

THE PUBLIC TO PRIVATE CONTINUUM MEASURE AND THE ROLE OF STAKEHOLDER BOARDS AS A PROXY FOR MARKETS IN THE GOVERNANCE OF AIR NAVIGATION SERVICES:

A COMPARATIVE ANALYSIS

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ABSTRACT

This article studies institutional arrangements for governance of air navigation services employing a comparative analysis of six nations: Australia, Canada, New Zealand, Switzerland, the United Kingdom, and the United States. In each of these countries other than the United States, a board of directors composed of stakeholder representatives manages an independent air navigation services organization that is not a traditional government bureau.

In this article we assess how boards of public organizations can act as a proxy for market feedback in the provision of public services. We use this concept to develop a more sensitive measure of the degree of publicness and privateness in organizations. We test our Public-Private Continuum Measure using a comparative analysis of air navigation services in six countries. Our Public-Private Continuum Measure advances the measurement of the public to private continuum from the use of an ordinal measure to a continuous measure. Further research is needed to test this measure in studies that place organizations on the continuum and determine how the degree of public-privateness correlates with organizational performance measures. Armed with this tool, governments can make more accurate decisions about the degree of public-privateness desired for the provision of public goods.

INTRODUCTION

With the trend towards increased privatization and outsourcing, governments have to make difficult decisions about the extent of publicness and privateness required for accountable and efficient delivery of public services. In the study of organizations a distinction has been made between public and private organizations. Publicness is defined as “the degree to which public authority affects how organizations act” (Nutt, 1992). In contrast, private organizations are those that produce a product for the profit of the owners (Pindyck and Rubinfeld, 2005: 264).

A range of methodologies has been used to capture the differences between public and private organizations. Differences have been identified in the public organizations’ environment (oversight bodies play the role of the market), transactions (public ownership) and organizational processes (performance expectations being set by the political process)(Nutt, 1992).

Although there is a trend toward privatizing public organizations, the unique role of public organizations in providing public goods mitigates against a complete privatization. Public goods are goods, which, if they are provided to one person they are automatically made available to others at no extra cost (Carlton and Perloff, 1994). This positive externality means that the provider of the good cannot limit the enjoyment of the good to those who pay for it. For example, once air traffic control services are provided at an airport all of the surrounding houses will benefit of the added safety whether they pay their taxes or not.

In addition to being a public good, air navigation is an essential service, which, for reasons of safety, national security and international obligations must remain the responsibility of the government. Consequently, market forces cannot direct the design, production, delivery, pricing and promotion of public or essential goods because there is no feedback from the market to the producer through voluntary purchase decisions. This means that the public organization’s overseeing body, such as the Cabinet, becomes the market for the product, although others (airlines, for example) consume the product.

This lack of a direct market relationship between the customer and the provider of the public good, which is often a service, means that the service provider has to guess what service features and level of quality the consumer will value. It also means that the consumers’ demand for more service and higher quality service is not balanced by having to pay more to receive them. Consequently we see an almost unlimited demand for more and better government services, without explicit considering of the cost of providing these services. By the same token we also see overseeing bodies cutting services to reduce their budgets with little direct relationship to the consumer’s need for those services.

Attributes of the New Public Management (NPM) reforms include disaggregation and decentralization of public services, as well an emphasis on the adoption of private sector management practices within the public sector (Osborne and McLaughlin, 2002; Thynne,

2003). Accordingly, the NPM literature includes discussion of alternative forms of service delivery, including outsourcing or privatization of government functions (Borins, 2002). It has been argued that where changes in institutional arrangements for service delivery are designed to give organizations specific mandates to focus on providing greater benefits to specific groups of users, responsiveness and the quality of service should improve (Aucoin, 1998; Murdock, 2004).

Also, it has been asserted that reductions in information costs have led to an increase in the effectiveness of process-oriented structures, such as independent organizations with focused service delivery responsibilities, relative to functional structures with a wide scope of responsibilities such as traditional government bureaus (Jones and Thompson, 1999: 29). Another way to interpret these moves to separate the oversight bodies from the actual service provision is by putting the oversight body in its correct position in the provision of a public good – the oversight body is the market. When government-provided services are contracted out to competing organizations, the oversight body can act as a buyer and becomes the market for those services. Nevertheless, the overseeing body still has the challenge of deciding what services to offer and evaluating the provision of the services.

Advocates of NPM also have leveraged the concept of the minimalist state, where government arranges for specific services but does not necessarily provide them (Jones and Thompson, 1999: 18; Savas, 2000: 65; Pollitt, 2002). In contrast to traditional public administration, NPM also is concerned with implementation rather than solely with policy prescriptions (Kelman, 2003). The focus is therefore on the operation of management systems and techniques, as well as associated outcomes. Outcomes are assessed in part using clear standards and quantifiable performance measures (Thynne, 2003).

One management approach used under NPM is to place organizations under the governance of a board that represents major stakeholder (consumer) groups that the organization serves. Such a stakeholder board acts as a proxy for market feedback and takes the place of accountability through the chain of command to elected officials. An even stronger form of this structure gives the major stakeholder groups, rather than the government, the authority to choose their representatives on the board.

This article begins with a review of how entities are classified as being in either the public or private sector. We introduce the subject of air navigation services, with a brief description of how air navigation services are structured in the six countries chosen for comparative analysis. We then develop a measure of the continuum from publicness to privateness and use the air navigation services of those six countries to demonstrate the application and value of the measure.

MEASURING PUBLICNESS ON THE PUBLIC TO PRIVATE CONTINUUM

The measurement of publicness has progressed from the use of a dichotomous variable of public versus private to various classification systems that consider a number of

variables. Perry and Rainey's system uses ownership, funding and control to sort public and private institutions into eight categories reflecting their degree of publicness (see Table 1) (Perry and Rainey, 1988). In measuring publicness (Rainey and Bozeman, 2000) ordinal variables, such as public versus private or nominal categories, such as bureau to private enterprise, may not be as useful as an interval variable that could rank each organization based upon the extent of its publicness.

Rainey and Bozeman contend that all organizations have some level of publicness. By the same token we could say that all organizations have some level of privateness, and we should be able to measure the degree of privateness of each organization.

To be useful, a measure of privateness should be easy to calculate from publicly available information. It should be sensitive enough to distinguish between different types of organizations, such as government contractors and private organizations. It should also be sensitive enough to distinguish between different organizations of the same type if they have significant differences in their level of publicness or privateness. Finally, the measure of privateness should accurately rank organizations based upon their degree of privateness. One would also hope that a measure that accurately places an organization on the public to private continuum would also prove to replicate canonical theory about the characteristics and outcomes of publicness.

AIR NAVIGATION SERVICES

Among the traditional functions of government, air traffic control (ATC) is provided for the purpose of preventing collisions between aircraft in the air, and on the ground between aircraft and obstructions, as well as expediting and maintaining an orderly flow of air traffic. In addition to ATC, the effective management of air traffic requires associated services such as meteorology, search and rescue, and telecommunications, as well as the provision of aeronautical information such as charts. When grouped with ATC, these ancillary functions are termed air navigation services (ANS) (International Civil Aviation Organization [ICAO], 1997: 83). It should be noted that most of the world's nations place meteorological services and search and rescue provision, both of which are included under the definition of ANS, under other organizations rather than assigning them to the ATC provider.

ANS is therefore a broader term and describes the range of services provided somewhat more accurately than ATC, although the latter label is better known. An additional factor is that the term "Air Navigation Service Provider" (ANSP) has evolved to describe the organizations responsible for ATC, whether or not they provide the full range of air navigation services (Civil Air Navigation Services Organisation [CANSO], 2003a). We will therefore use air navigation services in this article to describe the services under consideration.

STAKEHOLDER CATEGORIES

A key objective of restructuring an ANSP is to grant the organization greater independence from government. At the same time, reform requires that an alternative governance structure be established that provides a voice for stakeholders. There are three major stakeholders in the provision of ANS: national governments, aircraft owners and operators, and airports. We will briefly describe the role of each category of stakeholder below.

National Governments

The first category of stakeholder in ANS delivery is composed of *national governments*. The provision by governments of air navigation services reflects the responsibility of the state for safety, international relations, and indirectly, the macroeconomic benefits of ensuring a sound infrastructure for aviation.

The central international document governing the global organization of ANS is the Convention on International Civil Aviation, commonly referred to as the Chicago Convention, whose original version was signed in that city in 1944 (ICAO, 2000). In the Convention, Contracting States agreed to ensure the minimum standards of ANS established by ICAO, a specialized United Nations agency created by the Convention.

Emanating from obligations under the Chicago Convention, ANS has traditionally been provided by line agencies of national governments.

However, there is a widespread trend toward transferring delivery of ANS to independent agencies or corporations. The Civil Air Navigation Services Organisation (CANSO), which is the trade association for independent ANSPs, currently counts 31 members (Civil Air Navigation Services Organisation [CANSO], 2003a). However, whatever delivery mechanism is chosen, national governments remain ultimately responsible for ensuring that adequate ANS are available (ICAO, 1997: 7; Majumdar and Ochieng, 2004)

Accordingly, it makes eminent sense that national governments, as the entities ultimately responsible for the provision of ANS, are key stakeholders in the delivery of these services. Government interests in ANS are represented in two principal ways. First, restructured ANSPs usually have government representatives of their boards. Typically, a nation's cabinet or individual ministers name these members. Second, governments maintain residual responsibility for safety and economic regulation of independent ANSPs. This authority is typically exercised through government agencies such as Canada's National Transportation Agency or the U.K. Civil Aviation Authority.

In Australia and New Zealand, cabinet ministers name individuals to the boards of Airservices Australia and the Airways Corporation of New Zealand. Even though these individuals may have considerable experience in the aviation sector, their role is to represent the general public interest. For example, the Airservices Australia board currently has a retired Qantas chief pilot on its board, but that individual does not

represent Qantas. Similarly, the retired Air Vice Marshal on the Airways board does not represent the Royal Australian Air Force.

Aircraft Owners and Operators

Aircraft owners and operators are generally divided into two broad groups. The first group, which represents the largest source of revenue for ANSPs, consists of airlines and air cargo firms. These companies operate the largest, heaviest aircraft, which in turn place the greatest demands on ANS. The core ICAO policy on user charges states that only distance flown and aircraft weights are acceptable parameters for use in an ANS charging system (ICAO, 1997: 59). These two factors are considered to be easy to measure, bear a reasonable relationship to the value of service received, and do not discriminate due to factors such as who owns the aircraft, where the flight originated or the nation of aircraft registration.

The second group of aircraft owners and operators is known as general aviation, which consists of small aircraft not operated on a common carrier basis. This group includes both corporate and business aircraft, such as small jets, as well as aircraft operated for private or recreational use. Despite the small size of the aircraft, the large numbers of general aviation operators make this group a significant user of ANS, as well as an important political constituency in many countries.

For example, the Aircraft Owners and Pilots Association (AOPA), a 400,000-member organization that represents the general aviation (small aircraft) sector in the U.S., is staunchly opposed to any initiative to move the provision ANS outside the federal government. A key AOPA position is that a restructured, independent ANSP will be governed by and designed for the airlines exclusively. One of AOPA's concerns is that ANS user charges for small aircraft could be raised to an amount that makes recreational flying unaffordable (Aircraft Owners and Pilots Association, 2003).

Airports

In a number of industrialized countries, with the notable exception of the U.S., there is a trend toward private operation of airports, although the land and facilities may remain owned by governments. Airports have a natural interest in ANS, as the safe and efficient management of air traffic, as well as reasonable user charges, are essential to the commercial success of that facility. For example, one of the leading private airport operators is BAA plc, which owns and operates seven airports in the U.K.: London's Heathrow, Gatwick, and Stansted Airports, and the airports serving Glasgow, Edinburgh, Aberdeen and Southampton. The firm, which evolved from the 1987 privatization of the British Airports Authority, had 2003 revenues of £1,933 million. BAA is therefore heavily involved in the aviation industry, and is one of the key customers of the United Kingdom's ANSP, National Air Traffic Services Ltd (NATS). In fact, BAA hires NATS to perform tower ATC at its U.K. airports. BAA also holds partial ownership or management contracts in a number of overseas airports, including Indianapolis, Boston, and Pittsburgh (BAA plc, 2004; Dunn, 2003; Woodman, 2003).

AIR NAVIGATION SERVICE PROVIDERS IN SIX COUNTRIES

While the United States has yet to undertake any significant change in how ANS are delivered, the experience of other nations that have given their ANSPs independence status is relevant to the design of any eventual U.S. reforms. We have therefore chosen five countries with a view towards examining their experiences with the reform of ANS provision. Our choice of nations was motivated as follows. First, we selected Australia, New Zealand and the United Kingdom, which Barzelay considers “benchmark cases of NPM,” a view supported by Aucoin in his study of reforms in Canada (Barzelay, 2001: 55; Aucoin, 1995). Additionally, all three of those countries have moved ANS delivery outside of the line department structure into independent organizations.

We then added Canada, also a member of the Commonwealth, and the United States’ largest trading partner, which shares a 7,065-mile border with the U.S. (Cody, 2003). Airline traffic between the U.S. and Canada also represents the largest international air traffic market in the world, and Nav Canada, that country’s ANSP, directs a great deal of traffic between the U.S. and third nations (Pustay, 1999). We also added Switzerland to our selection, in order to include a nation outside the Anglo-American sphere. Switzerland is of particular interest as the first country to establish an independent not-for-profit corporation for ANS provision, Radio-Suisse (now called Skyguide), doing so in 1921 (CANSO, 2002b).

Finally, we will examine the current arrangements for ANS in the U.S., in order to contrast them with the five other nations studied. In doing so, we were inspired by the variation-finding approach to comparative case analysis undertaken in Barzelay’s examination of NPM in the U.S. and five other countries (Barzelay, 2001: 55).

While there are comparative studies of airline and airport privatization (Advani and Borins, 2001; Backx, Carney, and Gedajlovic, 2002; Doganis, 2002; Staniland, 2003), we were unable to locate a comparative analysis of ANS reform. The literature on changes to the governance of ANS (Goodliffe, 2002; Lovink, 1999; Shaoul, 2003) has focused mostly on the experience of individual nations in transforming their ANS. Charles and Newman (1995) briefly discussed the experience of New Zealand in their review of the proposals for ANS reform in the United States. Golaszewski (2002) examined the differences between ANS provision in the U.S. and Europe, but focused on air traffic management issues (such as congestion and delay) rather than governance or organizational form. Finally, Majumdar and Ochieng (2004) discussed the Canadian and New Zealand experiences with ANS reform with a view toward implications towards restructuring NATS, the British ANSP. In summarizing the Canadian and New Zealand experience with restructuring, the authors found the following:

- Safety had not been compromised;
- Access to capital had allowed the introduction of new technologies and improved project management;
- User charges had declined;

- There was increasing international involvement, often in collaboration with ANS equipment manufacturers.

In the next section, we will discuss the experience of each of the six countries reviewed in chronological order based on the date restructuring took effect. We will discuss the United States last, as it has yet to establish an independent ANSP.

Switzerland

Of the six nations reviewed, Switzerland's ANS arrangements are indeed unique. Since the inception of air navigation services in 1921, an independent federal corporation has provided ANS. The firm was originally known as Radio-Suisse, but changed its name to Swisscontrol in 1987, then Skyguide in 2001. The company's shares are held almost entirely by the government, with a very small portion (0.15 percent) held by the aviation industry (airports, aircraft operators, aviation related organizations and labor groups).

Skyguide has a seven-member board, consisting of an independent Chairman who is currently a private attorney, a Vice-Chairman who represents the military (currently the Deputy Commander-in-Chief of the Swiss air force), and five other directors. These are currently the Deputy Director of the Federal Office of Finance, a union representative, an independent professional engineer, and the heads of Aerosuisse (the aviation industry trade association) and Swissport Switzerland (the private franchise that operates Switzerland's three major airports at Zurich, Geneva, and Basel)(Skyguide, 2004).

The government does not fund Skyguide, and debt financing must be obtained entirely on the private market; the government does not back Skyguide debt. Like Nav Canada, Skyguide can be viewed as a private corporation, where it is presumed that the shared interests of the stakeholders will prevent monopsonistic behavior toward users. However, unlike Nav Canada, Skyguide is effectively controlled by the Swiss government (Poole and Butler, 2002).

New Zealand

For many students of the New Public Management, New Zealand represents the first nation with the Westminster system of government to undertake fundamental reforms in the structure of government and in the policy-making process. These changes can be traced back to the 1983 victory of the Labour party. At the time, New Zealand was facing a severe fiscal crisis, and as explained by Barzelay (2001: 73), the situation provided an ideal context for economic policy to spill over into public management.

Reform in New Zealand has been facilitated by the country's small population of only 4 million, unitary form of government, and single-chamber legislature (Organisation for Economic Cooperation and Development, 1999). Immediately before corporatization in 1987, ANS provision cost the government more than NZ\$10 million a year. The Airways Corporation of New Zealand, now a State-Owned Enterprise, claims air navigation services currently return to the government shareholder more than \$10 million in dividends and taxes every year (Airways Corporation of New Zealand, 2003a).

Airways has been described as the most autonomous of the reformed ANSPs that remain part of their national government. This is consistent with the principles underlying reform of the public sector in New Zealand, which include the provision that commercial functions remaining the responsibility of the state should operate in the private sector as corporations, with independent boards of directors, and paying taxes and dividends (Organisation for Economic Cooperation and Development, 1999). Airways' board of seven, while named by the Minister of Finance and the Minister for State-Owned Enterprises, is expected to set policies in accordance with the government's role as a rational shareholder. One member is a retired pilot from the New Zealand Defence Forces; the other six have non-aviation corporate backgrounds (Poole and Butler, 2001; Airways Corporation of New Zealand, 2003). Therefore New Zealand is similar to Switzerland in having its ANSP assume a corporate form, although in New Zealand there is no share capital or private ownership of Airways stock.

Australia

ANS in Australia are provided by Airservices Australia, a government-owned authority created by the *Air Services Act 1995*. The same legislation also created the Civil Aviation Safety Authority to separate the safety regulation function from the ANSP. Airservices also is unique among the ANSPs reviewed in this article in that the organization also is responsible for airport firefighting services.

Since 1995, there has been some discussion of transforming Airservices into a corporation and opening up some ANS functions to competition, but no such changes have been introduced so far (CANSO, 1999: 34-40; Airservices Australia, 2001; Airservices Australia, 2003). The Minister for Transport and Regional Services appoints all members of Airservices' board of directors. There are currently six independent directors plus the Chief Executive Officer and the Chief Financial Officer. Of the six independent directors, one has a military aviation background, three have experience in the commercial aviation industry, one has a financial industry background, and one is a corporate lawyer (Airservices Australia, 2004). Unlike its counterparts in Switzerland and New Zealand, Airservices is a government agency, not a corporation, although the manner in which board members are named (by cabinet ministers) is similar to Switzerland and New Zealand.

Canada

The Canadian reform of ANS was significantly influenced by reforms in Australia and New Zealand. However, when Nav Canada was created in 1996 through the *Civil Air Navigation Services Commercialization Act*, Parliament did not follow the example of those two countries in creating an independent government agency or state-owned enterprise. Rather, the legislation provided for a private sector, not-for-profit, non-share capital corporation incorporated under the provisions of the *Canada Corporations Act*, with a board of directors composed of stakeholder representatives. The result has been described as the world's first fully privatized air-traffic control system (Baglole, 2001;

Majumdar and Ochieng, 2004), and the stakeholder board is viewed as the most distinctive element of Nav Canada's governance structure (Poole and Butler, 2002).

There are fifteen members on Nav Canada's board of directors; the Air Transport Association of Canada, which represents the nation's air carriers, appoints four. The Canadian Business Aircraft Association and the Canadian Owners and Pilots Association, representing corporate aviation users, alternate in naming one board member. Nav Canada unions appoint two directors, and three members are appointed by the government. In turn, these ten individuals select an additional four independent directors. Together, the fourteen directors then name the President/Chief Executive Officer (Poole and Butler, 2002; Nav Canada, 2002).

Nav Canada's autonomous structure has been suggested as the model for eventual reform of the U.S. Federal Aviation Administration (Poole and Butler, 2001). The company's non-share capital structure, with only a minority (four of fifteen) directors appointed by the government, corresponds to a greater deal of autonomy than the other ANSPs reviewed in this article.

United Kingdom

Of the six nations reviewed in this article, the evolution and current governance of ANS in the United Kingdom are the most complex, due to the creation of a share-capital Public-Private Partnership (PPP) for ANS.

The partial privatization of National Air Traffic Services Ltd. (NATS), which was authorized by the *Transport Act, 2000*, represents a unique exception to the practice of public ownership and not-for-profit structure of ANSPs in other nations. The approach taken by the U.K. government must, however, be seen in the context of the widespread use of PPPs in the U.K. These partnerships are closely associated with the Private Finance Initiative (PFI), originally launched by the Conservative government in 1992, but continued under the current Labour administration. While the Conservative interest in PPPs was strongly influenced by ideological considerations, the Labour government has taken a pragmatic approach, viewing partnerships as a way of dealing with fiscal constraints. PPPs are therefore conceived a means of getting private investment to substitute for public funding (Falconer and McLaughlin, 2000; Pollitt, 2003: 59; Wettenhall, 2003). As of 2003, the PFI had led to some 450 contracts underway or completed, with a total value of £50 billion (Broadbent and Laughlin, 2003).

As originally established by the *Transport Act, 2000*, NATS had the following structure. Like other reformed ANSPs, the firm was designed to be owned by stakeholders. The government retained a 49 percent share of the company, although it was deemed to be a "golden share" constituting majority control. NATS employees were assigned 5 percent of the firm through a trust. The government then requested bids from the private sector for the remaining 46 percent. As mentioned above, the government selected the Airline Group, a consortium of seven British carriers (British Airways, bmi British Midland, Virgin Atlantic, Britannia, Monarch, easyJet and Airtours), as the successful bidders

during 2001. The Airline Group consortium also received merger clearance from the European Commission (CANSO, 2002a).

However, like any other ANSP, NATS is vulnerable to declines in revenue should air traffic drop, as it did after the attacks of September 11, 2001. The post-2001 drop in revenues sent NATS into a tailspin, particularly since it could do little to reduce the cost of its unionized workforce, and was in the midst of construction of a number of new enroute centers that would eventually manage all U.K. airspace.

NATS had estimated a need for £100 million of capital investment over the period 1997–2007. The cost of paying the government for the proceeds of the sale of NATS led the firm's debt rise to £733 million by 2002. The Civil Aviation Authority, responsible for economic regulation of NATS, would not authorize increased charges sufficient to offset the decline in traffic. Also, neither of the firm's shareholders – the U.K. government and the Airline Group – was in a position to make new equity capital available. Ironically, the Airline Group's member firms were in financial turmoil due to the same decline in air traffic that was causing difficulties for NATS. Debt servicing had also become challenging for NATS, and the government did not wish to take back the firm, which might have led to the perception that the PPP was a failure (National Audit Office, 2002; Humphreys, Francis, and Ison, 2003; Majumdar and Ochieng, 2003).

In these circumstances, and with a unilateral injection from the government ruled out for fiscal and policy reasons – such action would undermine the very concept of a PPP – the only solution was to find equity funding from a new source. Finally, in March 2003, a restructuring was announced. NATS, the Government, the Airline Group, and the CAA had undertaken a major refinancing exercise that examined a wide range of options, including creating a not-for-profit organization on the Nav Canada model. The approach chosen, dubbed the “composite solution” by NATS, preserved key features of the PPP while attracting a new investment of £5 million in share capital, and £60 million in loans, from BAA plc, the U.K.'s largest airport operator (U.K. National Audit Office, 2004: 1-4). The U.K. government matched BAA's investment, also contributing £5 million in share capital and £60 million in loans (Dunn, 2003; Woodman, 2003).

With the new capital infusion, the distribution of the parent firm NATS Holdings Ltd shares was modified as follows: BAA now has 4.19 percent, the U.K. Government's ownership dropped from 49 percent to 48.87 percent, the Airline Group's shares went from 46 percent to 41.94 percent, and the NATS Employees Sharetrust remains at 5 percent of shares. (U.K. National Audit Office, 2004: 1-4). Also, any financial risk due to a decline in air traffic is now divided equally between NATS and its customers (Dunn, 2003; Euroweek, 2003).

In summary, the evolution of NATS represents a lesson learned in the terms of the conceptualization and design of PPPs. Despite the guaranteed need for ANS, privatization did lead to considerable financial risk. This risk, which the government originally desired to transfer to the private owners of NATS through the PPP, ended up back with the government. The entry of BAA plc as a white knight has at least temporarily eliminated the possibility of bankruptcy or a government takeover. And the politically important

principle of preserving NATS as a PPP has been respected. But there is also a clear message in the NATS experience for those nations wishing to privatize their ANSP (Humphreys, Francis, and Ison, 2003; Linder, 2000; Edwards and Shaoul, 2003).

United States

In contrast to the other nations analysed, the U.S. stands out for continuing to both regulate and deliver ANS through the Federal Aviation Administration (FAA), a bureau of the Department of Transportation. The FAA is the direct descendant of the Aeronautics Branch of the Department of Commerce, created in 1926 (Federal Aviation Administration, 2004a). However, the FAA does benefit from a somewhat greater degree of flexibility in personnel management and procurement than other United States government agencies (U.S. General Accounting Office, 2003a).

Another feature of ANS in the U.S. is that users of the system do not directly fund the services received. There are no terminal or enroute charges for the use of ANS, except for foreign carriers overflying U.S. territory. The Aviation Trust Fund, which is supported by airline ticket taxes, excise taxes on charter operators and general aviation fuel taxes, funds 75 percent of the cost of ANS, with general government revenues providing the other 25 percent (Esler, 2004).

During 2003, the FAA announced an internal reorganization that groups the major functions that support ANS, such as procurement and financial management, under an Air Traffic Organization, rather than having them scattered throughout the FAA. This reorganization is consistent with the 1997 recommendations of the National Civil Aviation Review Commission, which proposed a performance-based organization within the FAA to manage ANS. However, the reorganization does not incorporate one of the key recommendations of the Commission's report, the creation of a board to manage the new organization. The concept of a stakeholder board was the key Nav Canada innovation that the Reason Public Policy Institute recommended for the U.S. (Poole and Butler, 2001). The reorganization announced by the FAA in 2003 is intended to foster a greater sense of accountability for performance and productivity in the delivery of air traffic services (Bond, 2003; National Civil Aviation Review Commission, 1997; Federal Aviation Administration, 2003a; Federal Aviation Administration, 2003b). Given the size and complexity of ANS operations in the U.S., the close relationship of ANS to other national security functions, and opposition from unions and members of Congress, significant changes to the governance of ANS functions in the U.S. are unlikely.

THE PUBLIC TO PRIVATE CONTINUUM

Perry and Rainey (1988) proposed a typology of organizations created by cross-classifying ownership, funding, and mode of social control (see Table 1). The mode of social control dimension is intended to explain "the extent to which major components of an organization's domain are subject to relative greater external controls by polyarchy or markets" (Perry and Rainey 1988: 193). The authors describe the *market* form of social control as situations where firms are expected to depend entirely on their shareholders for

direction and clients for revenue. In contrast, the *polyarchy* form of control represents the context for organizations, typically in the public sectors, which are influenced by a broader range of forces. For example, even a traditional government bureau such as the Federal Aviation Administration is subject to influences from beyond government such as users of the ANS system, including airlines, the owners and operators of private aircraft, and airports.

As explained by Perry and Rainey (1988: 193): “Governmental authority involves social control through rules and directives issued by government, whereas market organizations must induce individuals to engage in markets with them.” Drawing on the work of Lindblom (1977), Perry and Rainey felt that while the entities involved in a polyarchy might engage in exchanges, these exchanges involved efforts to influence authoritative rulings (such as regulations), rather than economic exchanges of goods and services.

However, the designation of polyarchy versus market is not a pure dichotomy. The authors explain that the mode of social control dimension refers to “the extent to which major components of an organization’s domain are subject to *relatively greater* external controls by polyarchy or market” (Perry and Rainey 1988: 193, our emphasis). In Table 2, we have represented the six ANSPs reviewed in this article using Perry and Rainey’s categorization.

Koppell (2003: 10-11) suggested that the social control category developed by Perry and Rainey was less than helpful, as one could categorize any given institution as governed by either market or polyarchy. However, Koppell expressed the view that the Perry and Rainey approach did offer the benefit of defining hybrid or mixed organizations, by making a default assignment of “public” and shifting to “private” at the first sign of deviation, such as signs that the institution was intended to cover its expenses through charges to clients rather than legislative appropriation. Koppell (2003: 9) cites Seidman and Gilmour’s (1986) use of the term “Twilight Zone” to describe this type of institution that, while created by government, is neither inherently governmental nor private, such as Amtrak.

According to Hansmann (1996: 228), the distinguishing characteristic of a nonprofit firm is that it is prohibited from distributing profits to individuals who exercise control over the firm. Instead, residual earnings are reinvested in the company. This restriction means that in effect, nonprofit firms have no owners, that is, persons who both control the firm and share in its earnings. The nonprofit firm is held in trust for its customers, which in the case of ANSPs are the users of the air navigation system. All five non-U.S. ANSPs can be described as nonprofit; each provider’s enabling legislation requires it to reinvest any surplus.

The nonprofit organization has a distinct advantage over the government bureau providing services. Murdock (2004) explained that in the public sector, public officials deliver services on behalf of clients or end users. In this context, the beneficiary of services (the aircraft owner or operator) is not responsible for arranging the service to be provided (such as ANS). Assigning the responsibility for ANS to an independent,

nonprofit organization can assist in eliminating the principal-agent problem that arises between the government and the users of ANS.

In this context, we have adapted Perry and Rainey's methodology in Table 2 to provide an indication of the relationship between private sector/market ownership, funding, and control of ANSPs and their performance. In the table, we assign one point to private ownership or funding, and no points to public ownership or funding. Similarly, one point is assigned to market control of the ANSP, with no points awarded for polyarchies where control is shared between the government and private entities. Based on this system, the U.S. receives the lowest score (zero), while Canada receives the highest score of three points.

Even though we can assign numeric values to each category in Perry and Rainey's classification (see Table 2), we are still left with several categories that receive the same ranking. For example, there is no difference between the government corporations, government sponsored enterprise and the governmental enterprise. Hence, we find that the regulated enterprise of the United Kingdom is ranked the same as the state-owned enterprise of New Zealand, although from our case study we can see that the United Kingdom system has more features of private organizations than New Zealand system.

We also find that the Swiss ANSP ranked the same as that of Australia because they both fall into the category of "Government Corporation," although from our case study Switzerland has more characteristics of privateness than Australia. This indicates this measure of privateness isn't sensitive enough to distinguish between these obviously different organizational categories. Accordingly, an alternative measure of privateness may provide for a greater degree of granularity in measuring privateness among the ANSPs, as we will discuss in the next section.

STAKEHOLDER BOARDS AS A MEASURE OF PRIVATENESS

The creation of boards to manage ANSPs can be seen an attempt to use these boards as a proxy for market feedback. Boards are meant to represent the users of ANS, while also acknowledging the ultimate responsibility of the state for ANS provision. Board composition also provides insight into how boards will respond, given the split responsibility of board members: to the stakeholders they represent, and to the ongoing welfare of the ANSP itself. The effectiveness of boards in representing diverse interests can be partially evaluated on the basis of who appoints board members. Where stakeholders select the individuals that will represent them on the board, it is reasonable to assume that representation will be more effective than when the government appoints board members.

Table 3 attempts to capture this element by comparing the six countries reviewed on the basis of who appoints the representatives under each stakeholder category. A score of zero is assigned where there is no appointee in a given stakeholder category. Where the government names the appointee, a score of one is assigned; where the stakeholder names the appointee, a score of two is assigned. The comparison is not applicable to the United

States, as a board does not manage that country's ANSP. Using this scoring system, Canada and the United Kingdom have the highest level of privateness, with the strongest direct representation of stakeholders on the boards of their ANSPs.

We then take our stakeholder board measure and combine it with our other measures of privateness (see Table 4). The resulting measure of privateness clearly delineates all of the countries in our sample. Based upon these results the most private air navigation system is in Canada, followed by the United Kingdom, Switzerland, New Zealand, Australia and finally the U.S.

Our findings establish that a broad range of options exist for the degree of privateness that characterize ANSPs. Furthermore, the measure provides a means of comparing the six ANSPs with each other and potentially with other ANSPs outside our sample. Our measure of privateness also represents a significant evolution from the established characterization of ANSPs as either government bureaus or "reformed" independent organizations (CANSO, 1999; Golaszewski, 2002; Majumdar and Ochieng, 2004).

CONCLUSION

The study of public and private organizations leads to a need for accurate and sensitive measures to make comparisons. As our theory develops with the understanding that all organizations have some level of publicness and privateness we need a measure that reflects that understanding. The Public to Private Continuum measure can be used, for example, to assess the impact that the degree of privateness has on other variables, such as organizational performance. Furthermore, if an organization is contemplating a shift in the degree of privateness, there is a need to measure this factor, and understand what elements contribute to it.

This article builds upon the categorization of organizations based upon ownership, funding and control. We identified the role of stakeholder boards as a proxy for market relationships with consumers and extended categories of public and private organizations into an integral measure of an organization's privateness. In doing so, we take the position that privateness is directly related to an air navigation service provider's ability to respond to user needs. Where a board manages the ANSP rather than a chain of command leading to elected officials, we would suggest that financial performance, safety, and efficiency should improve.

However, a wide range of options is available to governments that are considering changes to the governance of their ANSPs. We would suggest that our measure of privateness provides a broader means of evaluating alternative forms of governance than a simple public/private dichotomy. Furthermore, when coupled with empirical data that associates the form of governance with performance data in established categories, decision-makers could assess the potential outcomes of alternative structures.

Our measure of privateness is sensitive enough to distinguish between organizations in different categories, such as the regulated enterprise used by the United Kingdom and the

state-owned enterprise in New Zealand. We are also able to distinguish differences in privateness between the air navigation services of Australia and Switzerland, which both fall into the category of government corporations, but have obvious differences in their public/private balance. The Public to Private Continuum Measure is also easy to calculate from publicly available data.

Further research should also concentrate on relating the degree of privateness to the performance of ANSPs. As mentioned earlier, little comparative research has been performed on the subject of air navigation services. However, Majumdar and Ochieng (2004) did find that reforms carried out in Canada and New Zealand had led to improved project management, access to capital, financial performance, and safety. User charges had also declined following creation of independent ANSPs in the two countries. An empirical comparative study of these factors, which relates the degree of privateness to indicators of performance, would provide additional support for the above findings.

A limitation of our study is that we have only tested our measure of privateness in one industry, using the air navigation services of six countries. Future research is needed to test this measure in other public and private organizations and to determine if this measure of publicness is effective in predicting other measures of organizational performance. Such research would be particularly desirable given the current trend toward restructuring of government bureaus responsible for air navigation services into independent entities. The wide range of organizational forms and governance mechanisms being used provide a rich range of data, but without comparative analysis, there is little guidance available on what works, and what doesn't, in the provision of air navigation services.

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Table 1: Perry and Rainey Classification of Institutions

Category	Ownership	Funding	Control	Example
1. Bureau	Public	Public	Polyarchy	Bureau of Labor Statistics
2. Government corporation	Public	Private	Polyarchy	Pension Benefit Guaranty Corporation
3. Government-sponsored enterprise	Private	Public	Polyarchy	Fannie Mae
4. Regulated enterprise	Private	Private	Polyarchy	Private utilities
5. Governmental enterprise	Public	Public	Market	No known examples
6. State-owned enterprise	Public	Private	Market	Amtrak, Airbus
7. Government contractor	Private	Public	Market	Grumman*
8. Private enterprise	Private	Private	Market	IBM

*Now known as Northrop Grumman.

Source: Perry and Rainey (1988), as reproduced in Koppell (2003: 10).

Table 2: Air Navigation Services Provider Scoring for Degree of Privatness Based on Perry And Rainey (1988)

Category	Ownership	Funding	Control	Example	Total points
1. Bureau	Public	Public	Polyarchy	United States	0
2. Government corporation	Public	Private (1)	Polyarchy	Switzerland, Australia	1
3. Government-sponsored enterprise	Private (1)	Public	Polyarchy		1
4. Regulated enterprise	Private (1)	Private (1)	Polyarchy	United Kingdom	2
5. Governmental enterprise	Public	Public	Market (1)		1
6. State-owned enterprise	Public	Private (1)	Market (1)	New Zealand	2
7. Government contractor	Private (1)	Public	Market (1)		2
8. Private enterprise	Private (1)	Private (1)	Market (1)	Canada	3

Note: One point is assigned for “private” or “market,” no points for “public” or “polyarchy.”

Table 3: Air Navigation Services Provider Characteristics of Stakeholder Board Representation

Country	Board Composition
Australia	Eight members appointed by government.
Canada	Fifteen members: airline industry association appoints four, general aviation association appoints one, Nav Canada unions appoint two, and government appoints four. These ten directors then name an additional four, plus the President/Chief Executive Officer.
New Zealand	Seven members appointed by government.
Switzerland	Seven members appointed by government and aviation industry.
United Kingdom	Fifteen Members: Airline Group appoints ten, BAA plc (airport operator) names two, government three.
United States	No board.

Country	Airlines	Airports	General aviation	Government	Total points
Australia	0	0	0	1	1
Canada	2	0	2	1	5
New Zealand	0	0	0	1	1
Switzerland	0	0	2	1	3
United Kingdom	2	2	0	1	5
United States	Not applicable				

Note: Where there is no board appointee in the stakeholder category shown, a score of zero is assigned; where the government names the appointee, a score of one is assigned; where the stakeholder names the appointee, a score of two is assigned.

Table 4: Measure of Privatness for Air Navigation Services of Six Countries

Example	Ownership	Funding	Control	Stakeholder board (from Table 3)	Total points	Description
United States	0	0	0	0	0	Traditional govt. bureau
Australia	0	1	0	1	2	Govt. agency managed by board
New Zealand	0	1	1	1	3	State-owned corporation
Switzerland	0	1	0	3	4	Private firm owned by state
United Kingdom	1	1	0	5	7	Public-private partnership
Canada	1	1	1	5	8	Independent corporation

1. Ownership, 0 = public, 1 = private
2. Funding, 0 = public, 1 = private
3. Control, 0 = Polyarchy or public, 1 = Market

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