The benefits of air transport security are significant and broadly spread. At the individual level, the avoidance of inconvenience and personal injury is paramount. In the collective interest, the costs of a terrorism incident on national reputation, public expenses and business confidence, could be large or very large. The economic impact of terrorism has been simulated, and the cost estimates for even limited events are stunning (Gordon, Moore and Richardson, 2009).

Society as a whole is impacted by breaches in air transport security, but this does not determine who pays or in what proportion. Other security services, like national defense, border guards and intelligence agencies are recognized as public goods and funded from the general treasury. The burden of aviation security, as it is applied in Canada and many European countries, falls squarely on the shoulders of airline passengers.

Economic theory holds that public goods, such as national security, cannot be delivered efficiently by free market forces because of the free-rider problem. Too few people would pay for their share of the benefits voluntarily, and the cost of collecting from everyone is excessive. Consequently, public goods are either financed from the general treasury, or under produced.

Over the course of the past three decades Canada has effectively quasi-privatized aviation security, and imposed the cost on air passengers. A Crown corporation, the Canadian Air Transport Security Authority (CATSA), operates passenger screening and other security functions. CATSA reports to parliament through the Minister of Transport and is paid out of the general treasury. However, the Finance Department levies an Air Travellers Security Charge (ATSC) on air passengers to offset payments from the treasury to

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CATSA. Effectively, Canadian air passengers are forced to pay privately for security services whose benefits are national in scope.

Poorly designed taxation policies can have unintended consequences that are detrimental to the economy. Raising taxes on air travel reduces general taxes that would otherwise be collected on economic activity associated with aviation. Higher input taxes, which raise the cost business, are passed on in consumer prices that reduce the competitiveness of Canadian products in export and domestic markets. Taxing leisure air travel reduces tourism demand. This diminishes the taxable activity of secondary service businesses, like hotels and restaurants, across the country. Unlike general consumption taxes, input taxes create distortions and diminish activity in specific sectors of the economy. Shippers and travelers using other modes of transport are not forced to pay security fees.

In the worst cases, ill-considered taxation policies can create consumer revolts. In the case of the ATSC, another tax added to an airline ticket is more reason for Canadian travelers to drive across the border where they can fly less expensively from U.S. airports. The “export of air passengers” reduces spending that could be taxed at Canadian airports and the aviation supply chain. It is by no means obvious that the federal treasury is coming out ahead. Tax revenues lost directly from cross-border traffic leakage, and indirectly by the drag placed on the economy, could easily exceed the federal taxes collected by the ATSC.

The Canadian approach to air security policy had an organic development that occurred incrementally and in line with U.S. aviation practices. Then, in the shock of the post 9/11 terrorist attack, the ATSC was imposed by a government still struggling to contain large budget deficits. Canada is not the only jurisdiction tempted to use aviation as a “piggy bank”; much of this behavior parallels U.S. policy where excess taxation of aviation is also alleged\(^2\). Mexico is the only NAFTA member that treats aviation security as a public good and imposes no passenger taxes.

\(^2\) See Plungis, 2013
This paper explores the genesis of the airport security system in Canada and the impact that passenger taxes have on the competitiveness of air transport. The discussion begins with a brief account of the development of Canadian air transport security. This is followed by a conceptual framework that places airport security in the theory of public goods and the positive externalities. Next, the aviation security taxes imposed by other NAFTA partners (United States and Mexico) are compared with Canadian practice. The penultimate section considers the economic impacts of airline passenger taxes. The paper concludes with some thoughts on public finance and transportation policy direction.

**Evolution of Aviation Security in Canada**

Aviation security policy in Canada developed in response to isolated hijacking incidents, international obligations, an airport commercialization strategy and the frenzy created by a dramatic terrorist attack. Figure 1 provides a timeline of aviation security incidents that shaped the development of Canada’s policy.

Figure 1 Time-line of Aviation Security Incidents

![Figure 1 Time-line of Aviation Security Incidents](source: Transport Canada. *Canada’s National Civil Aviation Security Program*).

The need for better aviation security became apparent first in the late 1960s and early 1970s because of a rash of aircraft hijackings. Some mainly unsuccessful criminal
hijackings were attempted\textsuperscript{3}, but most of the hijacking activity involved forcing airplanes to fly to, or from, Cuba for political purposes. The propaganda war between the United States and Cuba celebrated some of these initial incidents. However, it soon emerged that political hijackings were in no one’s interest and they became officially discouraged by both parties in the early 1970s.

In December 1970, the International Civil Aviation Organization (ICAO) held meetings that resulted in the Hague Convention for the Suppression of Unlawful Seizure of Aircraft. Security measures were defined in subsequent international meetings that led to the adoption by Canada of ICAO Annex 17 – Security – Safeguarding International Civil Aviation against Acts of Unlawful Interference\textsuperscript{4}. Transport Canada was designated as responsible for the development of a national policy on aviation security in Canada.

Canada had its first and only airline hijacking during this period. On December 26, 1971, a US citizen armed with a handgun and a grenade forced an Air Canada flight from Thunder Bay to Toronto, to land, discharge its passengers, refuel and fly to Cuba\textsuperscript{5}. Subsequently, the gunman exited the airplane and it returned to Canada. In 1972, an amendment to the Criminal Code of Canada made it an offense to bring weapons and explosives on board an aircraft.

Privatization of Airport Security

In 1973, the Aeronautics Act was amended to require air carriers to establish and operate security programs at their own expense\textsuperscript{6}. As the owner and operator of the national airports, Transport Canada provided space and purchased metal detectors and X-ray machines to screen passengers and carry-on baggage.

\textsuperscript{3} The most infamous criminal hijacking is the unsolved case of J.B. Cooper (November 24, 1971).
\textsuperscript{4} ICAO. http://www.icao.int/secretariat/PostalHistory/annex_17_security_safeguarding_international_civil.aviation_againstActs_of_unlawful_interference.htm
\textsuperscript{5} The hijacker, Patrick Dolan Critton, was finally arrested 30 years later (2001) at Mt. Vernon, NY. http://www.airliners.net/aviation-forums/general Aviation/read.main/568100/
\textsuperscript{6} http://laws-lois.justice.gc.ca/eng/acts/c-11.2/fullText.html
The Air India bombing in 1985 intensified demands for better airport security in Canada. The *Aeronautics Act* was amended further to require more rigorous screening, including X-ray inspection of all checked baggage and passenger matching on international flights. In addition, 26 explosive detection systems were installed by Transport Canada to be operated by the air carriers\(^7\).

Technically, the quasi-privatization of airport security began in 1973 when the government mandated the airlines to pay for passenger screening. The next step in privatizing security ensued as part of the National Airports Policy (1994)\(^8\) when Canadian Airport Authorities (CAAs) were created to manage the 26 airports that comprise the National Airport System. The Government of Canada retained ownership of the airports that the CAAs operate under a Ground Lease with increasing rental payments to the Crown. All responsibility for passenger and baggage screening was shifted to the CAAs, as well as the provision of police security. By the year 2003, all the international airports had been commercialized and the RCMP service was withdrawn. A time-line of the shift of air security from public good to private provision is illustrated in Figure 2.

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7 Ibid.
8 https://www.tc.gc.ca/eng/programs/airports-policy-menu-71.htm
Aviation security made a quantum change in the wake of the 9/11 terrorist attack. The Canadian Air Transport Security Authority Act came into force April 1, 2002\textsuperscript{9}. This Act set out the legal framework to create CATSA as a Crown corporation with a mandate to undertake screening of passengers and baggage, as well as controlling and screening non-passenger access to restricted areas of the airports. The ATSC was created at the same time to fund CATSA, some Transport Canada regulations and “sky marshals” (RCMP officers on selected domestic and international flights).

Transport Canada remained the designated agency responsible for aviation security, but a major component of transportation security policy was shifted to the Department of Finance. “The [ATSC] charge falls under the purview of the Minister of Finance and is intended to provide revenues that are roughly equivalent to expenses for air travel security over time.” (Transport Canada (a), undated) With the ATSC in place the quasi-privatization of air passenger security was complete.

The ATSC security charge was set in 2002 at $12 per flight for domestic and transborder passengers, and $24 or international fliers. The ATSC was established under the assumption that terrorism would cause air passenger traffic in Canada to fall about 10 percent, with no growth thereafter. Traffic patterns recovered more quickly than expected and the treasury began to receive more taxes than it was spending on CATSA or other aviation security\textsuperscript{10}. Responding to complaints, the ATSC rates dropped in the following years. Table 1 provides a summary of the ATSC paid on airline tickets since their initiation.

\textsuperscript{9} http://laws-lois.justice.gc.ca/eng/acts/c-11.2/FullText.html
\textsuperscript{10} Transparency of public finances is prohibited by security concerns associated with revealing the number of air marshals and other activities, but the growing gap between the ASTC revenues and spending was obvious.
Between 2003 and 2009, the ATSC was reduced by 30% for international and transborder flights, and 58% for domestic flights. The downward trend in the ATSC was arrested in 2010 by a large increase to address expenses forecast through to 2014-15 (Transport Canada (b) website). The charges for domestic flights remain lower than in 2002. The ATSC for international and transborder flights is about the same as originally instigated, adjusted for inflation.

Price discrimination is used to maximize ATSC revenues. Differential charges are imposed for domestic, transborder and other international passengers. Casual observation suggests that the cost of passenger screening for a flight to London, Ontario is no greater than for a flight to London, England.

Waters and Yu (2003) identify an intermodal distortion created by the administration of ATSC as a flat rate tax. The relative share of the ATSC in short-haul market fares, such as Toronto-Montreal, is greater than for long-haul markets, like Toronto-Vancouver.

“One might rationalize this [flat fee] as reflecting a relatively constant per unit cost of supplying equal security for all to access the air system, although it is more complicated than this. Regardless, the impact on different members of the travelling public and air carriers is very unequal. The air security fee represents much higher proportion of the total trip price for short/haul or discount passengers.” (Waters and Yu, 2003, p. 678)
The impact on intermodal competition is that more people drive their cars on short-haul trips than would be the case otherwise. The authors calculate the loss of life because of accidents for an estimated diversion of 250,000 air passengers to cars in Canada is about one to two deaths more per year\textsuperscript{11}.

In addition to the ATSC, airline passengers also bear the indirect costs of the air security system that is incurred on their behalf by the CAAs. After the airports were transferred from Transport Canada to the CAAs, they became responsible for public services previously provided by the government. These security costs include space to accommodate passenger/bag screening and local policing that are provided by the airports without compensation\textsuperscript{12}. Ultimately these costs of security are passed on to airline passengers, although the route is circuitous. For example, it could end up in higher airline ticket prices because the CAAs have to charge higher landing fees than would otherwise be the case.

The term “user-pay” never appears in any of the official documents used to describe the Canadian air security policy, but it is made explicit in the policy documents that that is the intention of the ATSC. “The ATSC is payable by air travellers, who principally and directly benefit from the Canadian air travel system.” (Transport Canada (b), website). No mention is made of non-travelers who may benefit directly or indirectly from the air security paid for by airline passengers.

Coughlin, Cohen and Khan (2002) observe that the benefits of aviation security extend beyond the passengers. “Occupants of high-rise buildings as well as those occupying other potential targets for terrorist acts (e.g. nuclear power plants and government buildings) can benefit from aviation security and in fact, the benefits can extend beyond those individuals to their families and much further.” The next section considers this

\textsuperscript{11} This estimate is based on a leisure travel elasticity of -1.5 and a business travel elasticity of -0.75. Approximately 175,000 passengers are diverted from low cost carriers, and 66,000 from regional carriers.

\textsuperscript{12} It is worth noting that the original wording of the Act made allowance for payments to the Airport Authorities, but this has never been acted upon. Section 7.3 reads “The Authority may, in the terms and conditions of an authorization, agree to make payments to the authorized aerodrome operator to compensate them for the reasonable costs incurred by them in delivering screening.” http://laws-lois.justice.gc.ca/eng/acts/c-11.2/FullText.html
positive externality of the taxes paid by air travelers to counter terrorism or other illegal acts.

**Aviation Security as a Public Good**

The concept of public goods was formalized by Samuelson (1954) in a seminal paper that set out the two conditions of non-rivalry and non-excludability. Non-rival goods are those in which the consumption of one individual does not diminish the consumption by another person. Non-excludability means that once the good is provided, no one can be forced to pay for the consumption of the good, or the cost of payment enforcement is too high to justify production. This is referred to as the free-rider problem. Those who wish to consume without paying undermine the ability of a private market to support the costs of the good’s production. Despite demand, such goods are underproduced, or not produced at all. To provide a social optimum, governments must provide these public goods and services.

Security services are provided by para-military personnel, like border guards, police and intelligence agencies. For all intents and purposes these security services are public goods, the same as national defense. No person can be excluded from the security they offer, and no person’s enjoyment of this protection weakens that of another person’s protection. It is impossible to conceive of a means by which national defense could be financed privately (because of the free-rider problem), or a democracy in which private armies would be tolerated.

The public goods nature of air security can be modelled using marginal costs and marginal benefits. Figure 3 illustrates a security model in which air travellers are willing to pay for some level of protection. The demand for security supplied by the market is defined as marginal private benefits (MPB). Assuming that the marginal private costs (MPC) equal the marginal social costs (MSC) in the production of security services, the free market solution occurs at B, where the MPB and MPC/MSC are equal.
Given resort only to the well-defined security costs and benefits provided by private markets, the equilibrium would be established at point C, with quantity Q and price P, well below the social optimum.

Figure 3 Model of the Security Market as a Public Good

![Diagram of the Security Market as a Public Good]

The rule for a social optimum is that the marginal social benefits should equal the marginal social costs. In this model, the marginal social benefit is greater than the marginal private benefit because of a positive externality, i.e. national security. Consumers might like more security than they can purchase through the commercial market, but this is impossible because of the “free-rider” problem. If no one can be excluded from the benefits once they are provided, many people will opt to get the benefits without paying.

The social optimum for a positive externality is found at point B, with the equilibrium quantity Q* and price P* (Monteiro and Robertson, 2006). The net social benefit

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13 As an example, consider home security systems and police services. Individuals can purchase alarm systems to protect their houses, but the greater security of a police force cannot be provided by the private market, “gated communities” notwithstanding.
obtained by society from the provision of the public good is the triangular area ABC. Only a transfer of wealth from individuals to the government, through taxation, can provide this level of collective security.

Social Benefits of Security
The social benefits (ABC) associated with combating terrorism are much greater than the private benefits received by air passengers. Flynn and Wein (2005, p. 1) list a number of social benefits that stem from investments in better transport security. In addition to the prevention of property damage and personal injury, they suggest that “it will help all countries reduce theft, stop the smuggling of drugs and humans, crack down on tariff evasion and improve export controls.”

Defending national reputation as a “safe country to do business with” is an important benefit of security. The Economic Analytical Unit of the Australian Government (EAU, 2004) considers the facilitation of trade to be a primary benefit of transportation security measures. The EAU (2004) cite a study by Hertel, Wamsley and Ikatura that estimates the improvements to customs clearance and reduced waiting times could be worth 0.2 percent of total world trade value\(^ {14}\). They also note a second study by Wilson, Mann and Otsuki that estimates better customs facilitation would increase trade by 0.8 percent.\(^ {15}\) While these changes are small in percentage terms, the total is approximately $33 billion worldwide.

The magnitude of the trade facilitation benefits of security pale when compared to the business interruption costs of terrorist attacks. Gordon, Moore and Richardson (2009) use two economic impact models to estimate the consequences of a hypothetical bomb attack on the Ports of Los Angeles and Long Beach, California. Depending on the nature of the bomb (radiological, or not), the ports could be closed from 15 to 120 days. Even in their

\(^ {14}\) Shorter port turnaround times for ships and faster customs clearance improve a country’s competitiveness and stimulate trade.

most modest scenario, the economic impacts measure in the billions of dollars lost and thousands of employment years forgone.

“Although the potential loss of life from terrorist attacks attracts more attention and, no doubt, would have serious psychological effects, the business interruption impacts are large enough to persuade terrorists that economic targets are as “productive” as human targets.” Gordon, et al. (2009, p.70)

The business interruption costs to the Canadian economy could be enormous if the U.S. became alarmed about the security of Canadian travelers or freight shipments. Security breaches that cause delays at the U.S. border with Canada would affect trade worth $632 billion in 2013. “Such uncertainty forces logistics and trucking companies to increase their costs, and manufacturers to retain a higher level of inventory to mitigate the impacts of such delays.” (Ontario Chamber of Commerce, 2004) Even worse, border crossing uncertainty can cause companies to question the wisdom of purchasing parts or doing assembly across the border.

The provision of airport security is only one aspect of a broader effort to create an environment of safety and assurance that Canada will not be the source of a possible terrorist attack on the United States. Airplanes that are hijacked and used as weapons of terror impose substantial costs on those not directly involved in air travel. It follows that all Canadians benefit from aviation security and that they should all share the costs of equipment and staffing measures to prevent terrorism.

The International Air Transport Association (IATA) make explicit the public goods nature of aviation security in their policy statement.

“Governments have direct responsibility for aviation security and its funding. This responsibility includes the protection of its citizens (in the air and on the ground). As the security threat against airlines is a manifestation of the threat against the State, the provision and cost of aviation security should be borne by the State from general revenues and not from taxes and user fees.” (IATA-b)

The next section examines how the air security is financed by the NAFTA members with respect to the IATA policy statement.
NAFTA Airport Security Comparisons

The approaches to aviation security differ significantly in the three NAFTA countries. As previously discussed, Canada funds all air passenger security through the ATSC. In the U.S. the split between general taxes and passenger taxes is about 50/50, although this reflects a recent increase in the passenger share. Mexico is the only NAFTA country to recognize aviation security as a public good. Following the IATA policy, Mexico imposes no taxes on passengers to pay for airport security.

Mexico
The Government of Mexico funds airport security out of general revenues, the same as national defense and border protection. The designated authority for air passenger security is the Secretaría de Comunicaciones y Transportes (SCT) through the Dirección General de Aeronáutica Civil. All Mexican airports are government-owned and operated. Airport security in México is paid by each airport administration. The Federal government provides additional security at the facilities. Passengers are not taxed to pay for baggage screening or aviation security.

United States
In response to aircraft hijacking in the 1970s, the U.S. government mandated passenger screening to be conducted by the airlines at their own expense. The airlines focused their efforts on minimizing these costs by hiring private security firms to conduct inspections. After the terrorist attacks of September 11, 2001, many critics in the U.S. focused on this weakness of the airport security system.

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16 This is not without controversy. Sipse reports: “Commissioner National Security, Manuel Mondragon y Kalb, ordered an end to two controls of the Federal Police who did not respect the security protocols of the International Airport of Mexico City (AICM) in an operation to locate drugs.” Apparently, the federal police appeared in plain clothes, armed with guns and headed for the runway where they inspected a Venezuelan flight.

17 Poole (2009) describes the evolution of the U.S. air security system. He notes that the General Accounting Office raised concerns about the lax level of security as early as 1987. This was followed in 1996 by a legislative directive to the FAA from Congress requiring a certification procedure for security screeners. The FAA began to act in January 2000, but still had nothing in place when the terrorist attack occurred 18 months later. Consequently, “the well-documented poor performance of airline-hired screening
The US transferred the private provision of airport passenger screening to public control with the *Aviation and Transportation Security Act of 2001* (ATSA). A new federal government agency, the Transportation Security Administration (TSA), was created to operate passenger screening with government employees.

Funding of airport security became a mix of public and private contributions. A September 11 Security Fee (SSF) of $2.50 was added to airline tickets and an Aviation Security Infrastructure Fee (ASIF) was imposed on the airlines at a level approximately equal to their cost of screening passengers in 2000.

These two private sources of revenue covered about half the costs of the TSA in 2002. The public proportion increased over time as the TSA costs grew. In fiscal year 2013, aviation security expenditures were US$7.8 billion, of which the federal treasury accounted for 67% of this total. The SSF paid by passengers produced $1.88 billion or 28% of aviation security expenses and the ASIF paid by the airlines generated $372 million, or 5% of the aviation security expenses (TSA, website).

The new SSF structure increases the passenger levy to $5.60 per one-way trip, effective July 1, 2014. With this tax increase, passengers will again pay about half the total costs of the TSA. As a side note, the airlines were successful in their efforts to have the U.S. Government terminate the ASIF. It is scheduled for repeal on October 1, 2014. According to Plungis (2013), terminating the ASIF reduces to 17, the number of charges, taxes and fees imposed by the U.S. Government on aviation

Politicians are slowly waking up to the negative impact of aviation taxation on the industry. “The government and the administration shouldn’t treat airline passengers to be like piggy banks,” House Transportation and Infrastructure Chairman Bill Shuster, a Pennsylvania Republican, said in a speech in Washington today. “Those of us who fly are

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companies became the main focus of attention as Congress debated legislation to beef up US aviation security.” (Poole 2009, p. 94)
paying more than our fair share to reduce the deficit in this country.” (as reported by Plungis, 2013)

Canada

Canada uses airline passenger taxes to finance 100 percent of the direct costs of air security. This is lauded by Poole (2009) who argues that reducing the burden on the national treasury is a positive development that should be emulated everywhere.

Robert Poole, director of transportation policy at the Reason Foundation, a research group in Washington, has studied how aviation security is financed in other countries, and said he believed that shifting toward a system where users paid more was fair.

“It’s less bad for the aviation community and passengers to pay for these taxes than the general population,” he said, noting that Canada and, increasingly, countries in Europe follow this model.

… “If the whole program costs were coming out of the hides of airlines and their passengers, I think we would see a lot more focus on why does this cost so much and where is the bang for the buck,” Mr. Poole said. (Stellin, 2011)

Note that Robert Poole’s argument dismisses the impact that additional passenger taxes have on the aviation market. It is unclear how penalizing one sector of the economy is “less bad” than spreading the burden over all of society. Poole’s principal justification for passenger taxes is managerial control. In short, he believes that government provision of security leads to waste and that passengers would hold security service providers more accountable if they paid directly.

This view is based more on rhetoric than evidence. There is no mechanism, short of the ballot box, that Canadian air passengers can use to influence how effectively their money is spent on aviation security. The Canadian Airports Council (CAC) might act as an advocate for passenger interests, but they appear to be more interested in additional spending on security operations to speed passenger throughput, than any worry about how much passengers have to pay.
“Pre-Board Screening (PSB) wait times at Canada’s airports are slowly, but surely, getting worse. Service level goals that currently exist are not public commitments and perception is there is no accountability for performance standards. Inconsistent service levels across the country result in unsatisfied consumers and pose difficulty for airline and airport service delivery.

… A robust funding mechanism for the Canadian Air Transport Security Authority (CATSA) is urgently needed in order to meet the needs of the industry and its customers.” CAC website

The statement of the CAC does not lend much support to the view that the funding mechanism of air security (general taxes versus passenger taxes) is either necessary or sufficient to guarantee accountability for performance standards.

Unlike the TSA in the United States, the Canadian airport security is provided by private contractors that are paid by CATSA. Villard (2014) argues that passenger taxes to pay for aviation security in Canada is acceptable because that is what is being done in other parts of aviation.

“User charges for airport and air navigation services provision has become the norm for funding these activities. Airport security and screening services in Canada should be understood in a similar way: the government has simply aligned this activity with the other branches of air transport, applying the exact same logic of private-delivery of services funded by user-charges.” (p. 118)

Villard appears to overlook the nature of CATSA unless he defines a Crown Corporation to be a “private-delivery service”, rather than an agency of government. He makes clear in his article that he does not want to discuss questions of public and private goods, or who should pay. His focus is the logic of service delivery. User-pay security is approached from the perspective of what can be done, rather than what should be done. Such views confuse the effectiveness of security management and implementation policy with the economic efficiency of government policy.

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18 CATSA reports to the Parliament of Canada, through the Minister of Transport. Canadian Air Transport Security Authority (2013).
Economic Impacts of Airport Security Passenger Taxes

The ATSC and SSF security taxes are receiving a rising chorus of complaints from leisure and business traveler groups (Consumer Travel Alliance, 2014), (Schaal, 2013) and the airlines (IATA-b) (Airlines for America, 2014). Bachman (2013) reports that the airlines are distributing information to passengers to protest the high taxes of aviation security. “Aviation security is inherently a government function yet airlines pay in excess of $8.55 billion per year in security related costs.” (IATA-a)

The airlines recognize that rising aviation taxes have a detrimental impact on air travel demand. An economic model of the impact that security taxes have on air travel demand is presented in Figure 4.

Figure 4 Impact of Aviation Security Fees on the Air Travel Market
Without any security fee, the market equilibrium is found at C, with prices set at $P^*$ and $Q^*$ travelers. Adding a security tax to airline tickets shifts up the supply curve from the consumers’ perspective. As travel is cut back, a new equilibrium is formed at A. Given the higher price level $P$, at the margin, $Q^*$-$Q$ passengers have exited the market.

The first impact of this change is felt by the airlines, their employees and airport service providers. In addition second round effects occur because transportation is a derived demand. The higher business travel costs get passed on to consumers in the form of price increases. The reduction in the quantity of travel demanded causes a shift in the derived demand for the hospitality industry (not illustrated). Fewer jobs and less investment result in hotels and tourist attractions. The net social impact of the security tax is represented by the shaded area ABC in Figure 5. This deadweight loss in social welfare represents a reduction of efficiency in the economy and the forfeiture by the government of other taxable economic activity.

**Cross-border Air Passenger Leakage**

The total impact of the ATSC in Canada is made worse by a “taxpayer revolt” in form of air travel market leakage to cross-border shopping. Korenic and Seabrooke (2012) estimate that over 5 million Canadians drive across the U.S. border and fly from U.S. airports each year. The lower costs associated with travelling to the U.S. or overseas destination from a U.S. border airport has been calculated by Gill (2012). He observes that taxes comprise 40 percent of the cost difference that Canadians can save by driving across the border.

These Canadian air travelers have not given up on their trip; they have just given up on flying from a Canadian airport and voted with their steering wheels to buy American. The financial impact on Canada of cross-border air traffic leakage is significant. Considering only the ATSC lost on 5 million cross-border travelers (at $12.71) and the loss in the Goods and Services Tax (GST) on ticket sales, (approximately $25 each), the Government of Canada gives up about $185 million of taxes each year. The direct,
indirect and induced tax losses to the government because of reduced economic activity are worth another $190 million according to Korenic and Seabrook (2102).

A further direct effect of cross-border traffic leakage is the impact on the economics of the CAAs. The majority of an airport’s cost is fixed, while all its revenues are variable and depend directly on passenger numbers. The CAAs collect Airport Improvement Fee (AIF) from passengers to finance capital improvements (e.g. new terminal buildings). If there are fewer passengers to pay the AIF, all the remaining passengers have to pay more. Higher AIF payments create even more incentive for other passengers to drive across the border to U.S. airports. Assuming a $20 AIF is not collected by the airports on 5 million cross-border passengers, another $100 million is lost.

Although the AIF does not go to the government, it is used to build and maintain airport infrastructure that is returned to the Government of Canada when the ground leases expire. In addition, the CAAs pay significant ground lease rental payments to the Finance Department. Increasing cross-border leakage means that remaining passengers are charged more to pay airport rent. To the degree that the CAAs have to raise their parking rates, landing fees and concession rent, the cost of flying from Canada goes up, and the cross-border drive to a U.S. airport looks more attractive.

The identifiable tax losses on cross-border traffic leakage (GST, corporate, etc.), and the foregone AIF, are easily equal to the amount collected by the ATSC security tax in total. Given that domestic travel is much greater in volume than trans-border or overseas traffic, the results of a misguided passenger taxes are enormously negative. If the Department of Finance were to calculate the total reduction in general tax revenues created by the ASTC, they might find that it is a bad bargain, as well as an ill-advised transportation policy.

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19 Prior to the commercialization of the airports, the Government of Canada imposed a tax directly on air passengers to maintain the airport system. Under the user-pay philosophy, this tax was replaced by the AIF of the Airport Authorities. Airport rent under the Ground Lease is different. This is simply an incremental tax that the government imposes indirectly on air passengers. On a pro rata basis, part of the airport rent pays for space occupied by CATSA without any compensation.
Conclusion

Canada depends on trade, and especially cross-border trade with the United States. No one is going to argue that airport security is unnecessary or unimportant. How aviation security is performed, or by whom, is not the concern of this paper. The focus of this analysis is public finance and transportation policy direction.

The security of a country is a public good. Once it is provided, everyone benefits and it cannot be provided in a manner that excludes any individual. Airport security is no different than any form of military or border inspection activity. However, other modes of transport, such as trucking, marine and rail, have no similar taxes for security imposed upon their users. Arguably, they are no less a target for terrorism than aviation.

The Canadian government has privatized the provision of a public good. Rather than the cost of air security being borne by society in general, a specific group, airline passengers, is targeted to pay for a service that benefits society as a whole. Through its sovereign powers the Government of Canada has become an air transport security free-rider.

A good test of any policy is to question whether or not the same measure would be devised, if the architects were starting from a clean slate. The Government of Canada began to shirk its responsibility for airport security when it mandated passenger screening by the airlines. With the commercialization of the National Airport System, the burden of facility security was included as part of the user-pay system of the CAAs. Subsequently, in the frenzy that followed the 9/11 terrorist attack, the privatization of security was completed with a tax on airline passengers to finance increased screening. Policies made on the fly, in the heat of an international crisis, are unlikely to be the same as those developed in a sober reflection of all their implications. It is time to end the ATSC and compensate the CAAs for their aviation security costs.

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