sup>45</sup> NAV CANADA, *Management's Discussion and Analysis on Form-51-102F2*, (12 April 2005).

<sup>46</sup> NAV CANADA, *Annual report 2004: Serving a World in Motion* (2004).

<sup>47</sup> Adrian Schofield, "CTA Dismisses Appeal Against Nav Canada Fee Hike" *Aviation Daily* (24 November 2003).

<sup>48</sup> Nicolas Van Praet, "Global Airline Chief Slams Canadian Policies: Fee Gouging Alleged by Iata's CEO" *CanWest Interactive* (10 September 2003).

<sup>49</sup> NAV CANADA, *Annual report 2004: Serving a World in Motion* (2004).

<sup>50</sup> *Ibid.*

**Stability**

User fee based systems, regardless of corporate governance, introduce considerable instability into the funding structure for air traffic control. Some structures have mechanisms in place, like Canada's rate stabilization fund, to mitigate the effects of traffic fluctuations. However, this mechanism proved inadequate when the provider encountered multiple externalities. Traffic decline following September 11, 2001, followed by the SARS scare in Toronto compounded by the bankruptcy filing of the nation's largest air carrier depleted the reserve fund, forcing a series of rate increases.

The instability of user fee based systems is compounded as experience shows that Air Traffic Service providers have opted to increase fees when their users can least afford it. In this way, the Air Traffic Service provider is in competition with the aviation industry during periods of economic downturn. That is not to say that the providers will not be in competition with the industry during times of strong growth. History has shown that during periods of industry strength, airlines tend to regard providers as over collecting fees and the pressure for rate reductions rather than infrastructure investment is as aggressive as the cry for rate cuts during a decline. In its 2003 report, the Regulatory Policy Institute found:

*One of the most contentious issues in ATM is the allocation of risk, particularly of financial risk associated with traffic volatility. Current arrangements are manifestly deficient in this regard, and can give rise to significant short-term movements in charges that bear no relationship at all to movements in the cost of service provision.<sup>51</sup>*

Privatization or corporatization of air traffic control services is frequently marketed as providing stable sources of funding, as the providers have access to commercial markets, and as a means to introduce market based incentives to increase system efficiency. Experience has shown that the structures are primarily designed for continued traffic growth and cannot be sustained in a market downturn, and there is

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<sup>51</sup> National Audit Office, *Refinancing the Public Private Partnership for National Air Traffic Services: Report by the Comptroller and Auditor General* (House of Commons: 7 January 2004).

considerable risk that providers will become overburdened with debt. Costs associated with debt servicing can divert resources away from both service provision and infrastructure investment. Further, the EUROCONTROL Performance Review Commission found:

*The present full cost recovery regime does not provide incentives to deliver performance and to be responsive to user needs beyond levers normally available in the public sector. With the current system, airspace users are bearing most if not all, of the business risks. On the one hand, if demand is higher than expected or if the planned capacity is not delivered, airspace users will incur higher delays. On the other hand, if demand is lower than expected or actual costs are higher than planned, the airspace users will incur higher charges.<sup>52</sup>*

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<sup>52</sup> EUROCONTROL Performance Review Commission, *An Assessment of Air Traffic Management in the Calendar Year 2002* ( May 2003).

## Conclusion

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Air Traffic Control service provision, once the almost exclusive domain of traditional government bureaucracies, has undergone tremendous restructuring worldwide. It is clear from the myriad of structures that no “one-size-fits-all” model exists. The statutory and constitutional constructs within different States may dictate necessary structures, but those limitations may not apply to even neighboring States. In determining the ideal framework for financial structures and corporate governance, the provider and stakeholders should consider the fundamental principles necessary to achieve clearly defined goals.

Policy makers should not assume that the barriers to achieving desired goals exist uniformly between States or that the structural framework for one provider is necessarily ideal for another operating under a different governing structure. For example, corporatization was desired in Germany because the civil service structure did not allow for flexibilities in personnel and procurement, but the United States was able to achieve the flexibility it desired through a statutory change without introducing the financial risks associated with corporatization.

A reliable and robust air traffic control system is a critical component in ensuring a national economy is able to maximize the benefits provided by a vigorous aviation industry. As air traffic control modernization in particular requires long term planning, a stable and predictable funding mechanism is required. Any funding mechanism constructed for the purpose of air traffic control service provision must meet the fundamental tests of providing both adequate and stable resources.

## **Appendix 1: EUROCONTROL Cost Base**

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### **Source: EUROCONTROL Central Route Charges Office**

In establishing the cost base for establishing national route charges, EUROCONTROL advises Member States to include the following:

#### Investment costs:

- ♦ Amortization of fixed assets - including equipment, buildings, land, basic software and application software
- ♦ Amortization of intangible assets
- ♦ Cost of Capital - including cost of capital incurred during the pre-operations phase
  - ▶ Interest paid to providers of debt capital
  - ▶ Cost of capital applied to equity

#### Operating costs:

- ♦ Rental for land or transmission lines
- ♦ Rentals costs of land, buildings, other facilities and applicable taxes
- ♦ Cost of utilities
- ♦ Rent for Aeronautical Fixed Telecommunications Network (AFTN)
- ♦ Total operating costs of other operational and technical support facilities, administrative support, legal, consultancy and audits

#### Staff costs:

- ♦ Actual costs of staff including trainees, supervisors, support staff, including pension and insurance costs

#### Air Traffic Management Costs:

- ♦ Air Traffic Services

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- ♦ Air Traffic Flow Management
- ♦ Airspace Management

Communication, Navigation and Surveillance Costs:

- ♦ Costs of communications, navigation and surveillance facilities including Global Navigation Satellite Systems

Costs of basic and advanced training

Costs in respect of studies, tests and trials

Administrative costs

Aeronautical Information Service

MET Costs (meteorological services)

Search and Rescue costs

**Appendix 2: National Unit Rates**

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<u>Member State</u>	<u>Unit Rate - EUR</u>
Belguim-Luxembourg	83.83
Germany	71.49
France	60.58
United Kingdom	81.50
Netherlands	53.69
Ireland	31.09
Switzerland	86.11
Portugal - Lisbon	49.02
Austria	68.65
Spain - Continental	71.95
Spain - Canary Islands	66.05
Portugal - Santa Maria	14.98
Greece	36.84
Turkey	28.50
Malta	31.74
Turkey	28.50
Malta	31.74
Italy	69.57
Cyprus	34.36
Hungary	35.10
Norway	60.79

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Denmark	56.93
Slovenia	70.04
Romania	40.97
Czech Republic	28.25
Sweden	50.75
Slovak Republic	41.33
Croatia	50.08
Bulgaria	52.83
FYROM	64.28
Moldova	35.47
Finland	38.25
Albania	46.71
Bosnia Herzegovina	47.01

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