



Analyzing the Transportation Security Administration's
September 11th Security Fee

Jamie Atkinson, Jennifer Boardman, Sarah Walters

Thomas Jefferson Program in Public Policy

The College of William & Mary

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Abstract

This report evolved from four original objectives: Determine the current methodology used to calculate the \$2.50 fee offset. Determine the original intent of the TSA fee offset. Determine what portion of the Transportation Security Administration's Aviation Security operations, screening operations in particular, are variable costs versus fixed costs. Determine to what extent the Transportation Security Administration's screening operations could or should vary with the reduced future fee receipt projections at the current fee level. Our available resources did not allow us to address all of these objectives, but enabled us instead to focus on two primary questions: To what extent should Transportation Security Administration operations be fee-funded and to what extent will raising the security fee affect the demand for air travel?

Abbreviations

ASIF	Aviation Security Infrastructure Fee
ATSA	Aviation and Transportation Security Act
CY	Calendar Year
DHS	Department of Homeland Security
DOT	Department of Transportation
FY	Fiscal Year
GAO	Government Accountability Office
PSF	Passenger Civil Aviation Security Service Fee
OIG	Office of Inspector General
SAM	Staffing Allocation Model
SPP	Screening Partnership Program
TSA	Transportation Security Administration

Background

The Aviation and Transportation Security Act (ATSA), a landmark law signed by President Bush in November 2001, set forth the Passenger Civil Aviation Security Service Fee (PSF), otherwise known as the September 11th Security Fee. The Passenger Security Fee is imposed through domestic and foreign air carriers on passenger tickets for flights originating in the United States on or after February 1, 2002. Transportation Security Administration (TSA) issued the interim final rule on December 31, 2001, imposing a \$2.50 fee on passenger enplanements in the United States with a maximum charge of \$5.00 per one-way trip. At the time ATSA was passed, the TSA was operated within the Department of Transportation (DOT). When the Department of Homeland Security (DHS) was created, the TSA became a part that agency on March 1, 2003.¹ The Fee offsets a portion of the Transportation Security Administration's Aviation Security appropriation, complemented by other revenue-generating fees set forth in the ATSA.

The Passenger Security Fee

The TSA interim final rule requires that all air carriers remit to TSA the total fees imposed each month by the last calendar day of the following month. Congress mandated a fee suspension period from June 1, 2003 through September 30, 2003, which decreased the budget off-set for that fiscal year. Not until late 2004 did the agency conduct audits on the accuracy of airline collection and remittances. Reviews on the finances of the TSA funding model have since revealed some errors in fee remittances. It was reported in 2006 by the Department of Homeland Security's (DHS) inspector general Richard Skinner that the passenger security fees remitted by the airline industry were inaccurate. Airlines were underpaying by an estimated \$14.5 million every year. TSA's method of implementation has since been reviewed and given positive remarks by the Government Accountability Office (GAO).²

¹ "Review of the Transportation Security Administration (TSA) Collection of Aviation Security Service Fees," Office of Inspector General, Department of Homeland Security, May 2006, Page 7, Footnote 13. http://www.dhs.gov/xoig/assets/mgmttrpts/OIG_06-35_May06.pdf

² "Review of the Transportation Security Administration (TSA) Collection of Aviation Security Service Fees," Office of Inspector General, Department of Homeland Security, May 2006. http://www.dhs.gov/xoig/assets/mgmttrpts/OIG_06-35_May06.pdf

The budget off-setting \$2.50 Passenger Security Fee for the TSA was established when the federal government had tasked the nascent agency with assuming the security tasks of the air carriers. In creating revenue sources in the ATSA in the form of imposed user fees, Congress stated that TSA must ensure they are reasonably related to TSA's costs of providing services rendered.³ This language took into account only the cost of services provided at the turn of the century. Prior to the September 11, 2001 terrorist attacks conducted via air carriers, there were approximately 28,000 screeners in U.S. airports, and the estimated annual security cost for the airline industry totaled about \$1 billion. This was the basis for the funding model generated for the federalization of aviation security plan. These costs covered operational activities including screening, training, and the acquisition of security equipment. The policies and strategies adopted for aviation security by the TSA were responses to the ATSA, enacted in 2001, not necessarily provisions for future expansion.⁴

The ATSA mandates that TSA allow airports to request that private screeners in lieu of federal screeners conduct the screening of airline passengers and baggage. This provision was a market-friendly political compromise for members of Congress wary of expanding the role of government into business sectors. In November 2004, TSA formally established the Screening Partnership Program (SPP) to allow all commercial airports an opportunity to apply to TSA to use private-sector screeners through private screening contractors approved by TSA. TSA remains responsible for funding all passenger and baggage screening activities at SPP airports as well as airports with federal screeners.

In February 2008, TSA issued a report on a study TSA conducted comparing the cost and performance of screening at SPP and non-SPP airports. Such a study was important as a tool to assess the future impact of increased SPP participation on the budget. The study found that SPP airport screening costs approximately 17.4 percent more to operate than at airports with federal screeners, and that SPP airports fell within the “average performer” category of performance measures in its analysis. It should be noted that the SPP model is constrained by the law and TSA policy to allow little variance in the inputs for staffing, compensation, and operations at airports. The outputs of this model produce similar performance results with an anticipated costs

³ 49 USC § 44940(b)

⁴ Statement of Kenneth M. Mead, Inspector General, Department of Transportation. “*Aviation Security Costs, Transportation Security Administration*,” Before the Committee on Commerce, Science, and Transportation, Subcommittee on Aviation, United States Senate. February 2003. <http://www.oig.dot.gov/StreamFile?file=/data/pdfdocs/cc2003066.pdf>

premium due to the additional layer of contractor management. A later GAO report that came out at the beginning of this year said that TSA should not use their study as sole support for major policy decisions regarding the SPP. They acknowledged that TSA has taken actions to identify unnecessary redundancies in the duties of administrative staff assigned to SPP and non-SPP airports, but the agency has not completed those efforts.⁵ The FY 2009 SPP budget was about \$151.3 million.

There is an ever-growing cost of compliance for TSA. Every new mandate and initiative by the Administration and Congress, such as the *Implementing the 9/11 Commission Recommendations Act of 2007* (P.L. 110-53), is likely to have significant cost and resource implications for the agency as it strives to comply.⁶ Based on \$1 billion estimates, TSA estimated that costs incurred by air carriers in 2000 were \$750 million; air carriers reported only \$319 million in costs. In 2002, TSA was composed of a small group of employees with expenses totaling \$95 million. In 2009, TSA has more than 50,000 employees and expenses of \$4.733 billion

While the fee has never fully covered operational costs for aviation security, its off-setting role was more substantial when the vision for TSA was a small government oversight agency with a capped number of employees. Since that time, the 9/11 Commission Report revealed shortcomings in TSA strategy that impelled Congress and the President to mandate that TSA develop strategies and plans according to 9/11 Commission recommendations. First executed through the *Intelligence Reform and Terrorism Prevention Act of 2004* (P.L. 108-458),⁷ TSA has moved towards a risk-based approach for allocating limited security resources to where such resources are most needed.

Presidential budget proposals have supported a fee increase to expand those security resources, but the congressional Appropriations committees have been unwilling to adopt the proposals until the Homeland Security committees support them with an act. In June 2006 President Bush directed the DHS to establish and implement a national strategy for aviation

⁵ “*Aviation Security: TSA’s Cost and Performance Study of Private-Sector Airport Screening*,” Government Accountability Office. January 9, 2009. <http://www.gao.gov/htext/d0927r.html>

⁶ Public Law 110-53, *Implementing Recommendations of the 9/11 Commission Act of 2007*, August 3, 2007. <http://intelligence.senate.gov/laws/pl108-458.pdf>

⁷ Public Law 108-458. *Intelligence Reform and Terrorism Prevention Act of 2004*. December 17, 2004. <http://intelligence.senate.gov/laws/pl108-458.pdf>

security and an accompanying set of supporting plans. This aviation security strategy endeavors to prevent terrorist activities in the aviation domain while also reducing impact on air commerce and fostering the growth and stability of the aviation industry.

In response to criticisms of inefficiency, TSA has developed a Staffing Allocation Model (SAM). In September 2006, DHS recommended that TSA conduct a workforce analysis of administrative staff and develop a staffing model to identify the number of employees actually needed at airports. SAM was created and is still in use for workforce allocation of TSA employees. As part of TSA's FY 2002 supplemental appropriation, Congress capped TSA's hiring at 45,000 full-time permanent positions. This cap was kept in place until FY2008.⁸

Letters of Intent were allowed for in appropriations legislation as a means for TSA to convey to airports its intent to obligate future funds for the purpose of explosive detection system integration. Many airports are waiting for TSA reimbursement in the millions of dollars three and four years after renovations for doing next generation series improvements of inline explosive detection equipment.⁹ Thus, future plans requiring capital funding will be put off until these letters of intent are paid off unless Congress dedicates new legislation to the deployment of new systems.

TSA is tasked with fulfilling existing obligations and addressing new challenges, but is the current funding model prohibitive? Not necessarily. Because the ATSA's enactment recognized airline security as a national security priority, federal budgeting authorities have provided for expansion and enforcement of TSA capabilities through funding opportunities in General Fund appropriations, capital funds, as well as special grants like the *American Recovery and Reinvestment Act of 2009* to close the gap between fee revenue generated and total operational costs.¹⁰ While most parties agree that the original intent of funds like ASIF and the passenger fee were to off-set more than 36% of the operating budget, some appropriations authorities in Congress have imparted that the current funding situation is not a budget crisis since it generates greater oversight of TSA operations as well as interest in screening capabilities. As Congress must allocate more resources for the agency, the discourse

⁸ "Aviation Security: TSA's Cost and Performance Study of Private-Sector Airport Screening," Government Accountability Office. January 9, 2009. <http://www.gao.gov/htext/d0927r.html>

⁹ Testimony of Secretary Napolitano before the Senate Commerce, Science, Transportation Committee. "Transportation Security Challenges Post-9/11," December 2, 2009. http://www.dhs.gov/ynews/testimony/testimony_1259938923345.shtm

¹⁰ Public Law 111-5, *American Recovery and Reinvestment Act*, February 13, 2009. http://www.recovery.gov/About/Pages/The_Act.aspx

surrounding the use of those funds provokes a heightened interest in the role of general taxpayer funds subsidizing security of a private consumer industry.

Today, TSA's aviation security actions have deployed over 1,500 explosives detection systems in airports across the nation and 7,500 explosives trace detection machines to screen checked and carry-on baggage. TSA has also established Bomb Appraisal Officer (BAO) programs at over 100 airports to increase precision and efficiency in screening operations and IED detection. The agency has also employed new techniques for detection through the Screening of Passengers by Observation Techniques (SPOT) program, in which TSA officers are reviewing passenger behavior for indications of malignity. There are also approximately 700 explosives detection canine teams providing an increased layer of security at airports.¹¹

Looking ahead:

In compliance with the rule against unfunded mandates, Congress has given DHS and TSA increasing amounts of cash from the General Fund to pay for the ever-expanding demands for airline security measures not covered by existing fee revenues. Amidst a time when the fiscal demands from across the federal government place great strain on the General Fund, budget policy makers in the Administration have revisited the financial support structure of TSA. Both the Bush and Obama Administrations' language in budget proposals suggest that fliers should pay for more of their security.

The President's budget outline from February proposes to increase the \$2.50 per-enplanement Aviation Passenger Security Fee in 2012. Though little detail on the increase is provided, it notes that currently the fee "only captures 36% of the cost of aviation security." The outline further remarks that a fee increase "will offset costs associated with Transportation Security Administration screening of aviation passengers."¹² In a 2003 hearing, the inspector general of the Department of Transportation said it would take \$8 per flight segment for the TSA to cover costs using only security fees, providing perspective on the actual cost per passenger of

¹¹ Testimony of Secretary Napolitano before the Senate Commerce, Science, Transportation Committee. "Transportation Security Challenges Post-9/11," December 2, 2009. http://www.dhs.gov/ynews/testimony/testimony_1259938923345.shtm

¹² Department of Homeland Security Budget Overview. Office of Management and Budget. February 26, 2009. http://www.whitehouse.gov/omb/assets/fy2010_new_era/Department_of_Homeland_Security.pdf

aviation security.¹³ In 2005, President George W. Bush proposed raising the passenger security fee from \$2.50 per segment to \$5.50 per enplanement for a direct one-way flight, and again in 2007 proposed an increase by only \$.50, but Congress denied the fee increases.

A View of Other Government User Fees:

In order to better understand the rationale for user fees, we researched six government programs that employ user fees. These are described below.

HAZMAT Endorsement Threat Assessment Programs- Transportation Security Administration

The purpose of the HAZMAT Endorsement Threat Assessment Program is to conduct a security threat assessment for any driver seeking to obtain, renew, or transfer a hazardous materials endorsement (HME) on a state-issued commercial drivers license (CDL). The program was implemented to meet the requirements of the Patriot Act, which prohibits states from issuing a license to transport hazardous materials in commerce, unless a determination has been made that the driver does not pose a security risk. The Act further requires that the risk assessment include checks of criminal history records, legal status, and relevant international databases. In order to achieve an HME, employers or the states themselves must forward biographical and biometric information to the TSA. States or employers are charged fees for collection of information, and FBI background check, and a general assessment fee.

An Information Collection Fee of \$38.00 is assessed in order to collect, fingerprint, and transmit biographic information to TSA. A second fee of \$17.25 is charged by the FBI to offset costs of running its Criminal History Records Check (CHRC). The third fee of \$34.00 is charged by TSA in order to cover all costs associated with their own background checks run against multiple databases. The total of these three fees is \$89.25.¹⁴

¹³ Statement of Kenneth M. Mead, Inspector General, Department of Transportation. “*Aviation Security Costs, Transportation Security Administration*,” Before the Committee on Commerce, Science, and Transportation, Subcommittee on Aviation, United States Senate. February 2003. <http://www.oig.dot.gov/StreamFile?file=/data/pdffdocs/cc2003066.pdf>

¹⁴ “HAZMAT Endorsement Threat Assessment Program: Fees,” Transportation Security Administration, http://www.tsa.gov/what_we_do/layers/hazmat/fees.shtm.

Transportation Worker Identification Credential (TWIC)- Transportation Security Administration/US Coast Guard

The Transportation Worker Identification Credential program came about as a result of The Maritime Transportation Security Act (MTSA). The MTSA requires a biometric credential for all individuals requiring unescorted access to secure areas of MTSA vessels, facilities, and Outer Continental Shelf facilities. Individuals that must possess credentials include, but are not limited to longshoremen, truck drivers, vendors, facility/vessel employees, maintenance personnel, train crews, etc. Credentials are also required for all USCG Merchant Mariners.

The purpose of the fee is to cover charges associated with enrollment, threat assessments and adjudication, appeals, waivers, card production, and TSA program and systems cost. In order to receive the credential, the applicant provides biographic information and identity verification documents. The TSA and the FBI also conduct a security threat assessment and criminal history check using the fingerprints and name of the applicant. The fee to receive a standard credential is \$132.50 per person. For Hazmat workers, Merchant Mariners, and other prequalified applicants eligible in the FAST TWIC program, the fee is reduced to \$105.25.¹⁵

Fingerprinting and FAA Records Check Guidance- Criminal History Record Checks (CHRC)-GA- DCA (Ronald Reagan Washington National Airport)

In order to receive permission to fly into Ronald Reagan Washington National Airport and to be placed on any DCA flight manifest, all aircraft operators must register their security coordinators, armed security officers, and flight crewmembers with TSA. Operators must provide TSA with the name, social security number, and date of birth of each applicant. They must also pay the applicants' CHRC fee, as well as receive a Unique Identifier (UID) and password for each applicant. Fingerprints of applicants are also required. There are four fees charged per person: a \$22.00 fee charged by the FBI for a criminal records check, an \$8.00 registration fee, a \$4.00 Transportation Security Clearinghouse processing fee, and a \$3.00 TSA processing fee that covers administrative costs of the program. In total, employers must pay \$37 dollars per employee in order to receive permission to place them on DCA flight manifests.¹⁶

¹⁵ "Transportation Worker Identification Credential (TWIC)," Transportation Security Administration, http://www.tsa.gov/what_we_do/layers/twic/index.shtm.

¹⁶ "GA – DCA Program Fingerprinting & FAA Records Check Guidance," Transportation Security Administration, <https://www.natacs.aero/content/GA-DCA%20GuidanceFinal%209%5B1%5D.9%20NFCC.NATACS%20v1.pdf>.

Consolidate Omnibus Budget Reconciliation Act of 1985 (COBRA fees)- US Customs and Border Protection

The Consolidate Omnibus Budget Reconciliation Act of 1985 (COBRA) authorizes the US Customs Service to collect a fee to pay for the various services they provide. This user fee was established to offset inspection costs that were previously funded solely by general taxpayer revenues. Any person who owns a vehicle used for commercial purposes, operates a private vessel that is 30 feet or more in length, or operates a non-commercial aircraft must purchase a transponder. This transponder is a sticker containing an electronic chip that transmits information about a vehicle and its border crossing user fee payment status. The user fee varies based on the type of vehicle, its purpose, and lasts for the duration of one calendar year. Private aircraft decals cost \$27.50 per year, private vessels of 30 feet or more cost \$27.50 per year, and commercial vehicles cost \$100.00 per year. Decals for vehicles coming from either the Mexican or Canadian border cost an additional \$205.00 per year.¹⁷

Fees for Visa services- US Citizenship and Immigration Services

The US Citizenship and Immigration Services (USCIS) charges fees for visa services. These fees are collected from immigrants who come to the United States permanently or non-immigrants who come to the US temporarily. Once applicants file the necessary paperwork and pay the appropriate fees, they are given an immigration card that is proof they are in the United States legally. Fees for visa services are used to offset processing fees and immigration card production. For non-immigrants coming to the U.S. temporarily, the processing fee is \$131.00 per person and an additional \$131.00 for a Border Crossing Card that is valid for ten years. Non-immigrants are also charged an additional \$500.00 for an L Visa. This offsets the cost of fraud prevention and detection for the visa applicant. The issuance fee may vary per non-immigrant based on the reciprocal fees charged to American citizens when they cross international borders. Immigrants coming to the United States permanently must pay a \$355.00 application processing fee or \$375.00 if they are participating in a visa lottery program. All applicants must also pay a \$45.00 surcharge that covers visa security charges.¹⁸

¹⁷ Customs and Border Protection, <http://www.cbp.gov/xp/cgov/home.xml>.

¹⁸ "Fees for Visa Services." Department of State. http://travel.state.gov/visa/temp/types/types_1263.html.

Prescription Drug User Fee Act (PDUFA)- US Food and Drug Administration

The Prescription Drug User Fee Act (PDUFA) authorizes the FDA to collect fees from companies that produce certain human drug and biological products. Since the passage of the PDUFA, user fees have played an important role in expediting the drug approval process. In order to begin the drug approval process, companies must submit applications to the FDA that contain full reports of investigations of the safety and effectiveness of the drug and testing. These reports also allow the FDA to rely on data not developed by applicant, such as published literature or the agencies finding of safety and/or effectiveness of a previously approved drug product. Companies must pay three different fees. The first fee is an application fee. For the production of drugs that require clinical data, the fee is \$1,405,000.00. For drugs that do not require clinical data, the fee is reduced to \$702,750. Companies must also pay a \$457,200.00 establishment fee and a \$77,720.00 product fee.¹⁹

The Controversy Over User Fees for Aviation Security

Title 5 of the Independent Offices Appropriations Act of 1952's (31 *United States Code* 9701) general policy regarding fees assessed for government services states: "A user charge will be assessed against each identifiable recipient for special benefits derived from Federal activities beyond those received by the general public."²⁰ However one of the stipulations requires that "No charge should be made for a service when the identification of the specific beneficiary is obscure, and the service can be considered primarily as benefiting broadly the general public."²¹ Here in lies the controversy: Who benefits from aviation security and therefore, who should pay for it? The passengers on the planes obviously have a great deal at stake and benefit from aviation security operations, but what about the people in buildings that could potentially be terrorist targets?

At the heart of all budgetary debates is that age-old question: Who pays for what? Airlines argue that the TSA operations amount to a national security function, therefore the

¹⁹ "Prescription Drug User Fee Act (PDUFA): User Fees." Food and Drug Administration. <http://www.fda.gov/ForIndustry/UserFees/PrescriptionDrugUserFee/default.htm>.

²⁰ Title 5 of the Independent Offices Appropriations Act of 1952 (31 United States Code 9701).

²¹ Ibid.

broader public should bear the cost of security screening. They also know that higher fees will likely cut into their revenues. Because the \$2.50 security fee only covers approximately 36% of security operation costs, several attempts have been made to raise the fee rather than depend on general revenue to cover the remaining costs. In 2005, President George W. Bush proposed raising the passenger security fee to \$5.50 per enplanement but Congress blocked the increase. In his budget blueprint presented to Congress February 26, 2009, President Barack Obama again called for an increase in the security fee. His document entitled, “A New Era of Responsibility: Renewing America’s Promise,” states:

To minimize overall costs to taxpayers, the Budget proposes to increase the existing Aviation Passenger Security Fee beginning in 2012. Increasing this fee will offset costs associated with Transportation Security Administration screening of aviation passengers as the current fee only captures 36 percent of the cost of aviation security. By increasing the fee, offsetting collections from all aviation security fees would cover a majority of the estimated costs of passenger and baggage screening.²²

His budget proposal further seems to suggest that the Administration believes fliers should pay for more of their security.

Following the crash of TWA flight 800 on July 17, 1996, President Bill Clinton asked the White House Commission on Aviation safety and Security to “Take a comprehensive look at the state of safety and security in aviation, and make recommendations for improvement.”²³ Robert Hahn of the American Enterprise Institute for Public Policy Research testified in front of the Senate Subcommittee on Aviation on March 5, 1997 in response to the Commission’s findings. In his testimony, Hahn disagrees with the Commission’s calls for federal funding for security measures. Hahn claims that the primary beneficiaries of antiterrorist measures are air travelers and therefore they should pay the lion’s share of the cost.²⁴ In a pre-September 11th world he may have been correct, but now that we have seen just what terrorists are capable of, there are many people who disagree that air travelers are the primary beneficiaries.

²² Barack Obama, “A New Era of Responsibility,” Office of Management and Budget, February 26, 2009.

²³ Robert W. Hahn, “The Economics of Airline Safety and Security: An Analysis of the White House Commission’s Recommendations,” Senate Subcommittee on Aviation, March 5, 1997.

²⁴ Ibid.

The Air Transport Association, the dominant lobbying group for domestic airlines, categorically opposed the proposal to raise user fees. “We continue to oppose requiring the airlines and their passengers to fund aviation security programs,” vice president of communications David Castelveter said. “This is a government responsibility, plain and simple. It should be funded by government, not by airlines and airline passengers.”²⁵ Another group that opposes raising user fees to fund aviation security is the Association of Corporate Travel Executives (ACTE). The group’s executive director, Susan Gurley, stated, “The truth is that air transportation is a national asset vital to the economy. When terrorists or other criminals target an airliner or an airport, they are not attacking an industry nor a user group – but the nation.”²⁶

Variable & Fixed Costs

Fixed costs are expenditures that do not vary with airline ridership. These costs include office space and screening machines, which must be purchased regardless of how many passengers travel through an airport. Variable costs are dependent upon the number of air passengers served by the TSA. These costs would include most screening personnel, since the number of baggage screeners needed decreases when ridership decreases. A bare minimum of screening personnel must be included in fixed costs, however, because airports are never without a base level of security personnel.

Two models exist for baseline security. Smaller airports require three baggage screeners per checkpoint lane, while medium and larger airports require 6.5 screeners per checkpoint lane.²⁷ Additionally, one supervisor is required at each lane and a screening manager is required at each airport or terminal, depending on size, to oversee all screening operations.²⁸ Screeners beyond this base can be considered variable, because the number required will depend on the number of passengers traveling through the airport.

²⁵ “Obama Budget Would Raise Airport Security Fees, Air Traffic Control Funding,” *Business Travel News Online*, February 26, 2009,

http://www.btonline.com/businesstravelnews/headlines/article_display.jsp?vnu_content_id=1003945851.

²⁶ “ACTE Slams Obama on Airline User Fee,” *The Economist*, March 7, 2009,

http://www.economist.com/blogs/gulliver/2009/03/acte_slams_obama_on_airline_user_fees.

²⁷ Department of Homeland Security, Congressional Justification, FY 2004.

²⁸ Department of Homeland Security, Congressional Justification, FY 2004.

Externalities

An externality, also termed a spillover, is said to exist when either the consumption or production activity of one consumer or firm affects directly either the utility or production activity of an external party. In other words, a party that is not part of a specific consumption or production decision experiences some benefits or costs. The crucial economic feature of an externality is that its benefits or costs are not reflected in the market prices.²⁹

Cletus Coughlin, Jeffrey Cohen, and Sarosh Khan explain the economic issues involved in aviation security and terrorism. They explain that the positive externalities play a crucial role in determining the right amount of aviation security. Prior to September 11th, the airlines were responsible for security. Therefore, they were able to follow the simple supply and demand model for a private market. Refer to the demand curve, D_p , and the supply curve, S_p , in Appendix C. The negative slope of the demand curve reflects the fact that as the price of aviation security declines, the quantity of security that consumers desire increases. The positive slope of the supply curve indicates that incurring higher per-unit costs, which reflects the notion of increasing opportunity costs, can only provide increases in security. The intersection of these lines, Q_p , generates the equilibrium, which is the level of security likely to be provided by private markets.³⁰

But the people riding on planes are not the only ones who benefit from aviation security. Occupants of other potential terrorist targets, such as high-rise buildings, nuclear power plants, and government buildings, benefit as well. This is known as a positive externality. In this situation, the social demand for aviation security diverges from the private demand. A social demand is created which encompasses the private demand (passengers) plus the demand of those who benefit but are not flying. The social demand curve is to the right and above the private demand curve. The efficient quantity of aviation security lies where the social demand curve

²⁹ Cletus C. Coughlin, Jeffrey P. Cohen, and Sarosh R. Kahn, "Aviation Security and Terrorism: A Review of the Economic Issues," *Federal Reserve Bank of St. Louis Publications*, Fall 2002.

³⁰ Cletus C. Coughlin, Jeffrey P. Cohen, and Sarosh R. Kahn, "Aviation Security and Terrorism: A Review of the Economic Issues," *Federal Reserve Bank of St. Louis Publications*, Fall 2002.

intersects the supply curve. This quantity, Q_S , exceeds the quantity that would be provided by private markets.³¹

If Q_S is the optimal quantity of aviation security, then who should pay for it? A government entity can influence the market by enacting regulation, provision, or subsidies. The figure shows the result of a subsidy that effectively lowers the cost per unit of security. This decrease in price moves the supply curve down and to the right. If the correct subsidy is provided then the new supply curve intersects the demand curve at the socially desirable Q_S . The wrong subsidy, on the other hand, can lead to either too much or too little security.³²

Externalities provide an economic purpose for government involvement in aviation security. As we learned on September 11th, events in one location can affect the movement of passengers and freight throughout the entire commercial aviation sector. Unregulated private markets are unlikely to provide sufficient aviation security because those making security decisions for one location may not account for the spillover that occurs throughout the network.³³ No one form of government involvement is necessarily superior to the other forms as long as the correct amount of aviation security is achieved.

Substitutions

The demand for a particular good or service depends on a variety of factors including tastes of the consumer, income, price, and substitutes. Appendix D shows the decision-making process a consumer works through when deciding to travel or not. The decisions a person makes depends a great deal on the type of traveler they are. For example, a family going a relatively short distance for vacation has more alternatives or substitutes than a business travel who has to take an international trip to a specific location at a specific time.³⁴

³¹ Cletus C. Coughlin, Jeffrey P. Cohen, and Sarosh R. Kahn, "Aviation Security and Terrorism: A Review of the Economic Issues," *Federal Reserve Bank of St. Louis Publications*, Fall 2002.

³² Cletus C. Coughlin, Jeffrey P. Cohen, and Sarosh R. Kahn, "Aviation Security and Terrorism: A Review of the Economic Issues," *Federal Reserve Bank of St. Louis Publications*, Fall 2002.

³³ Cletus Coughlin, "The Economics of Aviation Security," Federal Reserve Bank of St. Louis, <http://stlouisfed.org/publications/cb/articles/?id=910>.

³⁴ Martijn Brons, Eric Pels, and Peter Kijkamp (May 2002) "Price Elasticities of Demand for Passenger Air Travel: A meta-analysis," *Journal of Air Transport Management* 8, 3: 165-175.

Appendix E shows that different categories of travelers have different price elasticities of demand as well. Price elasticity of demand is the measure of percent change in quantity demanded due to a 1% change in the price. It is determined by dividing the percent change in quantity by the percent change in price. Elasticity of demand for air travel differs significantly by type of traveler, distance of travel, and domestic versus international travel. Elasticity is a measure of degree. It answers the question, “How much?” An elasticity with an absolute value greater than one is said to be elastic while an absolute value of less than one is said to be inelastic.³⁵

The Effect of a Fee Increase on Demand

Using the most elastic price elasticity of demand for air travel, 1.52, which applies to short-haul leisure travel, and the most inelastic price elasticity of demand for air travel, 0.265, which applies to long-haul business travel, we calculated the change in demand for air travel if the fee were raised to \$5.50, as President Obama proposed, and if the fee were raised to \$3.01 to keep up with inflation since 2002.³⁶ See Appendix F for the complete price elasticity calculations.

If the fee were raised to \$5.50 and all passengers were considered short-haul leisure travelers with a price elasticity of demand of 1.52, enplanements would decrease by 1.8 percent. Using the 2008 total enplanements of 743.2 million, that means enplanements would decrease by 13.4 million. The government could expect to hear a lot of opposition from airline industry lobbyists about the impact this type of fee increase would have on their revenue. However, the government’s revenue would increase by \$2.16 billion for total fee revenue of \$4.01 billion.

Using the same fee increase, if all passengers were considered to be long-haul business travelers with a price elasticity of demand of 0.265, enplanements would decrease by 0.313 percent or 2.3 million enplanements. Again, this would lead to an outcry from airline lobbyists but TSA’s revenue from fees would increase by over \$2.2 billion for a total of \$4.07 billion.

³⁵ “Air Travel Demand Elasticities: Concepts, Issues, and Measurement.” Department of Finance Canada. http://www.fin.gc.ca/consultresp/airtravel/airtravStdy_1-eng.asp.

³⁶ “Air Travel Demand Elasticities: Concepts, Issues, and Measurement.” Department of Finance Canada. http://www.fin.gc.ca/consultresp/airtravel/airtravStdy_1-eng.asp.

Suppose the fee was raised at a rate that simply kept up with inflation. Using the CPI inflation calculator, the \$2.50 fee in 2002 would be \$3.01 in 2009.³⁷ If all passengers were considered short-haul leisure passengers, enplanements would decrease by 0.3 percent or 1.4 million enplanements. Revenue from the fee would increase by over \$367 million for a total of \$2.23 billion. See Appendix G for the inflation-adjusted security fee.

If all passengers were considered long-haul business travelers with a price elasticity of demand of 0.265, using the \$3.01 fee, enplanements would decrease by 0.525 percent. This equates to almost 4 million enplanements. Still, TSA's fee revenue would increase by over \$359 million for a total of \$2.22 billion in revenue. Therefore, even though raising the price will lead to some people using alternative means of travel or not traveling at all, the government's increase in revenue would be substantial.

Another type of elasticity to consider is income elasticity of demand. Income elasticity of demand can be used to show how economic downturns or upturns can affect the demand for air travel. It is equal to the percent change in demand divided by the percent change in income. Canada's Department of Finance analyzed 132 estimates in 14 studies to determine that the mean value for income elasticity for air travel is 1.39.³⁸ Based on 2, 5, and 7.5% increases and decreases in income and an income elasticity of demand of 1.39, we see that demand for air travel will increase or decrease by 2.78%, 6.95%, or 10.425%, respectively. Therefore, economic downturns or upturns have far more impact on the demand for air travel than a modest fee increase will have. See Appendix H for complete income elasticity calculations.

If Passengers Paid for Security

If policy makers decided that passengers should, in fact, pay the entire cost of aviation security, it would cause a substantial increase in the fee. Using the 2008 budget for aviation security that was \$4.9 billion and total enplanements for the same year of 743.2 million,

³⁷ "CPI Inflation Calculator," US Bureau of Labor Statistics, <http://data.bls.gov/cgi-bin/cpicalc.pl>.

³⁸ "Air Travel Demand Elasticities: Concepts, Issues, and Measurement." Department of Finance Canada. http://www.fin.gc.ca/consultresp/airtravel/airtravStdy_1-eng.asp.

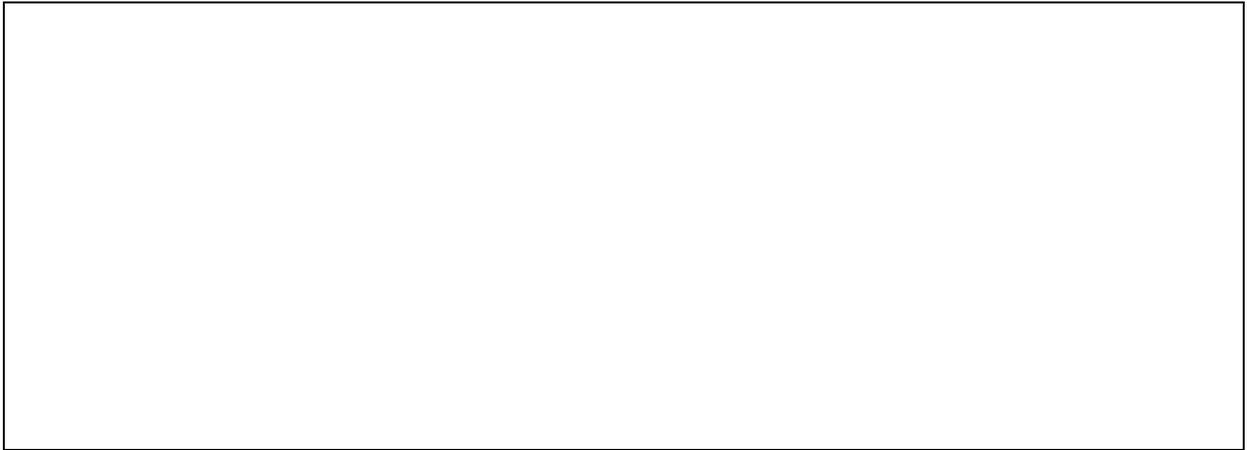
passengers would have to pay \$6.64 per enplanement to cover the cost of aviation security. If airlines continued to contribute ASIF, passengers would have to pay \$6.09 per enplanement.

Discussion

The cost of good, effective security is significant. Ultimately Congress – not the Administration and its agencies - is the authority that has to make decisions on how national security costs for aviation will be paid for using a proper mix between airlines, airports, passengers, and the General Fund. It seems appropriate for TSA's remaining financial requirements, after all fee revenues have been taken into account, to be provided from the General Fund with heightened congressional oversight.



Appendix A: Enacted Budgets, Fiscal Years 2002-2010³⁹



³⁹ Data from the Department of Homeland Security Appropriations for FY 2004-2010 and the Department of Homeland Security Congressional Justification, FY 2004.

Appendix B: Attrition Rates, Fiscal Years 2004-2008⁴⁰

Work Schedule	2004	2005	2006	2007	2008	% Change
Full-Time ONLY	13.6%	13.4%	12.6%	11.6%	10.8%	-20.59%
Part-Time ONLY	57.8%	44.1%	38.6%	37.4%	31.8%	-44.98%
TOTAL	18.0%	17.4%	16.5%	17.4%	15.8%	-12.22%

⁴⁰ Department of Homeland Security, Congressional Justification, FY 2010.

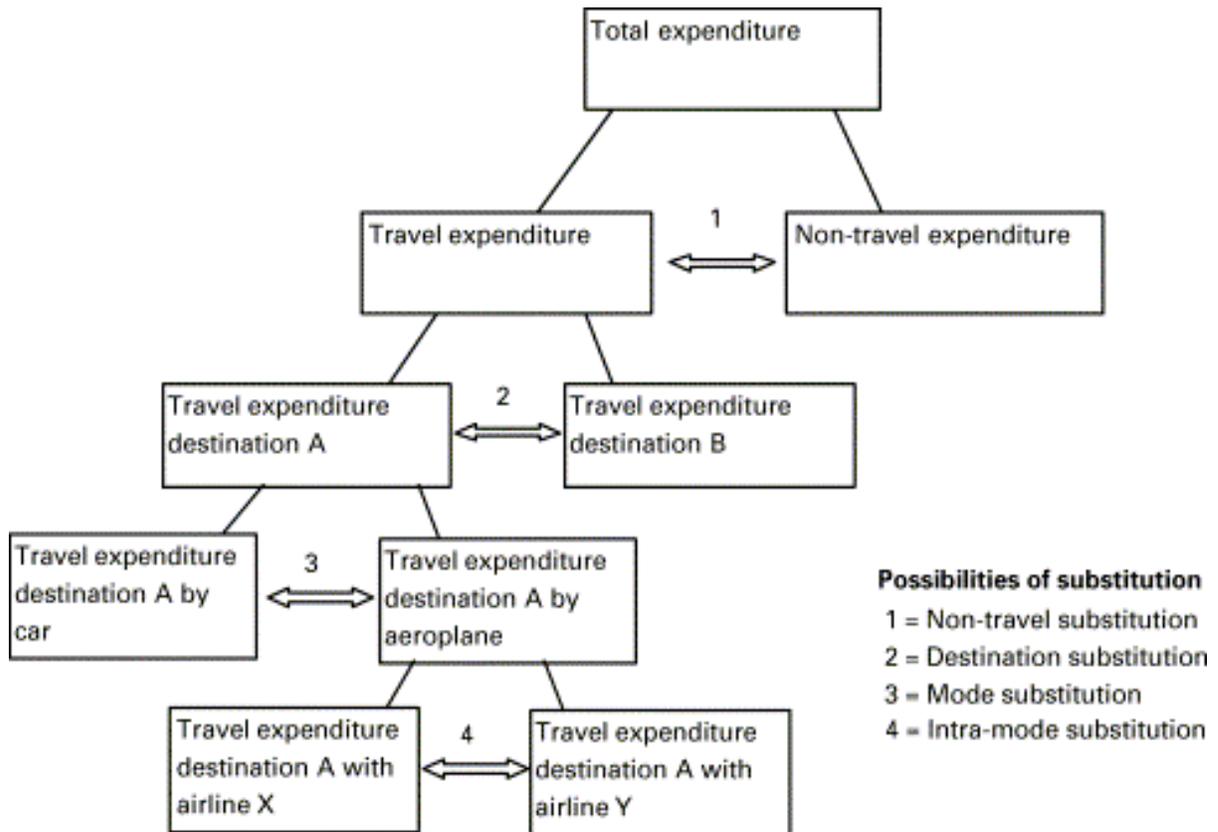


Appendix C: The Optimal Quantity of Aviation Security⁴¹

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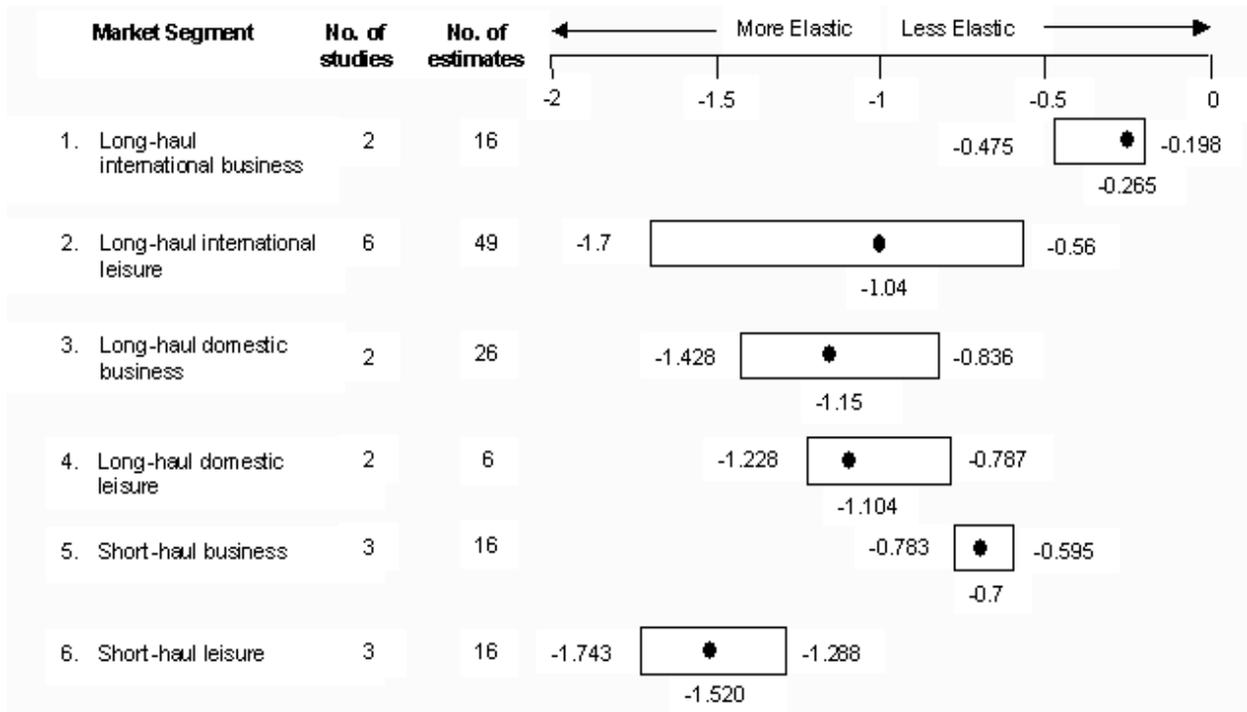
⁴¹ Cletus C. Coughlin, Jeffrey P. Cohen, and Sarosh R. Kahn, "Aviation Security and Terrorism: A Review of the Economic Issues," *Federal Reserve Bank of St. Louis Publications*, Fall 2002.

Appendix D: The Decision to Travel⁴²



⁴² Martign Brons, Eric Pels, and Peter Kijkamp (May 2002) "Price Elasticities of Demand for Passenger Air Travel: A meta-analysis," *Journal of Air Transport Management* 8, 3: 165-175.

Appendix E: Price Elasticities⁴³



⁴³ “Air Travel Demand Elasticities: Concepts, Issues, and Measurement.” Department of Finance Canada. http://www.fin.gc.ca/consultresp/airtravel/airtravStdy_1-eng.asp.

Appendix F: Price Elasticity Calculations

% D Price using two proposed fee changes added to a \$250 ticket:

Obama budget proposal:

Price with new fee \$255.50, old fee \$252.50
 $(255.50-252.50)/[(255.50+252.50)/2] = 1.18\%$

20% increase to \$3.00:

Price with new fee \$253, old fee \$252.50
 $(253.00-252.50)/[(253+252.50)/2] = 0.198\%$

% D Q = -Ed:P(% D P):

Most Elastic ~ 1.52 (short-haul leisure travel):

Obama budget proposal: $1.52(1.18) = 1.8\%$

20% increase to \$3.00: $1.52(0.198) = 0.3\%$

Most Inelastic ~ 0.265 (long-haul business travel):

Obama budget proposal: $0.265(1.18) = 0.313\%$

20% increase to \$3.00: $0.265(0.198) = 0.525\%$

Change in revenue based on 743,200,000 enplanements in 2008:

Most elastic ~ 1.52:

Obama budget proposal:

\$3 increase in fee – $743,200,000(0.018) =$ decrease 13,377,600 enplanements

Old fee (2.50) * decrease in tickets (13,377,600) = revenue loss \$33,444,000

Old enplanements (743,200,000) – decrease (13,377,600) = 729,822,400

New enplanements (729,822,400) * new fee (5.50) = \$4,014,023,200

New revenue from fees (\$4,014,023,200) - Old revenue from fees (\$1,858,000,000) =

Increased revenue of \$2,156,023,200

20% increase to \$3.00:

\$.50 increase in fee – $743,200,000(0.00198) =$ decrease 1,471,536 enplanements

Old fee (2.50) * decrease in tickets (1,471,536) = revenue loss \$3,678,840

Old enplanements (743,200,000) – decrease (1,471,536) = 741,728,464

New enplanements (741,728,464) * new fee (3.00) = \$2,225,185,392

New revenue from fees (\$2,225,185,392) - Old revenue from fees (\$1,858,000,000) =

Increased revenue of \$367,185,392

Most inelastic ~ 0.265:

Obama budget proposal:

\$3 increase in fee – $743,200,000(0.00313) =$ decrease 2,326,216 enplanements

Old fee (2.50) * decrease in tickets (2,326,216) = revenue loss \$5,815,540

Old enplanements (743,200,000) – decrease (2,326,216) = 740,873,784

Analyzing the 9/11 Security Fee

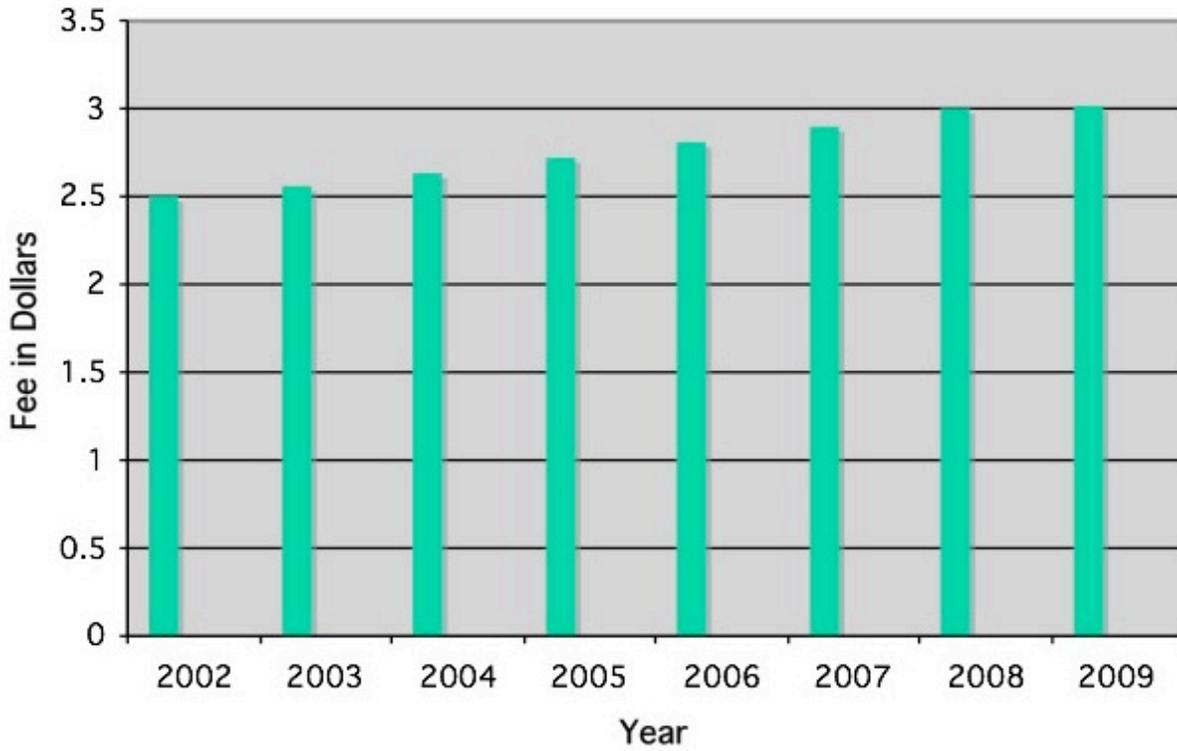
New enplanements (740,873,784) * new fee (5.50) = \$4,074,805,812
New revenue from fees (\$4,074,805,812) - Old revenue from fees (\$1,858,000,000) =
Increased revenue of \$2,216,805,812

20% increase to \$3.00:

\$.50 increase in fee – 743,200,000(0.00525) = decrease 3,901,800 enplanements
Old fee (2.50) * decrease in tickets (3,901,800) = revenue loss \$9,754,500
Old enplanements (743,200,000) – decrease (3,901,800) = 739,298,200
New enplanements (739,298,200) * new fee (3.00) = \$2,217,894,600
New revenue from fees (\$2,217,894,600) - Old revenue from fees (\$1,858,000,000) =
Increased revenue of \$359,894,600



Appendix G: Security Fee Increase Based on Inflation⁴⁴



⁴⁴ "CPI Inflation Calculator," US Bureau of Labor Statistics, <http://data.bls.gov/cgi-bin/cpicalc.pl>.

Appendix H: Income Elasticity of Demand for Airline Services⁴⁵

$E_i = 1.39 = (\% \text{ D Q}) / 2\% \text{ decrease in income}$
 $\% \text{ D Q} = -2.78\%$
2% increase in income: $\% \text{ D Q} = +2.78\%$

$E_i = 1.39 = (\% \text{ D Q}) / 5\% \text{ decrease in income}$
 $\% \text{ D Q} = -6.95\%$
5% increase in income: $\% \text{ D Q} = +6.95\%$

$E_i = 1.39 = (\% \text{ D Q}) / 7.5\% \text{ decrease in income}$
 $\% \text{ D Q} = -10.425\%$
7.5% increase in income: $\% \text{ D Q} = +10.425\%$

⁴⁵ “Air Travel Demand Elasticities: Concepts, Issues, and Measurement.” Department of Finance Canada.
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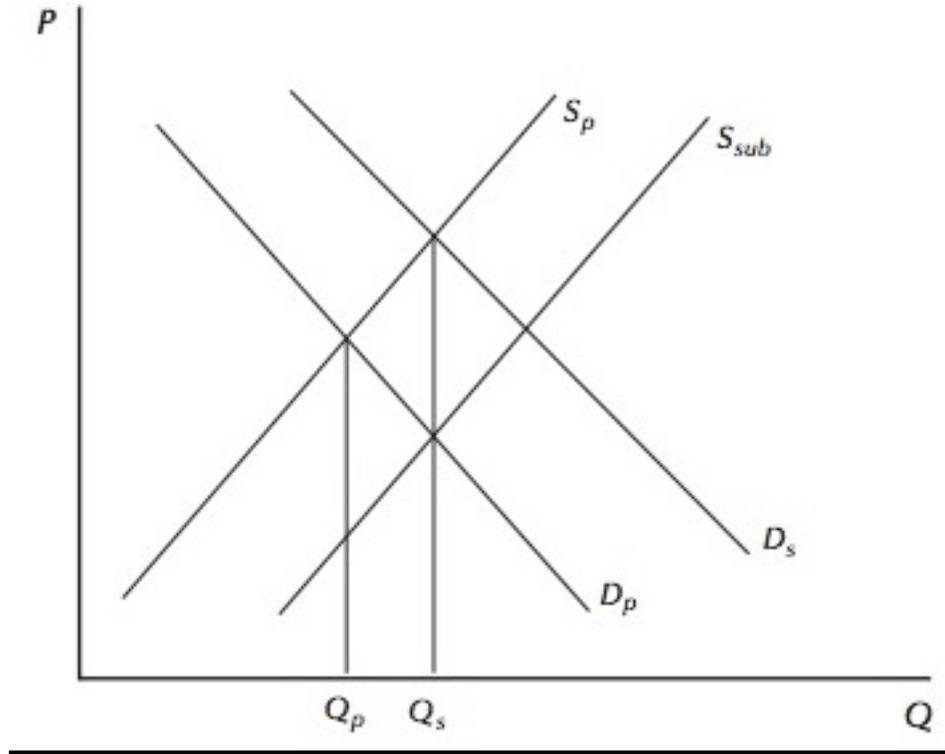
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49 USC § 44940(b)

Appendix C: The Optimal Quantity of Aviation Security¹

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¹ Cletus C. Coughlin, Jeffrey P. Cohen, and Sarosh R. Kahn, "Aviation Security and Terrorism: A Review of the Economic Issues," *Federal Reserve Bank of St. Louis Publications*, Fall 2002.