

**Consumer Regulation and Taxation
of the U.S. Airline Industry**
Estimating the Burden for Airlines and the Local Impact

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CONTENTS

1. Executive Summary
2. Key Findings
3. Revenue & Profitability
4. Federal Taxation
5. Regulatory Burden
6. Local Impact
7. Conclusions and Recommendations
8. Exhibits & Appendices

ABSTRACT

In the face of economic recession, new security costs, volatile fuel prices, and an ever-expanding array of federal and local taxes on air transportation, U.S. airline passengers have enjoyed a decrease in base fares over the past 10 years. Because of government action, that is not likely to continue. All airlines have unbundled their products, expanded into new markets and shifted to direct distribution via the web to keep base airfares low and to remain competitive. Yet the combined impact of new aviation taxes and consumer regulations has negatively impacted passenger demand and local tourism spending nationwide.

Airlines pay an average of \$59 per ticket sold in taxes across domestic and international flights. This tax burden suppresses both tourism and business travel, through both higher fares and lower airline capacity. Conversely, AAI estimates that a \$10 per ticket reduction in federal air passenger taxes would stimulate new service and lower fares that would benefit local economies nationwide by \$13 billion annually. Under the current administration, consumers have also faced a gauntlet of new regulations designed to “protect” the consumer that have been rife with unintended consequences. Since 2009, consumer regulations have increased airline costs by \$1.7 billion annually, or \$5.39 per round-trip ticket.

Higher airline taxes drive a combination of service loss and higher fares. Both result in a decrease in business and leisure traffic to cities nationwide. This paper (1) reviews and quantifies the federal tax burden, (2) reviews and quantifies the burden of new consumer regulations (including both one-time and ongoing costs to airlines) introduced in 2010 and 2011, and (3) quantifies the local impact on airports, cities and states nationwide. Given the ongoing impact of high regulatory cost and taxes on air travel demand, we recommend an immediate review and moratorium on new consumer (non-safety) regulations and aviation taxes.

NOTES ON METHDOLOGY AND SOURCES

This report was prepared between September and November 2011 by the American Aviation Institute to review federal and state airline taxes and consumer protection rules. The American Aviation Institute is an aviation think-tank supported by both industry and labor unions. This paper is an independent work and was not written for, sanctioned or directed by supporting airlines or labor unions.

To review hypotheses, methodology, data analysis and conclusions, AAI submitted this paper for review by academics including Dr. Bijan Vasigh at Embry Riddle Aeronautical University. Comments and suggestions were incorporated into the final report.

This report utilizes public data sets for its analysis, and excludes data sources that are confidential or proprietary. Public data sets include flight status and operational histories, airline ticket data and passenger traffic, historical flight schedules and other DOT and FAA data. Confidential data sets such as the international ticket database were not included. AAI performed the report analysis by utilizing database and query tools including masFlight (masflight.com).

TOP FINDINGS

1. Annual federal, state and local tax collection from the airline sector is \$17 billion, increasing to \$20 billion by 2015. **This is equivalent to \$59 per round-trip passenger.**
2. High taxes negatively impact demand for air travel, hotels, car rentals, and other industries dependent upon airline passengers, tourism and business travel.
3. Consumer regulations introduced by the current administration have added **\$1.7 billion per year** in airline cost, **or \$5.39 per round-trip itinerary**. Higher fares and lower capacity from these regulations damage the national economy by **\$3.5 billion annually**.
4. **Proposals to raise aviation taxes by the current administration will compound the harm on key local economies.** The proposed \$100 per flight departure tax, increases in airport PFCs, and higher security levies will disproportionately impact the local economies in most need of stimulation. These measures will cost the national economy more than \$5.5 billion in tourism and business demand.
 - New taxes will significantly impact *airline* profitability. A \$100 per departure tax is equal to 20% of American Airlines' *operating* income per flight for 2010. Proposed taxes will have a similar impact on profitability at other carriers.
 - An increase in TSA fees from \$2.50 to \$5.00 will cause a -\$3.3 billion impact on local economies; a new \$100 per-flight departure tax will cause -\$1.7 billion; and an increase in PFCs to \$5.00 will cause -\$437 million. This is *in addition* to the costs borne by airlines.
 - The highest-impacted *airports* are Orlando International (-\$367 million), Las Vegas McCarran (-\$340 million) and Denver International (-\$292 million).
 - The *metropolitan areas* that are most impacted are Los Angeles (-\$533.8 million), New York (-\$525.2 million), San Francisco (-\$417.9 million), Chicago (-\$410.6 million) and Washington (-\$404.6 million).
 - The highest-impacted *states* are California (-\$1.24 billion), Florida (-\$1.17 billion), Texas (-\$687 million), New York (-\$576) and Illinois (-\$430.3).
 - Higher taxes and regulations will lead to **17.7 million fewer passengers per year traveling and reduce annual local tax collections by \$443 million.**
5. A **National Aviation Policy** must be developed in partnership between industry, regulators and Congress. The DOT Future of Aviation Advisory Committee set priorities for global competitiveness, aviation tax review and reform, and thorough analysis of any new consumer regulations; three other commissions since 1993 made similar recommendations. The National Aviation Policy must act on these findings. It must balance the cost of taxes and regulations against airline profitability, economic stimulation and tourism interests, and consumer rights. During the implementation of this process, new aviation taxes and costly DOT rulemaking should be suspended.

SECTION ONE: EXECUTIVE SUMMARY

This paper reviews how taxes, government fees and consumer regulations have negatively impacted the airline industry since 2001, and how new taxes and regulations will reduce passenger traffic during the next 10 years. We focus on the core trends that have shaped the industry since the terrorist attacks of 9/11, and how airline business models have changed. We review how the industry, through restructurings, consolidation and fundamental changes to product mix responded to economic adversity by unbundling airfares, lowering (on an inflation-adjusted basis) base fares and maintaining profitability through a-la-carte pricing of product components. We review how U.S. government intervention in the industry, through successive rounds of economic and product regulations, has materially disadvantaged U.S. carriers in an increasingly competitive global aviation industry. We show that an uncoordinated federal aviation policy characterized by *ad hoc* initiatives by DOT and Congress is dampening demand, hurting local communities and costing jobs at a time when the country can least afford it.

Yet Washington continues to levy new taxes and regulation on the industry without consideration to the needed equilibrium of airline profitability, federal tax revenue, consumer protection and local tourism interests. Since 2009, the DOT has enacted costly new consumer protection initiatives that have driven enormous new costs for airlines, increased flight cancellations and forced millions of dollars in compliance costs. While new regulations have reduced (but not eliminated) the handful of egregious violations of consumer rights in the past decade, the regulations added millions in compliance and ongoing cost for airlines and passengers.

Sweeping consumer regulation, applied without industry coordination or proper economic analysis, now costs airlines more than \$1.7 billion annually. New regulations cause a **\$3.5 billion annual negative economic impact.** Direct compliance costs – revising websites, changing systems and retraining employees – are coupled with substantial indirect costs from lost revenue and cancelled flights. While good intentions may drive consumer protection, the poor design of regulations, opaque enforcement guidance, and stated need for “flexibility” by the DOT cause uncertainty. Both airlines and consumers pay the price through capacity cuts, higher fares and flight cancellations.

Since 1978, there have been 17 taxes, fees, or financial measures enacted on airline tickets and cargo shipments. These taxes are an increasing burden on airlines. Yet the current administration proposes even more taxes, ostensibly needed to fund new security infrastructure and deficit reduction. These new taxes benefit the government at the expense of local cities.

For a typical \$300 domestic round-trip fare in the U.S., about \$60 is paid in taxes, of which \$33 is paid to the federal government, \$10 for security services and \$18 to local airports. **Total tax collection from the airline industry now totals almost \$17 billion (including both federal and state fuel taxes) and will grow to more than \$19.5 billion by 2014.** This is equivalent to \$59 per round trip flown to, from or within the United States. Airport funding from passenger fees now averages \$12 per round-trip ticket, up from zero in 1978. Transportation Security Administration fees now cost \$8.52 per round-trip on average and support the ever-

Section One: Executive Summary

expanding security infrastructure created after 9/11. Taxes are assessed on aviation by three separate cabinet-level departments and by six different agencies.

AAI analysis also shows that all major U.S. cities are experiencing – and will continue to experience – the negative financial effects of rising taxes and regulatory burdens. Increased airline costs and higher taxes drive fare increases (which often do not succeed) and capacity reduction by carriers. Both depress business and leisure travel, particularly in markets that depend on price-sensitive passengers to fill conventions, hotels and restaurants.

Our analysis is focused on aviation taxes and regulations to date, plus the tax proposals made by the current administration. In addition to the components reviewed in this paper, material new policy and legislative action will further impact airline costs and local market service. Looming large for airlines is the cost of compliance for new federal pilot standards, which could force airlines to increase pilot staffing by 5 to 20 percent with significant impact on operating cost, market viability and consumer welfare. Also relevant are new consumer and ticket distribution rules proposed by DOT that may further change, fundamentally, how airlines interact with the public.

Industry Background

In this paper, we review the origins behind the recent rush of consumer regulations. Since 2001 changes in consumer preferences, airspace congestion and fuel prices drove three trends: increased competition, financial restructuring of major airlines, and industry consolidation. As oil prices tripled during the decade, nearly all the major U.S. airlines were forced to restructure significant pension and aircraft lease obligations. This restructuring included an emphasis on selling tickets directly to passengers via the Internet. These strategic and financial changes led to the profound shift in airline revenue observed today: the unbundling of base airline fares from add-on services such as baggage, change fees and on-board food.

By 2011 the differentiation between “legacy” and “low-fare” airlines has, with limited exceptions, largely disappeared. Carriers have merged and unbundled their products, in many cases to match competitive offerings from other airlines. Inside the U.S. consumers now choose from a set of airlines with fundamental similarities in their product design and pricing structures.

This unbundling trend has had profound positive impacts for the consumer. **Base airfares are less expensive today (on an inflation-adjusted basis) than in 2001.** In 2001, the inflation-adjusted average base fare per passenger segment flown by major carriers was \$164, versus \$158 in 2010. Including ancillary revenues such as baggage fees and reservations/change fees, total airfares increased by less than 1%, from \$165.18 to \$166.55.

While DOT continues to attack baggage and reservations fees as a consumer rights issue in its monthly reports, the fact remains that the overall price of air travel in the U.S. is lower today than a decade earlier. The industry’s ability to raise prices in the face of escalating fuel prices has been throttled by economic weakness and competition. This trend, however, will be reversed as higher taxes and added regulation will force higher airfares in the years ahead.

Key Facts and Figures

- Annual federal, state and local tax collection from the airline sector is \$17 billion, expected to increase to \$20 billion by 2015. **This is equivalent to \$59 per round-trip passenger itinerary on average.**
- Tickets purchased by price-sensitive business and leisure passengers are taxed at a disproportionately higher rate at the federal level. This has profound implications for both business and tourism demand.
- Consumer regulations introduced since 2009 have added \$1.7 billion per year in cost to airlines. **Higher fares resulting from these costs will result at least a \$3.5 billion annual impact on the national economy.**
- **Higher taxes** proposed by the current administration **will cost the national economy more than \$5.5 billion in tourism and business demand.**
- Tourism-dependent economies (Orlando, South Florida, Nevada) and states (Florida, California, Texas and Nevada) will be hard hit. Major business markets such as Atlanta, New York, Denver and Los Angeles will also suffer from a loss of passenger traffic.
- Because airlines operate today on razor-thin operating margins per flight, higher taxes make marginal small community routes un-economic. We expect both legacy (network) airlines and low-fare carriers will curtail expansion and reduce service at marginal hubs.

Recommendations

Creation of a National Aviation Policy is long overdue. The past decade has seen radical shifts in government policy towards airlines and air service, bloated federal infrastructure without focus or measured effectiveness, and a rush to regulate airline distribution in the face of narrow profit margins and the industry's driving role in the national economy.

During the previous administration, new taxes and security infrastructure swelled the amount of money paid by airlines and consumers to the government. In 2009, the current administration brought a pro-regulation viewpoint. DOT's radical reversals of long-standing policies imposed significant compliance costs and restrictions on airlines. These new policies have not reflected an articulated goal or objective that would give airlines and consumers a reasonable expectation of the future. **New regulations, including fundamental (and possibly unachievable) changes in airline pricing rules due in January 2012, should be halted until a new national aviation policy is agreed upon.**

As a national objective, do we prioritize affordability and market competition, or take the absolute priority of consumer protection at any cost? Do we stimulate tourism and business traffic, or expect airlines to fund national deficit reduction, causing fare increases or capacity cuts that harm those local economies? Should federal taxes be prioritized over sales taxes and airport receipts at a local level? Are rules designed to protect 0.1% of passengers justified even if the

Section One: Executive Summary

costs impact millions of passengers and costs billions in compliance? Should an economic engine like aviation be used to fund deficit reduction even if the implications are fundamental to communities nationwide? Government policy, whether through tax implementation or consumer protection rules, drives how airlines compete, expand service, and design their products. Government policy must be vetted against a greater economic impact.

Since 1993, four separate commissions (by both Democratic and Republican administrations and Congress) have focused on how to strengthen the financial and competitive position of U.S. carriers. Each of the four commissions reached similar conclusions: that the industry's tax burden was rising, and impacting consumer demand; that the industry's regulatory burden was excessive; and that long-term success of the industry required global competitiveness and new investment. Under the current administration, the Future of Aviation Advisory Commission (FAAC) found that "taxes on the U.S. aviation industry make travel and shipping less affordable."¹ FAAC recommended a complete review of the aviation tax burden, and directed DOT to "thoroughly vet" proposed changes to reporting and consumer regulations with industry. The groundwork is in place today for a national policy, and the impact of rising taxes, fees and new regulations makes it a priority.

We recommend that the development of a National Aviation Policy be accelerated. We also **recommend an immediate moratorium on new consumer regulations** (except for safety-related rules) until the DOT completes its review of existing protections, thoroughly vets the review by submitting its analysis for peer review by neutral academic experts, and collects information from airlines about the cost of compliance. DOT has created a slew of new rules that add cost, raise fares and dampen consumer demand without any documented gain or proven results. Rules must be adapted to achieve the consumer protection objective without unnecessary costs or disruption to passengers through cancellations.

AAI analysis shows that the end result of additional government regulation and new taxes will result in lower travel demand and lower local taxes: **17.7 million fewer passengers will fly each year in the U.S. during the next decade, and there will be \$443 million less in local taxes collected because of fewer visitors.** To ignore this situation means to ignore the fabric of the U.S. business economy, and in the process destroy airline innovation, growth and the ability for all citizens to access the global transportation network.

¹ FAAC Final Report, p4 (<http://www.dot.gov/faac/docs/faac-final-report-for-web.pdf>)

SECTION TWO: KEY FINDINGS

- Four core trends have defined the aviation industry since September 11, 2001: growth in security infrastructure, increased competition among carriers, economic recession and demand shocks, and increases in oil prices and volatility.
- Over the past 10 years, passengers have benefitted from lower fares.
- Airlines increased flexibility and responded to higher regulatory, tax and energy costs by separating bundled, all-in fares into base transportation and ancillary services.

Federal and Local Taxes on Air Transportation, 2001-2011

- In 2011, airline tickets for domestic itineraries are taxed at a higher rate than taxes levied for alcohol, tobacco and firearms. For a typical \$300 domestic fare, airlines pay \$60 in taxes and fees, with about \$33 paid to the federal government, \$10 to TSA and up to \$18 to local airports.
- Per-segment taxes cause high tax rates for lower-fare business and leisure itineraries. Airlines pay an average tax rate of 21.7% for round-trip tickets of \$400 or less. This has **profound impact for both business and tourism markets** where local economies depend on affordable fares, available capacity and sustained flows of passenger traffic.
- Total tax collections from the industry are \$17 billion annually, including federal and local fuel taxes. We project collections will grow 15% to \$19.5 billion by 2014.
- **Federal taxes increase airfares and reduce both tourism and business demand.** We estimate that a \$10 *reduction* in federal air taxes would result in higher capacity deployment and lower fares, driving an increase in passenger traffic and a \$13 billion injection for hard-hit economies in Florida, California, Texas, Nevada and other states nationwide. A tax reduction would drive new hiring by both airlines and tourism-dependent economies nationwide.
- Large carriers generate the most revenue and have the highest overall tax burden (Southwest generates 17% of federal aviation and airport taxes, Delta generates 13%, United/Continental 12% and American 10%). Certain taxes, such as the Aviation Security Infrastructure Fee (ASIF) are based on decade-old standards that result in disproportional tax burden on legacy hub-and-spoke airlines (and do not impact newer carriers at all).

Section Two: Key Findings

The Cost of Consumer Regulations, 2009-2011

- The current administration brought a radical change to consumer regulation of airlines. While the ultimate objectives may have been well-intentioned, execution has been rushed, unsupported by concrete economic evidence, and carried significant collateral damage from compliance costs, flight cancellations and a loss of market flexibility.
- DOT’s first round of consumer protections (Enhancing Airline Passenger Protections 1, or EAPP-1) focused on airline operations, restricting long-taxi times for domestic flights to three hours and using the threat of punitive, multi-million dollar fines to force compliance. Tarmac delays, already declining since 2007, declined (but did not stop). Flight cancellation rates soared, correlated to the rule by independent studies including a comprehensive GAO report (GAO-11-783). AAI analysis shows that total industry cost of EAPP-1’s Domestic Tarmac Limits and Customer Care provisions is \$223 million in 2011, **and \$2.56 billion during the next decade.**
- The second round of consumer protections (EAPP-2) extended EAPP-1 provisions to international carriers and flight operations. It also standardized airline product offerings, forcing ticket refundability, restricting ancillary product price flexibility, and fundamentally changing how airlines display fares. While airlines continue their legal challenge of DOT’s authority to introduce EAPP-2 regulations, they are already incurring substantial compliance costs. **Total industry cost for EAPP-2 will be \$15.3 billion over the next 10 years, or \$4.36 per round-trip ticket sold.**

EAPP-2 Total Industry Cost, 10-Year Period 2011-2021	
Full-fare website, direct compliance cost	\$166,911,500
Full-fare website, decline in revenue	\$10,238,503,818
Prohibition on ancillary fee changes post-purchase	\$65,595,600
Denied Boarding Compensation changes	\$569,989,571
24-hour Ticket Hold and Refund	\$73,153,212
Baggage Information on Web, Ticket	\$34,247,500
30-Minute Status Notification	\$3,653,955,785
EAPP-2 and NPRM Changes	\$14.8 billion
Per Round-Trip Itinerary	\$4.36

- In addition to the above compliance costs, there is a consequence when extending the domestic three-hour tarmac delay rule to **international carriers** (EAPP-2). While there are far fewer international departures, the cost on one cancellation is far greater when including passenger and crew accommodation and rebooking costs. **AAI analysis shows a \$907 million ten-year cost from this rule, as international cancellations rise.**
- DOT’s economic analysis has been missing or fundamentally flawed. Tarmac-delay analysis by DOT’s contractors (Econometrica and HDR) did not consider any material

impact from punitive fines or changes in cancellation rates. Proposed changes to airline financial reporting and on-board e-cigarette smoking rules were not accompanied by any economic analysis, even though such analysis is required by both DOT's rules and Executive Order.

- Both EAPP-1 and EAPP-2 increase airline costs. Major drivers include compliance with the domestic and international tarmac delay rules (\$270 million per year for the industry) and new full-fare advertising rules (\$108 million in direct compliance cost plus an average revenue loss of \$1 billion annually for the next 10 years).
- **The package of EAPP-1 and EAPP-2 rules increase airline costs by an average of \$1.7 billion annually, or \$5.39 per round-trip ticket sold to the public.**

Local and State Impact

- We reviewed the impact of proposed aviation taxes by the current administration, and the demand impact of new consumer rules. We modeled (1) an increase in airport PFCs from \$4.50 to \$5.00; (2) a new \$100-per-departure tax on airlines; (3) doubling the TSA fee from \$2.50 to \$5.00 per passenger segment (representing only the first phase of the proposed increase to \$7.50 per segment); and (4) incorporating the cost of passenger protection regulations (\$5.39 per round-trip over the next 10 years, or \$2.69 per directional journey) to compute the impact on local airports, metro areas and states.
- Increases in taxes and airline costs due to consumer regulations lower aggregate demand, on both a system and route level, across all U.S. carriers. Lower passenger traffic impacts local economies, collection of airport Passenger Facility Charges, local taxes, and travel-related industries such as hotels, restaurants, rental cars and conference centers.
- Our ground-up, market-by-market analysis measured the elasticity impact on 200 airports nationwide for changes in domestic traffic. We found a combined impact of \$5.5 billion in economic loss from tax increases and \$3.5 billion from new regulations.
- The highest-impacted airports are Orlando (-\$367 million), Las Vegas (-\$340 million), Denver (-\$292 million), Los Angeles (-\$287 million) and Atlanta (-\$270 million).
- The metropolitan areas that are most impacted are Los Angeles (-\$533.8 million), New York (-\$525.2 million), San Francisco (-\$417.9 million), Chicago (-\$410.6 million) and Washington (-\$404.6 million). Other top 10 markets are Orlando, Miami, Boston, Las Vegas and Denver.
- The highest-impacted states are California (-\$1.24 billion), Florida (-\$1.17 billion), Texas (-\$687 million), New York (-\$576 million) and Illinois (-\$430.3 million). Also notable are Nevada (-\$379 million), Colorado (-\$322 million), Georgia (-\$287 million), and Minnesota (-\$144 million).

Section Two: Key Findings

- These metrics *do not include* the impact of proposed but not yet effective consumer regulations (including handicapped kiosk access and new reporting requirements).

Recommendations

- Recognizing prior commission concern and attention over taxes and balanced consumer regulations, we recommend the acceleration of a National Aviation Policy that defines priorities for tax collection, consumer protection standards, and performance objectives. It is essential that both industry and government have identical definitions and standards for system and flight performance (including delays) to measure success. The National Aviation Policy should seek the economic equilibrium that optimally balances airline profitability, federal and local tax objectives, and the importance of aviation in generating tourism and business demand for local economies.
- **Tax restraint is required instead of the ad hoc “add-a-tax” approach of Washington** during the last two decades. Economic stimulation of hard-hit tourism economies and business locations nationwide can be encouraged through rationalization and consolidation of federal taxes. **A \$10 reduction in federal tax per ticket would result in airline fare and/or capacity changes that would inject \$13 billion into local economies nationwide.**
- An independent review of consumer protection regulations introduced since 2009 is required. GAO recommended this review in its September 2011 report, and skyrocketing cancellation rates suggest that EAPP-1 and EAPP-2 have thus far been ineffective in achieving their objectives with positive welfare. Rules must be abandoned or changed.
- **DOT should halt new non-safety rulemaking and rule implementation until reviews its rules for economic and job impact**, and submit the results for peer review by independent academic authorities. New non-safety rulemaking should be guided by national aviation policy, not *ad hoc* decisions by DOT.

SECTION THREE: REVENUE & PROFITABILITY

The past decade has featured two recessions, terrorism, high oil prices, intense competition, financial restructurings and consolidation transformed the industry. Aviation in 2011 is evolved, consolidated and financially stronger than a decade prior. Two core questions remain: how consumer regulations impact the industry and the public, and whether the industry can support additional taxes that may benefit the government's budget deficit. The airline industry has razor-thin profitability, if any at all. It is highly regulated, vulnerable to supply and demand shocks, subject to fluctuations in currency and energy cost, governed by unique labor rules and intensely competitive on domestic routes.

Over the past 10 years, the average systemwide *operating profit margin* for U.S. carriers has been near zero, averaging just 0.3%.² The volatility is cyclical: in 2001-2002, the industry lost almost \$19 billion, while between 2006-2007 the industry cleared almost \$17 billion in operating profit. However in 2011, the International Air Transport Association has forecast just \$4 billion in net profit for the global airline industry on \$600 billion in revenue – just a 0.7% net profit margin. **It takes just 33 days for one company – Exxon Mobil to make the \$4 billion expected profit of all the world's airlines.** Exxon earned a Q2 2011 net profit of \$10.7 billion.

The observed swings in profitability reflect the central role commercial aviation plays in the nation's economy. In 2010, more than 717 million passengers boarded U.S. carrier flights, making U.S. airlines vulnerable to changes in both consumer and business demand. Airlines spend more than \$33 billion annually on fuel and are profoundly impacted by energy prices. **U.S. airlines employ more than 600,000 skilled workers in all 50 states, with total annual payroll over \$39 billion and average salaries and benefits over \$65,000 per employee.**³ When airlines expand, they create direct economic benefits from salaries, benefits and capital purchases, and stimulate the local economies. When airlines contract, not only are high-paying jobs lost, but local economies also suffer from reduced air access, higher fares, and lower demand for hotels, car rental agencies, local tourism entities and business services.

Crisis in 2001: Economy and Terrorism

The evolution of U.S. airlines over the past decade leads to the critical questions of *why* consumer regulations were introduced now and to assess *how* these regulations have impacted not only airlines, but also the travel industry and the general public. After the tumultuous post-9/11 period, consolidation began with the acquisition of TWA's assets by American Airlines in early 2001. When the terrorist attacks occurred, the impact on demand was immediate. New security procedures slowed departures and hassled passengers. The threat of future attacks discouraged discretionary travel. Expedia reported a 35% decline in passenger bookings, and investment

² BTS. Total operating margin 2001-2010 of \$4.46 billion for U.S. carriers systemwide, versus revenue of \$1.42 trillion during the same period.

³ <http://www.transtats.bts.gov/Employment/>. As of July 2011, the industry employed a total of 480,290 full-time and 102,368 part-time employees. Salaries from 2009 BTS Form P-6.

Section Three: Revenue & Profitability

banks estimated the drop in international travel demand at 40%.⁴ For U.S. carriers, the stage was set for financial restructurings and contraction.

Table 1: Major Financial Restructurings 2002-2006

Source: US airline financial reports, websites

Airline	Chapter	Filed	Exited	Outcome
US Airways (1st)	11	8/11/2002	3/31/2003	Ended pilot pensions
United	11	12/9/2002	2/1/2006	Shrunk, tens of thousands furloughed
US Airways (2nd)	11	9/12/2004	9/16/2005	Only out of Ch 11 with merger to America West
Delta	11	9/14/2005	4/30/2007	Deep pay cuts, NW merger
Northwest	11	9/14/2005	5/31/2007	Slashed \$6.7 bil in costs, debt

Restructuring and Growth: 2002-2006

The first phase of evolution was the wave of *financial restructurings* that began with the Chapter 11 bankruptcy filing by US Airways in August 2002. United followed in December 2002, followed by the concurrent filings of Delta and Northwest in September 2005. American Airlines never filed, but pursued significant cuts outside of bankruptcy. In bankruptcy, carriers unilaterally abrogated long-standing labor agreements and terminated pension obligations for both current employees and retirees. Airlines rejected aircraft leases and cut unprofitable routes.

There were 15 U.S. airline bankruptcies during the 2002-2008 period. Seven of those 15 airlines are no longer in existence. During one period from 2005 to 2006, four of the top six U.S. airlines were operating under bankruptcy protection. This occurred even before the 2008 oil price surge that nearly crippled the airline industry again. The economic impact during the 2002-2006 period was severe for both employees and the U.S. government. **A flight attendant at US Airways who made \$47,000 in salary in 2000 earned \$32,000 in 2005.**⁵ By absorbing pension obligations for hundreds of thousands of workers, the Pension Benefit Guarantee Corporation (PBGC) faced a \$23 billion deficit by 2005.

In late 2001, the government introduced loan-guarantee programs to support carriers, in the form of the Air Transportation Stabilization Board (ATSB). The ATSB was to issue up to \$10 billion in loan guarantees, but only \$1.2 billion of loans were underwritten, of which \$900

⁴ <http://www.guardian.co.uk/world/2001/sep/20/qanda.theairlineindustry>

⁵ <http://www.wsws.org/articles/2005/jan2005/air-j12.shtml>

million was used for US Airways.⁶ While the government after 9/11 injected \$5 billion in direct payments to compensate carriers for national airspace closure after the attacks, the balance of stabilization funds intended for loan guarantees were largely unused. Carriers instead restructured using bankruptcy court.

The restructurings of 2002-2006, combined with general economic recovery during this period, drove rapid growth for low-cost airlines such as Southwest, JetBlue, Frontier and AirTran. In 2002, these four carriers operated 514 aircraft combined and generated \$7.4 billion in revenue. By 2006, their collective fleets grew by 50% and their revenue almost doubled, to \$14.5 billion, as Table 2 shows. These carriers collectively added service to 68 new cities in this four-year period, increasing competition and forcing incumbent airlines to adapt.

Table 2: Low-Cost Carrier Growth, 2002-2007

Low-Fare Airline	2002			2006		
	Markets	Fleet Size	Rev. (mm)	Markets	Fleet Size	Rev. (mm)
JetBlue	20	37	\$635	49	119	\$2,363
Southwest	80	375	\$5,555	114	481	\$9,086
AirTran	52	65	\$733	72	127	\$1,892
Frontier	47	37	\$465	103	55	\$1,132
Group Total	130	514	\$7,388	198	782	\$14,473

The industry reached its zenith in the second half of 2006 when economic conditions peaked, fuel prices had not yet spiked and international demand was at its strongest:

- *Nationwide low-cost carrier entry and expansion.* Between 2002 and 2006, Southwest expanded its low-fare business model to hubs of the legacy airlines, including Philadelphia (2004), Pittsburgh (2005), Washington Dulles (2006) and Denver (2006). It set the stage for expansion into New York and Boston. New competition forced network incumbents such as Delta, Northwest, American, Continental and United to operate more efficiently.
- *International growth.* In 2002, U.S. carriers operated a total of 597,000 international flights. In 2006, they operated 813,450, an increase of 36%. Total international passengers flown increased in parallel from 61 million in 2002 to nearly 83 million in 2006. This new international flying was profitable: in 2006 international flights generated 44% of operating margin but represented 27% of revenue.
- *Rising fuel prices.* In January 2002, the average price per gallon for jet fuel (spot) was \$0.533 per gallon. By December 2006, the average price had risen to \$1.81 per gallon, an average increase of 28% *per year* during this period. In 2002, fuel represented just 13% of total expenses. By 2006, fuel reached 24%.

⁶ http://www.nytimes.com/2004/09/15/business/15air.html?_r=1&ref=airtransportationstabilizationboard

Section Three: Revenue & Profitability

- *Decreasing labor expense.* This resulted from bankruptcy contract abrogation and other changes, including outsourcing of flying from mainline carriers to regional airline partners. Flight crew salaries were 11% of expenses in 2002, dropping to 8% by 2006.
- *Product Evolution, not Revolution.* While some expanding low-cost carriers began to separate baggage fees from base fares, most low-cost and major airlines had yet to follow. Some ancillary services had taken hold. For example, Delta began selling snack boxes on board in 2003, with United following in 2005.

Throughout this period, regulators took a measured approach to consumer protection initiatives. DOT actively considered initiatives to increase disclosure of airline taxes and fees and passenger protections, but significant rulemaking was limited to deregulation of Global Distribution Systems in 2004.

2007-2008: Reinvention of Business Models

Two trends derailed this temporary period of prosperity for the industry: a rapid run-up in oil prices, followed by the start of economic recession in 2007. Combined with continued pressure by low-cost carriers, these trends lead to three fundamental industry changes that were triggers for new regulations and government intervention: flight capacity reduction, industry consolidation and a-la-carte, unbundled product pricing.

Fuel prices rose dramatically from January 2007 through June 2008, when the monthly average peaked at \$3.88 per gallon, more than seven times the \$0.53 per gallon paid in 2002. As prices rose, so too did the fluctuation in jet fuel prices on a daily basis. In January 2007, the standard deviation of fuel prices during the month was 4.7 cents. In October 2007, the standard deviation reached 9.7 cents and by May 2008 it was 22 cents. The impact on carriers from this volatility and rapid rise was profound. Because airlines sell *future* travel to passengers, seats were sold based on lower fuel, while carriers faced much higher actual fuel obligations.

Fuel hedging was not a complete solution. Airlines committing to increased hedging also lost massively when fuel prices plunged and price commitments remained high. US Airways' hedging cost it \$192 million in the second quarter of 2009 after oil prices fell but its purchase rates were locked in at higher levels. As the 2008-2009 recession took hold, the response by airlines reflected the importance of low fares to stimulate travel demand: instead of raising fares due to sky-high fuel prices, airlines knew that a fare hike of 50% or more would kill air travel worse than the post 9/11 period. Instead, carriers began to separate previously bundled components of travel into separate, ancillary revenue items, like the low-cost carriers that had been so popular.

In early 2008, several carriers introduced \$25 fees for the second bag checked. In May of that year, American was the first major carrier to charge for all bags, introducing a \$15 fee for the first bag checked and \$25 for the second. As fuel prices soared, other carriers followed suit. In all, baggage fees generated \$1.15 billion in new revenue during 2008, and helped stave off potential bankruptcies or liquidations.

Industry consolidation also accelerated. The recession of 2008, combined with fuel prices, led to the shutdown of Eos, MAXjet, Aloha, ATA, Skybus, and Primaris. Sun Country and Frontier filed for bankruptcy and their assets were ultimately acquired. More importantly, in April 2008 Delta and Northwest announced their merger, creating the world's largest airline. The nation's surviving carriers aggressively reduced capacity. Between December 2007 and December 2009, U.S. legacy carriers cut domestic capacity 10.3%, compared to just a 1.1% reduction in international capacity.

By 2009, airlines had restructured their financial models, pricing domestic tickets like low-fare carriers: a core base fares plus a-la-carte extra services. While the industry lost money in 2008, it recovered in 2009. The total U.S. airline industry operating loss in 2008 (\$3.35 billion) was significantly less than losses during prior recessions (most notably, the \$10 billion loss in 2001 and the \$8.6 billion loss in 2002). **Ancillary revenues and a-la-carte pricing may not have been popular with consumers, but these revenue sources allowed carriers to survive economic recession and higher fuel prices.** In 2009, airlines collected a total of \$7.2 billion from baggage and reservations fees yet generated only \$2.33 billion in operating profit.

2009-2010: New Administration and New Direction

As ancillary revenues became a core part of airline competition, consumer irritation with fees fed media coverage. The current administration, recently elected, jumped into the national debate, playing to the American public's displeasure with fees. DOT focused on five key issues:

- Long on-board taxi delays caused by severe weather, safety and carrier-related factors, particularly during the period from 2006-2007;
- Mishandled baggage, including reimbursements for baggage fees collected;
- Delayed flights and disclosure of flights that regularly operate with delays caused by weather, airlines and air traffic control;
- Handling of passengers with disabilities, including wheelchair and scooter access; and
- Denied boarding compensation.

Next, we review these and other regulatory actions, establish the cost of each rule and examine the impact of rules on consumers. Understanding this impact, however, requires context. These problems were not due solely to legacy or low-cost airlines. Regulations imposed restricted all carriers. However, we show that the administration's bias towards consumer protection has disproportionately harmed price-sensitive customers, and reduced competition in the U.S. domestic airline sector.

SECTION FOUR: TAXATION

Over the past 30 years, the percentage and dollar amount paid by U.S. airlines to the Federal government has increased. While aviation has historically been a whipping post for new taxes and fees that support increased government spending, the past 20 years has seen five major new trends:

- The introduction of significant fees for customs and immigration, on top of existing departure taxes for international itineraries;
- Introduction of flight segment taxes and ad valorem taxes on frequent flyer redemptions and points purchases;
- A commercial jet fuel tax of 4.3c per gallon, with similar taxes assessed in some states and localities, averaging 3.4c per gallon nationwide;
- The introduction, followed by rapid expansion, of airport passenger facility charges (PFCs) to fund local construction projects such as new terminals; and
- A bevy of new fees that fund the ever-growing Department of Homeland Security infrastructure, including passenger screening, aviation security “infrastructure,” plus customs and immigration fees.

Since airline deregulation in 1978, there have been 17 taxes, fees or financial measures enacted on passenger and cargo airlines. Today, airlines pay higher federal tax rates for domestic itineraries than federal taxes for alcohol (5%), tobacco (18.5%) and firearms (15%).⁷ **Across both domestic and international itineraries, taxes, customs fees and airport PFCs constitute \$59 per round-trip itinerary.**

We are particularly concerned with the prevalent opinion in Washington that additional tax revenue can be drawn from commercial aviation. Recently, Congress has proposed new taxes and fees on airlines intended to close budget deficits and fund an expanding federal bureaucracy. If carriers are successful at raising fares to cover the ever-increasing tax burden, demand for air travel will be diminished. If they are unsuccessful at raising fares, capacity will be cut. Either way, the consequences are significant for competition, for small community air service, and for jobs in the aviation and tourism sectors. **As we demonstrate in this section, the ever-increasing burden of taxes threatens the viability and competitiveness of U.S. airlines, and the valuable role of aviation in our national economy.**

We begin our review of federal taxation and the impact on aviation with a summary of the taxes and fees paid by airlines. We examine those taxes and fees that are paid by airlines to U.S. and foreign governments, and to local and airport authorities.

⁷ <http://www.centreforaviation.com/analysis/us-industry-unites-against-new-taxes-aimed-to-reduce-deficit-60020>

Section Four: Taxation

Introduction to Taxes and Fees

Current taxes paid by airlines can be broken into seven categories. An eighth category, a per-departure fee, has also been proposed. Some taxes are calculated based on the fare, some on the number of flight segments in the itinerary (counted as one takeoff and landing) and others on the total enplanements (counted as a passenger boarding). The key taxation categories are excise taxes, security fees, airport facility charges, and international customs and immigration fees. For international flights, airlines pay international departure and airport taxes for the foreign government as well.

1. **Federal excise tax (ad valorem).** Airlines pay 7.5% of the amount paid for base transportation in excise taxes to the federal government on an *ad valorem* basis. (See Internal Revenue Code Section 4261)
2. **Federal excise tax (per segment).** A tax of \$3.70 is applied per segment flown within the U.S. and to/from Canada, defined as a single takeoff & landing. Flights with a stop but no change of plane (a “direct” flight) are treated as multiple flight segments for the purposes of this tax. This tax has jumped from its beginning in 1997, when it was \$1.00 per flight segment, to \$3.70 today. (IRC Sec 4261)
3. **Excise taxes (fuel).** Airlines pay *federal* tax of \$0.043 per gallon of fuel consumed in scheduled and charter operations (the excise tax is 21.8 cents per gallon for general aviation use). (IRC Sec 4081). In addition, airlines remit 0.1c per gallon enplaned to the federal government to fund EPA programs that repair leaking underground fuel storage tanks (referred to as the Federal LUST fee). Airlines also pay *state and local* taxes that range from zero to 7 cents per gallon, with exemptions and waivers in certain jurisdictions for volume purchases, hub operations, or other local considerations. Airlines also pay *airport-specific* taxes for fuel storage and fuel pipeline transfer fees.
4. **TSA September 11 Security Fee.** A security services fee of \$2.50 per enplanement (begun after 9/11), with a limit of two enplanements (\$5.00) per one-way trip or four enplanements (\$10.00) for round-trip itineraries. The current administration has proposed tripling the TSA fees paid by 2017 to \$7.50 per segment to fund \$21 billion in new infrastructure for TSA, and to contribute \$15 billion towards deficit reduction. (49 CFR 1510.5a)
5. **International Departure and Arrival Taxes.** In 2010 and 2011, a tax of \$16.30 per flight segment is applied on itineraries departing the United States, and \$16.30 per segment arriving in the United States. For the purposes of tax computation, flights to and from U.S. territories (including Puerto Rico, the U.S. Virgin Islands, American Samoa and Guam) are considered international flights and taxed accordingly. However, flights to and from the buffer zone of Canada and Mexico within 225 miles of the border (including most major Canadian cities and Tijuana, Mexicali, Monterrey, Ciudad Juarez and Chihuahua in Mexico) are exempt from these taxes.
6. **Customs and Immigration Fees.** In addition to international departure and arrival taxes, passengers pay a user fee of \$7 for immigration, \$5.50 for customs and \$5.00 for

agricultural inspection (APHIS) when returning to the United States. Our estimates for 2012 and beyond reflect full customs fees assessed for all inbound passengers from Canada, Mexico and the Caribbean.

7. **Airport Passenger Facility Charges (“PFCs”).** Airport-imposed fees for passengers enplaning at that airport vary (today) from \$3.00 to \$4.50 per passenger, with a limit of \$9.00 for one-way trips and \$18.00 for round-trip itineraries.⁸ Most large airports charge the maximum \$4.50 fee. PFCs fund FAA-approved projects at airports that enhance safety or capacity, upgrade security infrastructure, reduce noise, or increase air carrier competition through subsidies and grants.⁹ In early 2011, budget proposals contained PFC increases of 56%, to \$7.00 per airport, but this increase has not yet been enacted. In 2011, PFC revenue is expected to top \$2.8 billion.
8. **Proposed ATC Departure Tax.** The current administration has proposed a \$100 departure tax, assessed for each commercial airline departure, which could collect up to \$11 billion for the Aviation Trust Fund over the next 10 years.

Specific taxes and fees for each of these categories are provided in more detail in Appendix 2 to this report. In addition, Appendix 2 provides historical tax levels since 2003 for each category, demonstrating the steady escalation of airline tax revenue as TSA, FAA and DOT infrastructure grew under the Bush administration.

Taxes and fees paid by airlines have steadily escalated since 1972. According to ATA, taxes and fees represented 7% of a \$300 airline ticket in 1972 and 13% in 1992. By 2011, ATA estimates that total taxes and fees reached 20% of a \$300 fare.¹⁰ Table 3a below confirms the ATA estimates, demonstrating that a \$300 all-in ticket consists of approximately \$240 received by the carrier and \$60 paid in taxes. Of this \$60, approximately \$33 is paid in federal tax, \$10 to TSA and \$18 to the airports to fund their infrastructure, safety and “competition” projects.

Table 3a also estimates the tax burden for flights (1) between the contiguous 48 U.S. states, and Alaska and Hawaii; (2) flights between the U.S. and Canada; (3) flights between the U.S. and the United Kingdom, as a proxy for high-tax Europe; and (4) flights between the U.S. and the United Arab Emirates, as an example of a low-tax, pro-aviation environment.

Flights between the mainland U.S. and Hawaii, and between the lower 48 states and Alaska, are taxed lower in aggregate (and by percent) compared to intra-US or intra-Hawaiian travel. Whether intended as a federal subsidy for Alaskan travel, or as a simple loophole in the tax structure, taxes paid for these itineraries are 10-20% lower than for comparable U.S. domestic journeys in the lower 48 states. On a \$500 ticket to Alaska, airlines remit \$40 of the total fare.

⁸ See http://www.faa.gov/airports/resources/publications/regulations/media/pfc_14cfr158_062207.pdf and http://www.arccorp.com/forms/pp/iah/current/iah7_8.pdf

⁹ <http://www.faa.gov/airports/pfc/>

¹⁰ *The Economic Climb-Out for U.S. Airlines*, October 17, 2011, ATA Economics. Slide 30.

Section Four: Taxation

Flights to Canada, the U.K. and U.A.E. show varying patterns of taxation. Canadian flights within the 225-mile buffer zone are exempt from certain federal taxes on international flights. However, they are subject to other ad-valorem taxes. In addition to standard domestic taxes, Canadian flights are subject to customs and immigration fees, and fees imposed by the Canadian federal and provincial governments. In contrast, flights to the U.K. and U.A.E. show lower levels of federal taxes, the same customs and immigration fees, and a wide range of taxes imposed by foreign governments. The United Kingdom assesses a \$96 Air Passenger Duty (“APD”) on flights to North America; UAE does not.

Table 3a: Sample Taxes and Fees by Flight

	Contiguous 48 USA	Alaska & Hawaii	Canada	United Kingdom	United Arab Emirates
Routing:	BWI-CLE-DEN DEN-CLE-BWI	SEA-ANC ANC-SEA	IAD-YYZ YYZ-IAD	EWR-LHR LHR-EWR	IAD-DXB DXB-IAD
Net Airfare (to Airline)	\$241.86	\$456.16	\$595.00	\$537.00	\$1,074.00
Federal Transportation Ad-Valorem Tax	\$18.14	\$20.23	\$44.63	\$32.60	\$32.60
Flight Segment Tax (\$3.70/segment)	\$14.80	\$7.40	\$7.40	\$0.00	\$0.00
September 11th Security Fee	\$10.00	\$5.00	\$2.50	\$2.50	\$2.50
Airport PFCs	\$18.00	\$7.50	\$4.50	\$4.50	\$4.50
Customs & Immigration User Fees	\$0.00	\$0.00	\$12.00	\$17.50	\$17.50
Foreign airport & customs fees	\$0.00	\$0.00	\$40.00	\$142.00	\$21.80
Total Taxes Paid	\$60.94	\$40.13	\$111.03	\$199.10	\$78.90
Gross Airfare	\$302.80	\$496.29	\$706.03	\$736.10	\$1,152.90
Taxes as % of Gross	20.1%	8.1%	15.7%	27.0%	6.8%

Source: Continental Airlines Website, October 17, 2011

Airlines face a unique tax burden at the federal level, and through PFCs at the local level as well. Dollars paid to the government – both for aviation programs and for other uses, such as deficit reduction – are dollars forgone by airlines. Passenger price elasticity is negative: an increase in price leads to a decrease in aggregate consumer demand. If airlines are successful in raising total fares to cover an increasing tax burden, there is a corresponding drop in consumer demand. This jeopardizes both airline profitability as well as the viability of service to small communities nationwide.

Taxes by Fare Level

Airlines pay a higher percentage of taxes and fees to the government for lower-priced itineraries than for more expensive ones. To assess the relative burden of airline taxes across different fare levels – and, by proxy, customer demographics – we used Q4 2010 ticket data for domestic flights to assess the percentage of gross fares paid in taxes and airport fees.

Our analysis divided market fares paid by passengers into \$1 increments, excluding fares below \$100 and over \$1,000. We calculated for each increment the average flight segments taken, as well as total revenue collected. From total flight segments and gross fares reported, we calculated the percentage of total fare paid by airlines for (1) 7.5% federal ad valorem taxes, (2) \$3.70 segment taxes, (3) \$2.50 TSA fees with a maximum of \$5.00 per direction, and (4) \$4.50 airport PFCs with a maximum of \$9.00 per direction. To create the summarized Table 3b, we **excluded** all other taxes, including DHS fees (all segments analyzed were domestic), fuel taxes and other levies, and grouped the results by \$100 increments.

Table 3b: Average Fare and Average Federal Tax Burden, by One-Way Fare (Q4 2010)

One-Way Fare	Pax (000s)	Revenue (mm)	Fed. Tax (mm)	Burden
\$100	22,964	\$1,340.8	\$442.2	33.0%
\$200	53,072	\$7,847.8	\$1,530.5	19.5%
\$300	20,580	\$4,972.3	\$810.2	16.3%
\$400	6,808	\$2,332.6	\$323.3	13.9%
\$500	3,036	\$1,348.4	\$166.5	12.4%
\$600	1,345	\$735.4	\$84.1	11.4%
\$700	704	\$454.4	\$49.3	10.9%
\$800	418	\$311.9	\$32.4	10.4%
\$900	251	\$213.0	\$21.4	10.1%
\$1,000	181	\$172.0	\$16.7	9.7%

The implications of the federal tax burden are significant for all U.S. markets, including both leisure (Orlando, Las Vegas) and business (Atlanta, Chicago, Dallas and New York) cities. As we illustrate in Section Six, there are implications for both affordable fares and service to small communities. The relative burden of federal taxation placed on commercial aviation is significant. Airlines *and* consumers would benefit from a balanced approach to taxation.

Estimating Aggregate Tax Payments

How much money is paid by airlines each year to fund the federal tax burden, airport PFCs, and other user fees? While the exact total varies based on the underlying flights operated, passengers carried and the mix between domestic and international operations that year, in 2010 airlines paid between \$16 billion and \$17 billion in taxes. Table 4 below summarizes our estimates of 2010 Federal tax revenue, *without including any offsets or refunds* made by the government during the year, along with forward projections for 2012 through 2014.

Section Four: Taxation

Table 4: Estimated Taxes Paid by Airlines, 2010-2011 (One Year Period)

Assumes 3% passenger growth per year, no change in tax structures, average domestic fare \$118.85 (tax exclusive) per flight segment. Sources: BTS passenger data, DOT Data Bank 1B, T-100 Market, DHS and AAI Fuel Tax Surveys

USD Millions	2010	2011	2012	2013	2014
Estimated PFCs	\$2,761	\$2,844	\$2,929	\$3,017	\$3,107
Estimated TSA Fees	\$2,145	\$2,197	\$2,250	\$2,305	\$2,361
Estimated FAA Taxes					
Domestic	\$7,346	\$7,674	\$8,016	\$8,375	\$8,750
International	\$2,314	\$2,383	\$2,455	\$2,528	\$2,604
Estimated DHS User Fees	\$1,234	\$1,271	\$1,467	\$1,511	\$1,556
Estimated Fuel Taxes - Federal	\$414	\$426	\$439	\$452	\$465
Estimated Fuel Taxes - Local	\$324	\$334	\$344	\$354	\$365
Estimated Cargo Taxes	\$395	\$399	\$403	\$407	\$411
Total Taxes Collected (Millions)	\$16,932	\$17,526	\$18,302	\$18,949	\$19,620
Per Enplanement	\$21.51	\$21.61	\$21.91	\$22.03	\$22.14
Per Round-Trip Ticket	\$58.93	\$59.22	\$60.04	\$60.36	\$60.67

In 2010, we estimate that airlines paid an average \$58.93 in taxes to the U.S. government and local authorities for each round-trip ticket sold. Our estimate pools high-tax domestic routes with lower-tax international operations, and divides total taxes paid (\$16.9 billion) over the total number of passenger enplanements. Our estimates for total taxation are similar but moderately higher than total tax estimates presented by the Air Transport Association and other industry sources, which generally do not include local/state fuel taxes or the full accrual of TSA fees each year. Our model builds taxation estimates from the ground-up, using actual flight and passenger counts, not from top-down financial reports by government and airlines, which may not segregate rebates, offsets and other deviations from annual baseline estimates.

Airport Passenger Facilities Charges

The FAA permits airports to collect taxes per enplaned passenger in order to fund projects that enhance safety, security, and capacity improvements, as well as reduce noise or increase competitiveness at the airport. The PFC program was established by the Aviation Safety and Capacity Expansion Act of 1990 (49 U.S.C. 40117). The Act granted FAA to authorize imposition of a \$1, \$2 or \$3 fee per enplaned passenger, with additional \$4.00 and \$4.50 tiers added in 2000 by the AIR-21 act.¹¹ By 2000, the FAA had authorized 825 PFC applications from 314 different airports, with all but one airport collecting at the maximum \$3 per passenger level (65 *Fed. Reg.* 34536).

¹¹ April 5, 2000. Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21).

To estimate total PFCs paid, we use the following methodology:

- *Total passengers.* We add total T-100 domestic reporting enplanements of 629.5 million passengers and international departing passengers of 79 million passengers, for a total base of 708.5 million passengers. We then deduct 7.5% to reflect frequent-flyer award tickets, 2.6% to reflect those passengers on two-stop (or more) itineraries, and an additional 1% for other non-taxed itineraries (including rural air service).
- *Average PFCs collected.* We compute the average PFC collected at U.S. airports by combining reported PFC rates for the top 71 airports with total passenger enplanements at each facility for 2010. Using total T-100 enplanements multiplied by the reported PFCs, we estimate a weighted average PFC of \$4.38 per enplaned passenger.

Table 5: Taxable Itineraries for Passenger Facility Charges, 2010

Source: T-100 market data

Passenger Facility Charges	Units	Percent
T-100 Domestic Market Passengers	629,521,640	
International Departing Passengers	78,928,404	
Total Departing Passengers	708,450,044	
Frequent-Flyer Tickets	-52,999,776	-7.5%
Three-Segment Ticket Segments	-18,312,421	-2.6%
Through Tickets & Other Non-Taxed	-7,084,500	-1.0%
Total Exempt Passengers	-78,396,698	
Net Passenger Segments Subject to PFC Fees	630,053,346	88.9%

We estimate that 88.9% of passenger segments are subject to PFC fees. Applying this to the total number of domestic T-100 enplanements, plus international *departures* from the United States, we calculate a taxable base of 629.85 million passenger enplanements. Multiplied by the average rate of \$4.38 per enplanement, we estimate airlines paid total PFCs of \$2.76 billion in 2010, increasing to \$3.1 billion in 2014 due to passenger growth.

Table 6: Estimated Total Passenger Facility Charges, 2010-2014

Source: T-100 market data, PFC surveys, 3% passenger growth per year

DESCRIPTION OF TAX COLLECTED	2010	2011	2012	2013	2014
Taxable passengers	629,848,094	648,743,536	668,205,842	688,252,018	708,899,578
Revenue Collected (Millions)	\$2,761	\$2,844	\$2,929	\$3,017	\$3,107
Per Round-Trip Ticket	\$12.01	\$12.01	\$12.01	\$12.01	\$12.01

Domestic and International Passenger Taxes

Taxes on domestic airline tickets are composed of two components: an ad valorem excise tax of 7.5% times the base fare paid, and \$3.70 tax per passenger flight segment. There are exceptions for (1) flights from frequent flyer award tickets, which are not subject to the 7.5% ad valorem tax; (2) flights between the mainland U.S., Hawaii and Alaska, which are subject to a

Section Four: Taxation

special per-segment rate; and (3) flights between the U.S. and territories, including Puerto Rico, which are subject to international tax rates.

Taxable Domestic Segments. We utilize the reported 2010 domestic T-100 market total of 629.5 million passengers. From this total, we deduct frequent flyer tickets and award seats that are not taxable. We surveyed financial reports for major U.S. carriers to estimate the percentage of seats occupied by award passengers. Table 7 shows that 92.5% of domestic itineraries are taxable, with 7.28% on award trips and 0.2% on zero-fare not subject to taxation.

Table 7: Award Seats and Other Non-Taxed One-Way Itineraries, 2010

*Source: AAI survey of carrier 2010 annual reports available at phx.corporate-ir.net; T-100 market data
Unit revenue is used as direct proxy for seats occupied by domestic passengers.*

Frequent Flyer Awards:	% Award	T-100 Market	Awarded
United Airlines	7.5%	44,048,439	3,303,633
Continental Airlines	5.7%	30,922,557	1,762,586
Alaska Airlines	9.0%	15,404,315	1,386,388
US Airways	4.0%	45,856,031	1,834,241
Southwest	7.9%	114,213,010	9,022,828
Delta Air Lines	8.3%	90,822,381	7,538,258
Total	7.3%	341,266,733	24,847,934
Other Non-Taxed Tickets	0.2%		
Percentage Free/Non-taxed Tickets	7.5%		
Domestic Itineraries Subject to Tax	92.5%		

In our estimate of domestic passenger revenue, we apply the same uniform tax rate of 7.5% plus \$3.70 per segment to all itineraries including those to Alaska and Hawaii. Flights to Alaska and Hawaii from the U.S. mainland are subject to lower tax rates based on the percentage of flight beyond the United States, but offset by higher facilities taxes.

Estimating Taxable Revenue. We estimate the average fare per enplanement in order to estimate 7.5% ad valorem tax collections from airlines. Ticket coupon and market fare data are available from DOT on a quarterly basis. We use full-year 2010 ticket samples for 10% of all domestic itineraries, totaling 431 million passengers and \$81.5 billion in revenue, including taxes and PFCs. As Tables 8a and 8b show, we calculate the average fare per segment including taxes and fees, then estimate the taxes and fees for itineraries of different segment lengths. We isolate flights of different segments (nonstop, one-stop, two-stop, etc.) up to the maximum 12-segment itineraries reported in 2010. This is important because both TSA 9/11 fees and airport PFCs have segment limits.

By multiplying total passengers by the number of flight segments taken per directional journey, we obtain the total flight segments reported to DOT (589.9 million). Dividing 589.9 million segments by 430.9 million passengers results in an average number of segments per trip of 1.37. Dividing \$81.5 billion in revenue by 589.9 flight segments gives the average *post-tax* fare per passenger segment of \$138.19.

Table 8a: U.S. Ticket Data, by Number of Flight Segments per One-Way Trip

Source: DOT Data Bank 1B Information (From BTS). Adjusted for 10% ticket sample.

COUPONS	PAX (000s)	REV (MM)	O/W FARE	SEG FARE	SEG (000s)
1	284,406	\$49,140	172.78	172.78	284,406
2	135,383	\$28,898	213.46	106.73	270,766
3	9,920	\$2,952	297.57	99.19	29,760
4	1,103	\$467	423.91	105.98	4,411
5	97	\$55	562.84	112.57	486
6	15	\$11	736.92	122.82	92.0
7	3	\$2.7	944.87	134.98	20.0
8	1	\$0.6	979.51	122.44	5.12
9	0.2	\$0.2	1,249.91	138.88	1.62
10	0.1	\$0.1	1,213.79	121.38	0.60
11	0.01	\$0.02	1,608.43	146.22	0.11
12	0.01	\$0.02	1,562.87	130.24	0.12
TOTAL	430,928	\$81,527			589,948

Table 8b: Estimating Pre-Tax Revenue by Segments per Directional Trip, 2010

Source: DOT Data Bank 1B Information (From BTS). Adjusted for 10% ticket sample

COUPONS	PAX	PFC	9/11 FEE	SEG TAX	7.5% AV	PRETAX	REVENUE
1	284,406	-\$4.38	-\$2.50	-\$3.70	-\$11.32	\$150.88	\$42,912.33
2	135,383	-\$8.76	-\$5.00	-\$7.40	-\$13.42	\$178.88	\$24,217.26
3	9,920	-\$8.76	-\$5.00	-\$11.10	-\$19.03	\$253.69	\$2,516.56
4	1,103	-\$8.76	-\$5.00	-\$14.80	-\$27.58	\$367.77	\$405.52
5	97	-\$8.76	-\$5.00	-\$18.50	-\$37.02	\$493.57	\$47.94
6	15	-\$8.76	-\$5.00	-\$22.20	-\$48.90	\$652.06	\$10.00
7	3	-\$8.76	-\$5.00	-\$25.90	-\$63.15	\$842.06	\$2.40
8	1	-\$8.76	-\$5.00	-\$29.60	-\$65.31	\$870.84	\$0.56
9	0.2	-\$8.76	-\$5.00	-\$33.30	-\$83.92	\$1,118.93	\$0.20
10	0.1	-\$8.76	-\$5.00	-\$37.00	-\$81.14	\$1,081.89	\$0.06
11	0.01	-\$8.76	-\$5.00	-\$40.70	-\$108.42	\$1,445.55	\$0.01
12	0.01	-\$8.76	-\$5.00	-\$44.40	-\$104.98	\$1,399.73	\$0.01
TOTAL	430,928						\$70,113

PFCs are subject to a maximum of \$18.00, or two \$4.50 airport charges per directional journey. Using the average airport PFC of \$4.38 per enplaned segment, there is an average maximum of \$8.76 for all journeys with two or more directional segments. We use a similar methodology for TSA fees (which carry a two-segment cap) and apply directly the Segment Tax of \$3.70 and the 7.5% ad valorem tax (which is based on the pre-tax, not post-tax, fare). We therefore calculate an average of \$70.1 billion in pre-tax revenue based on the Databank 1B ticket sample. Dividing \$70.1 billion of revenue in our sample by the 430.9 million passengers yields an average pre-tax fare per segment of \$118.85.

Section Four: Taxation

Because our analysis crosses both Databank 1B ticket data (which is based on a more limited 10% sample of passengers, and therefore loses accuracy in smaller markets) and T-100 enplanement data (which is an exact count of passengers in each market) our revenue totals vary between \$70 and \$80 billion depending on which data set we use. Because federal taxes are based on *exact* passenger counts, not on estimates, we apply the average fare per enplanement we calculated using DOT to all non-award passengers in the T-100 database to estimate federal tax collections. Our estimate of domestic tax revenues is calculated by:

- *Deducting* from total domestic flight segments (629.5 million) that portion of flights that were award or free tickets (47.1 million, or 7.5%) for a “taxable” base of 582.4 million passenger enplanements.
- *Multiplying* this base of enplanements by \$3.70 to calculate total segment taxes.
- *Calculating* total revenue taxed by multiplying taxable enplanements by the average pre-tax fare of \$118.85 per segment.
- *Multiplying* this total revenue by 7.5% to obtain ad valorem tax collections.

This results in total collections in 2010 of \$7.3 billion. To calculate international collections, we must estimate the average fare for international segments. Because our study does not utilize the confidential Databank 1B coupon data for international flights, we use a combination of three data sources to estimate international average fares:

- *T-100 International Passenger Enplanements* for 2010. We include only enplanements for U.S. carriers, since foreign carriers do not report financial information to DOT.
- *Total revenue* (including charter, cargo, ancillary revenue and other services) by carriers in domestic and international flight operations
- *Pre-tax airfares* per flight segment (\$118.85) for domestic flights, to estimate the percentage of revenue derived from cargo, charter and other revenue sources not directly related to base fares.

First, we collected and added all operational revenue collected by U.S. airlines including charters, cargo, ancillary revenues, maintenance services and other revenue sources. Dividing this total revenue by enplanements, we obtain the average revenue per *scheduled passenger* enplanement, which includes an allocation of tax, charter, cargo and other revenue. To isolate that allocation, we compare all-in average revenue with the pre-tax average revenue for domestic operations. Using the 37% estimate of allocated revenue per domestic passenger in Table 9 below, we estimate a parallel pre-tax segment fare for international operations of \$396.08.

Table 9: Estimating International Fares Based on Ticket Data & Financial Reports

Source: DOT Data Bank 1B, Carrier Financials (P-12) and T-100 Data

Region	Passengers	All Rev.	Passenger	Other Rev.	Other Rev.	Fare
Domestic	629,521	\$119,074	\$189	\$70.30	37%	\$118.85
International	88,207	\$55,604	\$630	\$234.30	37%	\$396.08

Not all tickets purchased by passengers on international itineraries are subject to taxation. The U.S. International Departure and Arrival Taxes are applicable to all international itineraries except those to and from cities within the Buffer Zone, a 225-mile zone around the United States border that includes most key Canadian markets, and major metropolitan areas in Mexico such as Monterrey. Using T-100 segment and market data, we estimate the number of passengers who travel to and from cities in the Buffer Zone and deduct these from the total. Since tickets purchased by passengers traveling to U.S. territories - Puerto Rico, Guam and the U.S. Virgin Islands - are subject to the tax, we add those to the total.

Table 10: Estimating Taxable International Passengers

Source: DOT Data Bank 1B, Carrier Financials (P-12) and T-100 Data

Taxable International Passengers	2010	
Total T-100 International Passengers	158,265,343	
Canadian passengers in Buffer Zone	-18,448,033	
Mexican passengers in Buffer Zone	-5,929,785	
Puerto Rico, Guam & USVI	8,700,269	
Total Taxable	142,587,794	90.1%

Using this total of taxable international passengers, we calculate the total taxes paid by airlines to the FAA on domestic and international itineraries. We project **\$7.3 billion annually in domestic ticket taxes paid in 2010, increasing to \$8.75 billion by 2014 as passenger traffic grows, driving higher revenue.** We also project **\$2.3 billion annually in international ticket taxes in 2010, increasing to \$2.6 billion annually by 2014.**

Table 11: Estimating Federal Tax Collections

Source: DOT Data Bank 1B, Carrier Financials (P-12) and T-100 Data

	2010	2011	2012	2013	2014
Taxable Domestic Passenger Segments	582,426,567	599,899,364	617,896,346	636,433,236	655,526,233
Taxable Domestic Revenue (millions)	\$69,219	\$72,721	\$76,401	\$80,267	\$84,329
Domestic Taxes Collected	\$7,346	\$7,674	\$8,016	\$8,375	\$8,750
Taxable Departing Int'l Passengers	70,827,852	72,952,687	75,141,267	77,395,505	79,717,370
International Departure Taxes	\$1,154	\$1,189	\$1,225	\$1,262	\$1,299
Taxable Arriving Int'l Passengers	71,113,458	73,246,862	75,444,268	77,707,596	80,038,823
International Arrival Taxes	\$1,159	\$1,194	\$1,230	\$1,267	\$1,305
Dom + Int'l Per Passenger	\$13.34	\$13.48	\$13.63	\$13.77	\$13.93
Per Round-Trip Ticket	\$36.54	\$36.93	\$37.33	\$37.74	\$38.16

Immigration, Customs, and APHIS (Agricultural) Fees

For itineraries that return to the United States from foreign points, three distinct fees are assessed as user fees for customs and immigration services provided by the Department of

Section Four: Taxation

Homeland Security: a US Customs Fee (referred to as “YC” on tickets), Immigration Fee (XY) and Agricultural Inspection Fee (XA).

- The U.S. Customs Fee (YC) is assessed for travel on tickets issued to passengers arriving from outside the U.S. customs territory, and is \$5.50 for tickets issued since April 1, 2007.
- The U.S. Immigration Fee (XY) is \$7.00 and is assessed for travel from any international point into the U.S., Puerto Rico, Guam, and U.S. Virgin Islands.
- The Agricultural Inspection Fee (XA) is assessed for travel from any international point, including Canada and Mexico and associated buffer zones, into the United States or Puerto Rico. It is currently set at \$5.00 per entry.

For 2010 and 2011, we calculate the number of passenger itineraries (66%) that are subject to customs fees (international arrivals minus certain arrivals from Canada, Mexico and the Caribbean) and the number of passenger itineraries subject to agricultural inspections. For 2012 and beyond, reflecting recent legislation, we assess a customs fee for *all* inbound passenger itineraries to the United States, including those from Canada, Mexico and the Caribbean. This drives a cumulative total estimate of \$1.2 billion per year to the Department of Homeland Security in 2010, increasing to \$1.56 billion by 2014 with continued growth in international travel and applicability to Canadian, Mexican and Caribbean traffic.

Table 12: Estimating DHS User Fees, 2010-2014

Source: DOT Data Bank 1B, Carrier Financials (P-12) and T-100 Data

Tax Category	2010	2011	2012	2013	2014
Arriving International Passengers, Total	79,014,953	81,385,402	83,826,964	86,341,773	88,932,026
Immigration Fees Collected (XY)	\$553	\$570	\$587	\$604	\$623
Agricultural Inspection Fees (APHIS - XA)	\$395	\$407	\$419	\$432	\$445
Customs Fees Collected (YC)	\$285	\$294	\$461	\$475	\$489
Total U.S. Immigration & Customs Fees	\$1,234	\$1,271	\$1,467	\$1,511	\$1,556

Fuel Taxes

In 2010, airlines consumed a total of 11.056 billion gallons of jet fuel for domestic flight operations, at an average price per gallon (before taxes and fees) of \$2.24 per gallon.¹² They consumed another 5.2 billion gallons for international operations at an average of \$2.22 per gallon. To estimate fuel taxes paid, we first estimate the percentage of fuel consumed each year that is taxable. For example, fuel consumed by airlines on direct flights that continue from domestic to international flight segments are not subject to tax.¹³ Similarly, certain small aircraft

¹² Bureau of Transportation Statistics, Form 41 Schedule P-12A, 2010 totals for domestic flight operations.

¹³ See IRS Publication 510, *Excise Taxes, Kerosene for Use in Aviation*. p11: “There is no tax on kerosene removed directly into the fuel tank of an aircraft for use in foreign trade.”

used for rural air service are exempt from fuel taxes. Based on a survey of 2011 OAG schedule data, rural air service and other factors, we estimate that 85% of domestic fuel loaded is subject to excise taxes. Using this estimate, **we calculate total fuel consumption taxes at 9.39 billion gallons in 2010, driving total federal tax collection of \$414 million.**

In addition to federal taxes, airlines pay state, county and local taxes for fuel at the airports where they operate domestic flights. In most jurisdictions, local taxes do not apply for international flights, but do for domestic operations. We therefore estimate only the fuel taxes paid for domestic flight operations within the United States.

Table 13: Estimated State & Local Taxes by Origin of Flight
TOTAL ESTIMATED TAXES: \$383.6 million

** Estimated average for carriers with volume discounts*

State	% Capacity	Est. Tax	State	% Capacity	Est. Tax
AK	1.09%	\$3,859,278	NC	3.70%	\$55,061,790
AL	0.47%	\$466,820	ND	0.15%	\$1,317,305
AR	0.32%	None	NE	0.37%	\$1,242,873
AZ	3.27%	\$12,637,016	NH	0.23%	\$503,365
CA	11.09%	\$24,524,703	NJ	1.81%	\$4,005,482
CO	4.03%	\$17,840,857	NM	0.53%	\$4,060,951
CT	0.42%	None	NV	3.06%	\$16,921,746
DE	0.00%	None	NY	4.96%	None
FL	8.18%	\$62,420,558	OH	2.12%	\$26,316,201
GA	5.96%	\$6,592,502	OK	0.55%	\$48,647
HI	1.89%	\$4,188,794	OR	1.14%	\$1,265,262
IA	0.24%	\$787,784	PA	2.97%	\$6,577,606
ID	0.31%	\$1,904,797	PR	0.58%	\$2,198,940
IL	5.73%	None	RI	0.33%	None
IN	0.69%	\$613,763	SC	0.52%	None
KS	0.15%	None	SD	0.12%	\$546,626
KY	0.37%	\$5,454,302	TN	1.75%	\$22,212,176
LA	0.88%	\$8,704,347	TT	0.05%	\$414,841
MA	1.91%	\$23,233,489	TX	9.87%	None
MD	1.70%	\$13,147,183	UT	1.51%	\$6,667,311
ME	0.17%	\$650,060	VA*	3.50%	\$7,749,634
MI	2.59%	\$8,603,203	VI	0.15%	\$1,151,879
MN*	2.31%	\$6,380,482	VT	0.10%	None
MO	1.90%	\$19,953,830	WA	2.51%	None
MS	0.21%	\$1,239,824	WI	1.04%	None
MT	0.26%	\$1,154,312	WV	0.09%	\$459,462
NC	3.70%	\$55,061,790	WY	0.11%	\$581,011

To estimate local and state taxes, we first calculate an allocation of gallons (of the reported nationwide total) purchased annually, by state of origin. Since airlines do not report fuel purchases by individual state, we use total seats scheduled to depart from each state as a *proxy* for gallons purchased. After estimating gallons of fuel purchased in each jurisdiction by using seats as a proxy, we then apply the local tax rates in effect. Most states charge a per-gallon excise tax

Section Four: Taxation

on Jet A aviation fuel; a few charge only a percentage sales tax; and Tennessee charges both per-gallon and ad valorem (percentage) taxes. Using this method, and based on annual purchases of \$24.8 billion from 11.06 billion gallons of fuel, we estimate total taxes paid to local and state authorities at \$324.6 million at an average rate of \$0.0345 per gallon.

Table 14: Estimating Federal, State and Local Fuel Taxes

Source: AAI Fuel Survey, Carrier Fuel Reports and BTS

Category	2010	2011	2012	2013	2014
Fuel, Gallons (Millions) for Domestic Operations	11,056	11,388	11,730	12,082	12,444
Taxable Gallons, Domestic Flight Operations	9,398	9,680	9,970	10,269	10,577
Fuel Taxes, Federal (millions)	\$414	\$426	\$439	\$452	\$465
Fuel Taxes, State, County and Local (millions)	\$324	\$334	\$344	\$354	\$365
Total Fuel Taxes Collected (millions)	\$738	\$760	\$783	\$806	\$830
Per Enplaned Domestic Passenger	\$1.17	\$1.17	\$1.17	\$1.17	\$1.17
Per Round-Trip Passenger	\$3.20	\$3.20	\$3.20	\$3.20	\$3.20

We therefore estimate total fuel tax at \$738 million in 2010, increasing to \$830 million as airlines increase flight operations to meet higher domestic passenger loads. This translates to \$1.17 per enplaned domestic passenger, or \$3.20 average per round-trip ticket (assuming 1.37 segments per direction).

TSA (9/11) Security and ASIF Fees

The Department of Homeland Security and the Transportation Security Administration assess security fees at U.S. airports. TSA's budget has risen from its initial \$3.5 billion in 2002 to 2011's \$8.1 billion, despite a small overall increase in total travelers during the decade. The September 11th Security Fee ("9/11 Fee") is imposed on both domestic and foreign carriers for any flight that originates in the United States. Airlines pay \$2.50 per passenger enplanement, to a maximum of two segments in each direction travelled. For a connecting trip (for example, from New York to St. Louis via Chicago) airlines pay \$2.50 in TSA fees for each segment (New York-Chicago and Chicago-St. Louis) even though the passenger does not re-clear security in Chicago.

In addition, airlines are subject to an additional fee based on the cost of security screening incurred in 2000, before the current TSA was authorized. The Aviation Security Infrastructure Fee was designed to "defray TSA's costs of providing U.S. civil aviation security services" and is paid by the airlines on a monthly basis (67 *Fed. Reg.* 7926). After adjusting the amount payable for ASIF to account for only actual passengers in 2000, the ASIF collections were set at approximately \$420 million per year.

Because ASIF fees are based on carrier screening costs in 2000, these costs have fallen on airlines that were in business during that year. As the original rulemaking stated, "air carriers and foreign air carriers that were not engaged in air transportation... in calendar year 2000 will not be subject to the imposition of the Aviation Security Infrastructure Fee until 2005" (67 *Fed.*

Reg. 7927). Given the rapid growth of low-cost carriers (including Southwest) since 2000, even today the tax burden for ASIF falls disproportionately on network carriers (such as United, Delta, US Airways and American). It is imperative that ASIF burden be re-allocated on an ongoing basis to reflect the respective *current* market shares of carriers.

Next we examine the TSA 9/11 Fee collections from carriers. In 2010, a total of 629 million domestic passengers enplaned flights in the United States, and another 79.3 million boarded international flights in the U.S. For domestic passengers, 97.4% of trips had two or fewer segments, and we use this to calculate passenger enplanements subject to the TSA’s fee.

Table 15 estimates total security fee and ASIF collections. Total taxable passenger segments are the total of domestic and international departures times 97.4% to exclude two-plus stop itineraries. The ASIF fee of \$420 million annually is estimated to remain constant over the next decade. We therefore estimate that total TSA collections of \$2.2 billion will increase to \$2.36 billion by 2014. For the average round-trip ticket, this equates to \$8.52 per round-trip itinerary today.

Table 15: Estimated TSA Fees (Passenger and Airline Funded)

Source: TSA Web Site, Airline T-100 Enplanements

Category	2010	2011	2012	2013	2014
Taxable Passengers	689,912,797	710,610,181	731,928,486	753,886,341	776,502,931
9/11 Passenger Segment	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50
TSA 9/11 Security (mm)	\$1,725	\$1,777	\$1,830	\$1,885	\$1,941
Security Infrastructure (mm)	+ \$420	+ \$420	+ \$420	+ \$420	+ \$420
Total TSA Collections	\$2,145	\$2,197	\$2,250	\$2,305	\$2,361
Per Segment	\$3.11	\$3.09	\$3.07	\$3.06	\$3.04
Per Round-Trip	\$8.52	\$8.47	\$8.42	\$8.38	\$8.33

Cargo Waybill Taxes

Cargo waybill taxes are collected by the FAA (for benefit of the Environmental Protection Agency) and are based on 6.25% of the total freight fare for domestic shipments. In 2010, airlines enplaned 12.5 billion revenue ton-miles of cargo. ATA reports total cargo waybill taxes during 2010 of \$395 million. We utilize this estimate in our tax projections.

Summary of Airline Taxes

As Table 4 illustrates, we estimate total taxes collected from airlines in 2010 at \$16.9 billion, including federal, state and local taxes. This does *not* include taxes collected from U.S. airlines and paid to foreign governments. This equates to \$59 per round-trip itinerary,

Section Four: Taxation

confirming earlier estimates by ATA and other trade groups. Yet elected officials continue to promote new aviation taxes to increase the “fair share” of deficit reduction to be paid by airlines.

In Section Five, we estimate the cost of new consumer protection for the American passenger. In Section Six, we then present the dangers of escalating taxes and consumer protections on the American economy, estimating the negative impact on key metropolitan areas and state revenue.

SECTION FIVE: NEW REGULATORY BURDENS

In this section, we examine the effect of the introduction of new consumer-focused regulations have had on air travel and on airline cost. We start with a review of the specific regulations proposed and enacted from 2009 through 2011 and assess the implications of each for airline compliance cost, operational performance and distribution.

The slew of regulations introduced by the current administration can be traced to two factors: failure of the airlines to contain excessive on-board delays between 2007-2008, and the shift to unbundle product in response to the economic recession.

Operational Measures: EAPP-1

After a string of extended tarmac delays, DOT (under President Bush) issued an Advance Notice of Proposed Rulemaking (ANPRM) on November 20, 2007.¹⁴ The ANRPM proposed to allow airlines to set their own standards for avoiding tarmac delays, setting four-hour tarmac delays as the threshold for analysis and reporting on domestic flights. Several airlines voluntarily introduced tarmac delay limits. The effectiveness of these self-imposed (and self-policed) rules for taxiway delays varied, but by the end of 2008, the industry had demonstrated an improvement in long on-board delays. In 2009, there were a total of 8.8 million domestic flights.¹⁵ Just 903 flights (0.2%) had a tarmac delay greater than 180 minutes.¹⁶

Political and consumer momentum towards a fixed tarmac delay limit was rejuvenated after the August 2009 diversion of ExpressJet Airlines Flight 2816, operated on behalf of Continental Airlines. En-route from Houston to Minneapolis, the flight diverted into Rochester due to thunderstorms at Minneapolis. The flight could not continue from Rochester because of crew duty limits, and the Rochester airport was closed, stranding the 47 passengers on the aircraft. Conditions on board the aircraft deteriorated and passengers ultimately deplaned at 6am.

Transportation Secretary LaHood took a visible role in leading the government response to the incident. The Secretary expressed his “outrage” and “anger,” directed attention to the NPRM, and invited further comment for more stringent action.¹⁷ On December 30, 2009, DOT began its first of many new airline regulations by publishing measures called Enhancing Airline Passenger Protections (EAPP). They are referred to now as EAPP-1 after subsequent regulations were introduced. Among other measures, EAPP-1 required airlines to implement contingency plans for lengthy tarmac delays, respond to consumer complaints regarding tarmac delays, and post information on web sites. The final rulemaking also defined chronically delayed flights (scheduled flights that consistently operated with lengthy delays) and implemented penalties and disclosure requirements for such flights. It took effect on April 29, 2010 and now applies to all certificated airlines that operate aircraft “originally designed” to have 30 or more passenger seats.

¹⁴ Federal Register, Vol. 72, No. 223, Tuesday November 20, 2007. For a list of notable tarmac delay incidents, see Appendix 1.

¹⁵ DOT T-100 Segment Data

¹⁶ Department of Transportation BTS Website

¹⁷ FastLane (fastlane.dot.gov), August 21, 2009

Section Five: Regulatory Burdens

EAPP-1 defines a (domestic) tarmac delay as “the holding of an aircraft on the ground either before taking off or after landing with no opportunity for its passengers to deplane” for more than three hours.¹⁸ The rule applied to large airports, but has since been expanded to cover domestic flights at all but the smallest rural airports.¹⁹ The rule states that unless there is a “safety-related or security-related reason (e.g. weather, a directive from an appropriate government agency) why the aircraft cannot leave its position on the tarmac to deplane passengers” or air traffic control advises that deplaning “would significantly disrupt airport operations,” carriers face stringent fines (\$27,500 per incident) for any violation.²⁰ When the rule took effect, DOT declined to define what constituted “safety” or “security” related exemptions.

EAPP-1 also mandated that airlines provide food and water “no later than two hours” after gate push-back or after landing, that lavatory facilities will be operable at all times on the tarmac, and that medical attention will be available if needed.

Enforcement Standards and Penalties

On April 26, 2010, Secretary LaHood stated that the Department would pursue “strong enforcement” of the rules, drawing parallels to the Department’s maximum fine strategy against Toyota – a case where DOT incorrectly alleged millions of Toyota cars suffered from significant safety defects. The Office of Aviation Enforcement and Proceedings issued guidance stating that it “considers a number of factors in determining the civil penalty it would seek in an enforcement proceeding.” The lack of specificity, combined with concurrent comments from Secretary LaHood about “strong enforcement,” created concern among airlines that maximum fines would be sought for all infractions. In addition, the statement that a “tarmac delay begins when passengers no longer have the option to get off of the aircraft, which usually occurs when the doors of the aircraft shut” created ambiguity for airlines.

Uncertainty focused on the basis on which carriers could be penalized under 49 USC §41712. As GAO noted in a recent report, the basis of whether \$27,500 fines would be assessed per *flight* or per *violation* was neither defined in the regulation nor specified in DOT’s enforcement guidance.²¹ The airlines have operated under the assumption “that a fine could be assessed at \$27,500 per passenger” resulting in excessive conservatism in the face of punitive fines. Airlines and industry groups recognized these punitive fines would demand risk-averse behavior that would impact many more flights than the 903 tarmac-delayed cases in 2009. Airlines changed operating procedures in response to EAPP-1 to identify cases where aircraft were at risk of major fines. When even a slight risk of exposure was (and is today) identified, airlines demand a return to the gate long before the three hour threshold, cancel a flight before push-back to free gate capacity, or divert inbound aircraft to airports not impacted by the event.

The risk of punitive fines has been a driver of flight cancellations. However, the question of whether DOT has the *statutory authority* to impose fines on a per-passenger basis (instead of per flight) remains a contentious issue. DOT implied that because 14 CFR 259.4 is designed to

¹⁸ 14 CFR Part 259.3

¹⁹ NRPM June 8 2010

²⁰ 14 CFR Part 259.4(b)(1)

²¹ GAO 11 733 p29

protect *passengers* from long on-board delays, they consider a separate violation to have occurred for every passenger on each flight. On November 14, 2011, DOT took its first public position on its perceived authority. It assessed a \$900,000 civil penalty against American Eagle Airlines for a violation of the domestic tarmac rule. DOT stated that because “the purpose of [the tarmac rule] is to protect individual passengers from being forced to remain on aircraft for more than 3 hours in the case of domestic flights without the opportunity to deplane, the Office of Aviation Enforcement and Proceedings (Enforcement Office) takes the position that a **separate violation occurs for each passenger who is forced to remain on board an aircraft for longer than the set amount of time without the opportunity to deplane.**”²² In response, American Eagle did “not agree that the Department has statutory authority to assess civil penalties for violations of the tarmac delay rules on a per passenger basis, but rather has concluded that penalties may only be imposed on a per flight basis.”²³ Since American Eagle settled without conceding or waiving its legal position on the question of the Department’s statutory authority, the question remains open whether DOT *actually has* the authority it claims.

The applicable statute does not support DOT’s assertion of per-passenger authority. DOT prosecutes violations of EAPP-1 under 49 USC §46301(a), since the EAPP-1 rules were introduced under that statutory authority.²⁴ The relevant subsection specifically states that DOT’s authority is limited to assessing fines “for each day” or “if applicable, **for each flight** involving the violation.”²⁵ There is no language in DOT’s authority that defines or authorizes a tarmac delay fine structure based on individual *passengers*. When Congress has legislated specific authority for administrative agencies (such as DOT) that establish clear and unambiguous standards for enforcement, the courts have routinely held that the administrative agencies may not vary from those constraints.²⁶

While DOT’s position on per-passenger fines is at best tenuous, its documented threat of maximum enforcement has changed airline behavior. Compared to before the rule, when conditions that could cause tarmac delays are present today, both gate returns and cancellation rates have increased abnormally. In three key markets (Dallas, Detroit, and New York) the flight cancellation increase exceeded 20% (versus 5-8% year prior).

Regardless of enforcement, the operating rules in EAPP-1 are inflexible and cause higher cancellation rates by airlines. They mandate aggressive action by pilots, dispatchers and airport managers to avoid the threat of punitive fines.

²² Order 2011-11-13 *American Eagle Airlines, Inc.* p2. OST-2011-0003. Emphasis added.

²³ *Id.* p3.

²⁴ See *Answers to Frequently Asked Questions Concerning the Enforcement of the Final Rule on Enhancing Airline Passenger Protections*, April 28, 2010 (Office of the Assistant General Counsel, DOT Office of Aviation Enforcement and Proceedings). “The Department has broad rulemaking powers under 49 U.S.C. 40113 to prescribe regulations, standards, and procedures related to air travel. The Department also has authority under 49 U.S.C. 41712 to prohibit unfair and deceptive practices... and authority under 49 U.S.C. 41702 to ensure safe and adequate transportation... Large airlines are subject to a maximum civil penalty of \$27,500 per violation. \$2,500 is the maximum civil penalty that can be assessed against small entities or individuals for similar violations. Each day a violation continues is a separate violation for penalty purposes. **See 49 U.S.C. 46301** and 14 CFR Part 383.”

²⁵ 49 USC §46301(a)(2), emphasis added.

²⁶ See *Chevron, U.S.A. Inc. v. Natural Resources Defense Council, Inc.* 467 U.S. 837, 842-843 (1984). DOT has confirmed this rule of statutory construction in its own proceedings (see DOT Order 2004-5-10 at p11, May 13, 2004).

Section Five: Regulatory Burdens

Standardizing Airline Product: EAPP-2

Having addressed the administration's operational priorities to end (already declining) tarmac delays, DOT next issued comprehensive regulations that standardized airline product and sought to halt – or reverse – the trend towards non-refundable tickets, product unbundling and direct consumer distribution that had accelerated since 2008. On April 25, 2011, DOT issued EAPP-2 to set new controls on airline-passenger communication.²⁷ EAPP-2 introduced new restrictions on airline pricing, advertising, websites, ticketing and distribution. EAPP-2 also extended EAPP-1 operational and contractual rules to foreign carriers. While the operational components of EAPP-2 became effective in August 2011, court challenges by U.S. airlines against DOT's authority and rulemaking process delayed implementation of the product and distribution rules to January 2011. All the rule components will likely become effective before the court challenges are resolved.

EAPP-2 standardizes airline product, distribution methods and refundability to the detriment of carrier innovation and market competition. It throws out long-standing agency policies regarding price advertising and product sales that had been re-affirmed by DOT as recently as 2006. EAPP-2 forces both network (legacy) and low-fare carriers to give up key elements of their business models, increasing fares. In reversing policy, DOT neither established why technology changes had necessitated a different approach, nor estimated real compliance cost, loss of competition, and harm to the industry and public. In the past, DOT had noted the substantial benefits low-fare carriers bring through new routes and price competition. The regulations also force low-fare carriers to make multi-million dollar investments in technology and distribution systems.

To provide economic support for its EAPP-2 regulations, DOT relied on a single economic assumption. DOT posited that virtually all net benefits related to the *entire package* of EAPP-2 rules resulted saving just 2% of passengers (who bought tickets online) 3 minutes apiece by having full-fare pricing information as a unitary figure at each stage of the booking process.

The rule standardizes airline competition based on outdated airline traits: bundled product and travel agency distribution. Of most note for consumer impact and competition, EAPP-2 contains a requirement for full-fare advertising, a mandate for 24-hour ticket holds and/or refunds, a prohibition on post-purchase price increases, new e-ticket baggage fee disclosure requirements, and a 30-minute requirement for customer notification of flight status changes.

Full-Fare Advertising. **EAPP-2 mandates that carriers display all fares inclusive of taxes and fees at all times, including during the booking process and in advertisements.** This policy represents a return to the policy in 14 CFR 399.84 as originally written in 1984, which requires the inclusion of all taxes and fees in the advertised fare. However, due to the proliferation of government taxes and fees after that date, in 1988 DOT issued an order permitting carriers to list government taxes and fees separately so that passengers could identify what

²⁷ Enhancing Airline Passenger Protections, 2nd Round ("EAPP-2"). 76 FR 23110. Docket DOT-OST-2010-0140.

portion was paid to airlines and to the government, avoiding confusion.²⁸ This policy permitted sale of airfares like other consumer products, separating taxes and fees from base prices.

DOT recently affirmed its separation policy, stating in 2006 that “the public interest will be best served by maintaining the status quo” of separating taxes and base fares.²⁹ DOT said that exclusion of taxes and fees from the base fare “protects consumers, facilitates price comparison, fosters fare competition, and affords sellers an appropriate degree of freedom to innovate.” It “has worked well for over 20 years” and that strict enforcement of the statute (to display only fares inclusive of taxes) would “create marketing difficulties for sellers without necessarily making prices more transparent to consumers.”³⁰

Full-fare advertising requirements in EAPP-2 change the way airlines price and display fares, forcing any airfare to include all taxes and fees when advertised or sold, including on airline websites (even before the customer chooses a final itinerary). Because today’s tax regime for airline is based on per-segment fees with caps, it is incompatible with a policy of all-inclusive advertising, and force fundamental changes in how airlines price individual markets.

Specifically, on market pairs where customers could take multiple routings to get from origin to destination (for example, connecting over different hubs) airlines will raise fares to cover the worst-case tax, PFC and security fee for the most complex itinerary chosen. In a review of the rule’s impact published by AAI in July 2011, we used Q4 2010 ticketing data to demonstrate that **the full-fare rule is likely to result in a 3 percent increase in systemwide fares.**³¹

24-Hour Refunds. Through 2011, there have been two different airline models for ticketing: those carriers with *refundable* tickets, and those without. Airlines whose computer systems reserve seats and permit future payment can allow consumers to reserve inventory for a limited period of time, or refund a transaction. However, airlines whose systems require an immediate retail-like purchase are not built for refunds or ticket holds.

Airlines that allow reservations without purchase are generally geared towards travel agencies. Airlines that require payment are geared towards direct distribution to consumers. Legacy carriers fit the former model, while price-competitive low-fare airlines fit the latter. Prior to EAPP-2, airlines were required to clearly disclose to customers their policies regarding ticket holds, refunds or travel credits if the customer chose to request a refund after purchase.³² While two-thirds of U.S. carriers (including legacy carriers United and Delta) offered 24-hour refunds or holds to purchasers by 2011, fully a third of domestic carriers (primarily low-fare carriers such as Spirit, JetBlue and Allegiant) either offered vouchers or offer no refunds to passengers after booking a non-refundable fare.

²⁸See Orders 88-3-25 (March 10, 1988) and 88-8-2 (August 2, 1988).

²⁹ OST-2005-23194 Price Advertising, 71 FR 55398

³⁰ 71 FR 55402 Col. 1.

³¹ Our report is available at www.regulations.gov, Document ID DOT-OST-2010-0140-2063 (July 8, 2011)

³² 74 FR 69003 (14 CFR 259.5(b)(4))

Section Five: Regulatory Burdens

Under EAPP-2, all carriers must offer refunds or holds, as vouchers are no longer permitted. All carriers must use a 24-hour standard for either refunds or ticket holds (at the airline's discretion) and all carriers must comply, including foreign airlines. Because low-fare carriers largely avoided 24-hour holds or refunds prior to EAPP-2, this rule disproportionately penalizes them. It forces multi-million dollar investment in IT at low-fare carriers and irrevocably changes their business models. It will increase frivolous and uncommitted reservations, boosting credit card transaction fees and blocking inventory during peak booking periods. EAPP-2 carves out bookings within 7 days of departure, but this is little solace to low fare airlines where more than 90% of passengers have already booked tickets by this window.

Post-Purchase Price Increases. DOT's new rule prohibiting post purchase price increases clearly prohibits increases in the price of the air ticket. Virtually all airlines today (pursuant to exiting guidance documents from DOT) do not raise ticket prices after purchase. However the new rule also prohibits price increases for *any* ancillary product offered to the consumer at the time of sale (including rental car reservations) *even if* the customer chooses not to purchase those ancillary services.

Because EAPP-2 blocks increases in ancillary services offered to, but not purchased by, consumers at the time of ticketing, it has profound implications for both low-cost and legacy airlines. Airlines lose flexibility regarding fuel prices – flexibility that international airlines currently have. Airlines will reduce third-party ancillary services such as hotels, car rentals and travel insurance offered to consumers. For example, assume an airline offers passengers ancillary products such as rental car, hotel packages or travel insurance as part of their ticket purchases, and but passengers choose not to purchase those services at first booking. Before departure, the airline's ancillary suppliers have increased prices or introduce new fees. Is the airline bound to the price offered during ticketing? Are non-airline ancillary services even covered by the rule? EAPP-2 places the burden of the cost increase on the airline, not the passenger.

E-Ticket Baggage Fee Disclosure. EAPP-2 mandates that airlines list baggage fees, specific to the purchaser, on any printed e-ticket confirmation.³³ EAPP-2 will inevitably create confusion since some travelers are exempt from baggage fees due to elite status or by credit card membership. Tickets booked via an agency might incorrectly advise the passenger of their baggage cost. DOT did not estimate any benefits from this fee listing, but did discuss general factors such as a “decrease in check-in time” and “improved customer good will” in avoiding economic impact measurement.³⁴

30-Minute Flight Delay Notification. EAPP-2's requirement that airlines notify customers of any change in flight status (delay, cancellation or diversion) within 30 minutes of the known change may appear beneficial to customers, but has the potential to cause severe disruptions. Airlines routinely post advance delays and cancellations for expected weather events as part of contingency and recovery plans. These delays may change multiple times before the

³³ We interpret DOT's language to mean that this applies to e-mailed confirmations, and not e-tickets in the definitional sense, since many carriers operate ticketless distribution systems.

³⁴ RIA p63

first and final operational plans. In these cases, airlines notify customers of advance delays when the final operational plan is set, well before departure time. But under EAPP-2, customers would be notified immediately when each change is made, resulting in confusion, missed flights and flight cancellations.

Denied Boarding Compensation. Prior to EAPP-2, passengers who were denied boarding on aircraft were entitled to \$400 for short-haul flights and \$800 for long-haul flights. EAPP-2 increased these provisions to 200% of the fare paid (to a maximum of \$650) for minor disruptions to the passenger's schedule and 400% of the fare paid (up to \$1,300) for significant disruption. This rule increases operating costs and increases the likelihood that passengers will choose cash payments over volunteering for frequent flyer points or travel vouchers.

Refund of Baggage Fees. EAPP-2 forces airlines to refund optional baggage fees paid if the passenger's bag is lost, damaged or misplaced.

International Tarmac Limits. EAPP-2 introduced a four-hour tarmac time limit for international flights, replacing the carrier-specific limits in place under EAPP-1. It also extended applicability of the domestic tarmac limits to all U.S. large, medium and small airports.

Summary: EAPP-1 and EAPP-2

EAPP-1 and EAPP-2 were sweeping measures designed to address perceived violations of consumer rights by the airlines. While built on ambiguous enforcement authority and questionable economic assumptions, the rules took effect in April 2010 and August 2011 with final EAPP-2 consumer rules slated to be effective in January 2012.

Both EAPP-1 and EAPP-2 have had fundamental impact on both the airline industry and on consumers. EAPP-1 has been shown to cause severe unintended consequences, causing a spike in flight cancellation rates and increasing airline costs. EAPP-2 is already driving significant compliance costs, still higher cancellations and other negative consumer impact. While some provisions of EAPP-1 and EAPP-2 have been non-controversial and rational, key aspects of each rule have caused significant damage to consumer welfare. Next, we review GAO's findings on EAPP-1 and estimate the total impact of both sets of rules on consumers.

GAO Report on EAPP-1 (GAO-11-733)

On September 7, 2011, the Government Accountability Office (GAO) issued a comprehensive report reviewing the effectiveness of EAPP-1's tarmac delay rules and its impact on flight cancellations and passenger inconvenience.³⁵ The report also reviewed EU passenger regulations and their costs and benefits. To assess the impact of EAPP-1 on flight cancellations and customer inconvenience, GAO utilized a broad set of aviation flight data including information on regional flights that had been excluded from DOT's original analysis. GAO

³⁵ GAO-11-783 *Airline Passenger Protections: More Data and Analysis Needed.*

Section Five: Regulatory Burdens

constructed two multivariate logistic regression models with data from DOT, the FAA, NOAA and other sources that isolated weather, flight schedule, and carrier-related cancellation causes.

The GAO report found that:

- Tarmac delays of more than 3 hours peaked in 2007 and declined through the imposition of the domestic tarmac rule under EAPP-1 in 2010. Tarmac delays have been historically uncommon, comprising less than 0.1 percent of all flights reported to DOT. (p22)
- That the increased cancellations observed after the rule correlate to tarmac-delay rule causes, and are consistent with the changes in operational strategy observed by the airlines impacted by the rule (p36)
- That flight cancellations before gate departure are 24 percent more likely under the rule than before the rule (p36, Table 2)
- That **flight cancellations during the first, second and third hour of taxi are 31 percent, 214 percent and 359 percent more likely, respectively, under the rule** (p36, Table 2)
- That both statistical models developed by GAO indicate a correlation between the tarmac delay rule of EAPP-1 and flight cancellation rate increases.

The GAO report identified the need for further analysis of the rule, and potential changes to the structure of the regulation as required. As an independent review, the GAO report established what had been clear to industry and consumers since the rule took effect: EAPP-1's provisions for three-hour tarmac rules were impacting millions of passengers annually, to prevent what had been a relatively scarce occurrence since airlines took action in 2007.

Estimating the Impact of EAPP-1 and EAPP-2

The core question for consumer protection measures is this: how do the benefits of the rule align with the costs to society, including airlines, consumers and industries that depend on passenger travel? A change in passenger demand caused by consumer regulations, whether positive or negative, has a profound follow-on impact on leisure and business economies nationwide. Demand for travel is elastic, particularly for leisure travel, where passengers are notoriously price sensitive for vacations. Leisure passengers also substitute other transportation modes (train or car) for air travel, and every aggregate dollar of price change in the industry has a corresponding (and larger) opposing change in demand.

We therefore focus on a core question: how much operating cost have consumer protection regulations added to airline cost structures since 2009, and what is the corresponding impact on demand as these higher costs are passed onto consumers? Given the narrow profit

margins of airlines, it is inevitable that these higher costs will be passed on – there is minimal operating margin for airlines to absorb higher costs without corresponding fare increases.

While EAPP-1 and EAPP-2 contained numerous changes to consumer rules and regulations, **we focus on the following nine changes that had the highest material impact on airline cost structures:**

- The provision of food and water, or similar snacks, to passengers on flights with long on-board delays, not after the two-hour mark;
- Cancellation costs related to the three-hour domestic tarmac time limit;
- Cancellation costs related to the four-hour international tarmac time limit;
- New full-fare advertising rules, including both the direct compliance costs to modify airline websites and advertising materials, and the indirect costs of higher fares resulting from equalization of tax differences on different itineraries between the same points;
- The prohibition of any price increases on ancillary services *offered* to the consumer at the time of first ticketing *but not purchased by the customer at that time*.
- Increases in denied boarding compensation;
- Rules requiring airlines to either refund tickets upon request within the first 24 hours after booking, or allow tickets to be held for 24 hours;
- Posting baggage fee information on websites and e-ticket confirmation pages;
- Requirements to notify customers within 30 minutes of a posted delay, including advance delays during forecast weather events.

We estimate both the annual and (non-discounted) 10-year cost for the industry. For EAPP-1 regulations, we assume compliance costs were borne in 2010 and only ongoing impact is felt in the period between 2011-2010. For EAPP-2 regulations, we assign compliance costs to 2011 for those components of the regulation that took effect in 2011, and 2012 for the remaining ones. For the purpose of estimating ongoing impact annually, we assume regulations are in effect for a 12-month period based on flight operations at that time.

Food and Water at Two Hours

14 CFR 259.4(b)(3) states that airlines will “provide adequate food and potable water no later than two hours after the aircraft leaves the gate (in the case of departure) or touches down (in the case of an arrival) if the aircraft remains on the tarmac, unless the pilot-in-command determines that safety or security considerations preclude such service”. This requirement defines two ongoing costs to airlines: the cost of the water and food purchased for passenger consumption, and the fuel cost associated with the incremental weight of such provisions, carried on every flight, all year long.

Section Five: Regulatory Burdens

To estimate the ongoing cost to airlines, we first assess the required food and water as *incremental* to standard on-board catering. The regulation specifically requires the provision of food and water during long *taxi-in delays*, when the standard catering (meals and drinks) for the flight is likely to be exhausted. To ensure compliance during *both* taxi-out and taxi-in delays, we assume that airlines provision for each passenger a water bottle of suitable size (8 ounces) and a packet of snack crackers. We assume the water costs \$0.15 to purchase, and the crackers \$0.10. This is based on wholesale pricing, although it is likely airlines pay a premium over these levels in reality given the transport, loading, and infrastructure of airport catering. We assume that snacks are consumed before they become stale or unusable, so we assume no spoilage of snacks loaded. An 8-ounce water bottle weighs 0.5 pounds, and the snack packet weighs 0.9 ounces.

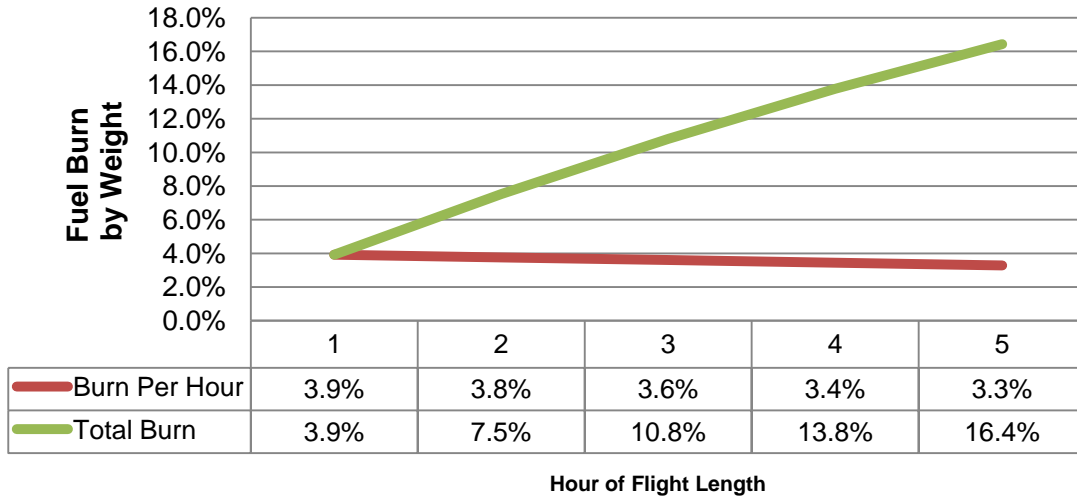
How many snacks are loaded on average, and what does that imply about the total weight carried for snacks that are loaded but not used? In 2010, there were 78.7 average passengers per flight departure, based on total flights divided by total passengers reported by DOT. We assume a systemwide load factor of 80%, and use load factor (which is a ratio on a unit basis) as a reasonable proxy for seat factor (which is the ratio of passengers to total seats). We therefore calculate an average count of seats per flight departure of 98.4, including both domestic and international flight operations. Multiplying 98.4 seats on average by a weight per snack of 0.58 pounds, the total *weight* of snacks carried *on every flight* averages 56.9 pounds.

If airlines must provision an average of 98.4 snacks per flight to meet this regulatory requirement, how many snacks are purchased each year? Using DOT Part 234 (ASQP) on-time data, based on 2010 taxi profiles (which were influenced by the three-hour tarmac rule) we estimate an average 75,000 flights per year which will taxi between one and two hours. Because snacks must be offered *before* the two hour mark, we assume that airlines begin to offer snacks at the one-hour mark, as permitted by movement of the aircraft and other safety factors. Multiplying flights by total passengers, we calculate an annual cost of snacks of \$1.5 million, or a total of \$16.7 million between 2011-2020 in snack provisioning cost alone.

This is not a significant number. The more *relevant* question is this: how much does it cost the airline to *fly* the 56.9 pounds? We analyzed block fuel burn estimates for the Boeing 737-700 narrowbody aircraft to assess the incremental fuel burn from an extra pound of weight transported.

Table 16: Ratio of Incremental Fuel Burn (lbs.) per Pound of Extra Payload

Source: Extrapolated from Boeing 737-700 flight plans with take-off weight increments



We reviewed airline flight plans for a 6.5 hour stage length (from Boston to San Francisco, or Miami to Seattle) with takeoff weight varying between 170,000 and 190,000 pounds, representing incremental changes in passenger payload. On average, an extra 1,000 pounds loaded onto the aircraft causes an incremental fuel burn of between 3.0% and 4.0% *per hour* flown, with higher numbers seen at the beginning of the flight.

As Table 16 shows, as the flight length extends, the average fuel burn per hour to support incremental weight declines. **For the average three-hour flight in the U.S., loading an extra ten pounds caused an extra pound of fuel burn en route.** Loading an extra 56.9 pounds of snacks on every flight, over 10.3 million departures per year, drives a total added weight of 586 million pounds each year to comply with the rule. Using an average domestic segment length of 2.5 hours (based on 2010 domestic and international flights in the DOT T-100 database), an average incremental burn of 4% per hour, and a \$2.88 average fuel price, this translates to an incremental fuel cost of \$28.1 million per year. From 2011-2010, airlines will spend \$339 million complying with food and water provisions, including the cost of fuel and the cost of the snacks themselves.

Section Five: Regulatory Burdens

Table 17: Cost of Purchasing and Transporting Food and Water for 2hr Taxi Delays

Source: Based on 2010 Total System Flights, \$0.25 cost per snack, 0.58lb/pax weight

Cost of Food and Water Provisions	2011	2012	2013	2011-2020
System Departures	10,299,114	10,608,088	10,926,330	118,067,802
Snacks Consumed	74,154	76,378	78,670	850,090
Cost of snacks consumed	\$1,459,540	\$1,503,314	\$1,548,426	\$16,731,937
Total weight of snacks loaded (millions)	586	603	622	6,716
Incremental fuel cost	\$28,120,321	\$28,963,930	\$29,832,848	\$322,367,963
Total Industry Cost	\$29,579,860	\$30,467,244	\$31,381,274	\$339,099,900

Food and water rules are an excellent example of the hidden costs of regulation. During the economic reviews of EAPP-1 and EAPP-2, neither of DOT’s economic contractors (HDR and Econometrica) performed *any* analysis of incremental fuel burn from catering required to meet the new rule. While HDR did assess a cost of the food and water provided, it wrongly assumed that food and water would only be offered at the two-hour mark. Offering food or water to a passenger at two hours and one minute of taxi time is a *violation* under 14 CFR 259.4(b)(3) and is subject to a \$27,500 fine.³⁶ Carriers must therefore distribute snacks between the first and second hour of taxi time in order to avoid violations. An additional 1.85 million passengers annually would therefore receive food and water under the rule – and are not counted by HDR’s methods.³⁷ Table 17 above summarizes the total cost of compliance.

Domestic Three-Hour Tarmac Delay Rule

In July and November 2010, we issued reports reviewing the impact of the tarmac delay rule on domestic flight operations in the United States. We used observed increases in flight cancellation rates, isolating for different factors including weather and carrier-specific factors, to estimate the impact on changing airline operational strategies on flight cancellation rates. Using the period from May through September (comparing pre-rule 2009 against post-rule 2010) we found that between 5,000 and 6,000 annual flights would be cancelled each year in order to avoid exposure to the tarmac delay rule.

In subsequent research, we found our initial estimates underestimated the annual impact from the rule: first, that we utilized only reporting DOT carriers and not *all* carriers subject to the rule, which includes non-reporting regional airlines. Second, we generally underestimated the impact of winter de-icing queues on flight cancellations. During de-icing conditions, limited throughput of de-icing pads was a generator of tarmac delays, and the requirement to de-ice leaves airlines with little choice but to cancel when queues reach a critical level under the rule.

³⁶ Carriers must “provide adequate food and potable water **no later than two hours** after the aircraft leaves the gate... or touches down” according to the rule.

³⁷ See Regulatory Impact Analysis for EAPP-1, HDR Decision Economics. Table 14 (p40) calculates the number of passengers who are estimated on flights with tarmac delays greater than 1, 2, and 3 hours. HDR’s estimates of food and water count only those flights with tarmac delays greater than two hours. This ignores the clear language of the statute that penalizes airlines for offering food and water after two hours.

In its September 2011 review of the tarmac rule, GAO’s findings correlated the tarmac rule to significant increases in flight cancellations. GAO’s methodology isolated the tarmac delay rule as the primary factor in flight cancellation changes. Given the thorough approach of GAO’s analysis, we use GAO’s method and correlation metrics to estimate the change in annual cancellations, and compare the resulting change (using GAO’s method) against our results from 2010. Then, using DOT’s estimated cost per flight cancellation, we estimate the total annual cost to the industry from the 3-hour delay rule.

First we calculate the incremental flights cancelled each year under the rule, based on GAO’s models. We break flight cancellations into four categories: flights that cancel before push-back from gate, and those that cancel between one, two and three hours of taxi time. Table 18 below recaps the GAO findings. **The tarmac delay rule was linked with a 24% change in flight cancellations prior to push-back, a 31% rise in cancellations between one and two hours of taxi, a 214% jump in the second hour of taxi, and a 359% hike in the third hour.**

Table 18: GAO Findings, Change in Cancellation Rate by Phase of Flight (After Rule)

Source: GAO-11-783, Table Two

Category	Definition	Change in Cancellation Rate
Before Gate Departure	Prior to aircraft push-back	24%
Short Taxi	0-1 hr taxi	31%
Medium Taxi	1-2 hr taxi	214%
Long Taxi	2-3 hr taxi	359%

Using these rate changes, we use 2009 flight cancellation numbers (the last “unaltered” sample year available before the impact of the rule – and airline behavioral distortion caused by the threat of punitive fines – was felt.) Using DOT Part 234 data, we calculated the cancellation rate of flights prior to the rule, and incremented those rates by the correlated factors from GAO’s analysis. Since GAO’s metrics applied to the period from May through September, Table 19 below calculates the incremental flight cancellations for that period.

Table 19: Applying GAO Cancelled Rates to Actual Flight Numbers

Source: GAO-11-783, Table Two and 2010 Flights May-Sep

	Total Flights	Cancel Flts. Before Rule	Cancel Rate Before Rule	Cancel Rate Post Rule	Cancel Flts. Post Rule	Change in Rate
Pre-departure	2,763,713	26,830	0.97%	1.20%	33,269	6,439
0-1 hr cancels	2,711,930	1,160	0.04%	0.06%	1,520	360
1-2 hr cancels	23,663	256	1.08%	3.40%	804	548
2-3 hr cancels	2,711	148	5.46%	25.06%	679	531
3+ hr cancels	484	72	14.88%	63.64%	308	236
Increase in cancellations, May-Sep, correlated to 3-hr rule						8,114

On average, 62% of tarmac delays have occurred in the period between May and September. We therefore increase each “bucket” of cancellations (pre-departure, 0-1 hour, etc.) to reflect annual cancellations. Using GAO’s metrics, we therefore estimate annual flight

Section Five: Regulatory Burdens

cancellations correlated with the rule at 13,087 in 2011, or 150,033 over a 10-year period from 2011-2010, as shown in Table 20 below.

Table 20: Cost of Domestic Flight Cancellations due to 3hr Rule (No Follow-On Impact)

Source: GAO Correlations based on 2009 Domestic Flights, 2011-2020 Flight Levels

Domestic 3-Hour Rule	2011	2012	2013	2011-2020
Domestic Flight Departures	8,962,535	9,231,411	9,508,353	102,745,416
Predeparture cancellations	10,697	11,018	11,349	122,633
0-1 hr cancellation increase	597	615	634	6,849
1-2 hr cancellation increase	910	937	966	10,434
2-3 hr cancellation increase	883	909	936	10,119
Incremental cancellations	13,087	13,479	13,885	150,033
Cost of cancellations (\$)	193,923,166	199,731,822	205,747,930	2,223,188,994

Applying DOT’s standard calculation of \$14,818 per cancelled flight, annual flight cancellations due to the domestic three-hour rule will cost the industry \$193 million in 2011 and more than \$2 billion between 2011-2010. In addition to direct airline costs, there are passenger-specific factors to consider, including lost time and productivity, as well as downstream flight cancellation impact that were incorporated into our 2010 methodology. These costs were not assessed by GAO and are therefore not incorporated into the \$2.2 billion 10-year estimate.

International Four-Hour Delay Rule

EAPP-2 extended domestic tarmac-rule provisions, including the requirement for food and water service, to foreign carriers. It also introduced a new four-hour standard for international flights, instead of allowing carriers to set their own limits. During the rulemaking process, carriers noted that flight cancellations for international flights would increase under the four-hour standard. Our 2010 studies, as well as empirical data from airlines, also demonstrated a significant increase in cancellation rates due to the domestic tarmac delay rule – which could translate to comparable increases for international flights.

DOT ignored any impact from cancellations due to the four-hour rule in its analysis. The Regulatory Impact Analysis made no mention of cancellation impact for international flights by U.S. airlines, even though the four-hour standard generally represented a material restriction relative to the carrier-set standards in effect since April 2010. For foreign carriers, DOT stated that the “impact on cancellations of international flights operated by foreign carriers” was “projected to be minimal” with no further detail or supporting evidence.³⁸

Given the recent effective date of the four-hour rule (August 2011) and the lack of definitive taxi-time data for foreign carriers and international flights (versus domestic flight

³⁸ EAPP-2 Regulatory Impact Analysis, p7 (1.2.1)

operations by reporting carriers, where exact taxi-out and taxi-in times are published) it is necessary to estimate the overall impact of the rule on international flights. We use a four-part methodology to estimate this impact:

- First, we calculate the number of international flights (by domestic and foreign carriers) that operate from airports with a history of tarmac delays on domestic operations.
- Second, we break those flights into hourly departures, in order to calculate by airport and time of day the likelihood that an international flight departure will be “at risk” of a long taxi time.
- Third, using cancellation rates for the third hour of taxi time as a proxy, we project the number of “at risk” flights that are likely to cancel under the four-hour international standard.
- Fourth, we assume a one-to-one ratio of follow-on cancellations (since a cancelled outbound flight to an international destination usually necessitates the cancellation of the return segment) and use average passenger load factors to estimate passengers impacted.

Table 21 below details each of these calculations. Using OAG schedules for August 2011 and reported Part 234 ASQP departure and taxi time histories for 2009, we calculated that 83.6% of international flights from the U.S. departed from airports with a high incidence of tarmac delays (including New York JFK, Newark, Chicago O’Hare, Dallas/Ft. Worth, Washington Dulles, Atlanta Hartsfield and other major U.S. hub airports). We also estimated that 0.153% of international departures occur during conditions that would generate long on-board delays for domestic flights based on 2009 metrics (using a 180-minute taxi time threshold from that year) putting those flights “at risk” for gate returns. **Before the three-hour domestic rule, 14.8% of three-hour taxi time flights cancelled, and under the rule, this rate jumped to 53%.** Applying this rate (53%) to at-risk flights drives a total of 653 annual cancellations due to the rule. This method will generally understate international cancellations, as it does not fully account for flights cancelled before gate departure due to the four-hour rule.

Table 21: Passengers Impacted by 4-Hour International Tarmac Rule

Source: AAI Analysis of OAG Schedules, 3-Hour Tarmac Delays (2009 BTS Data)

International 4-Hour Rule	2011	2012	2013	2011-2020
International Flights	1,336,580	1,376,677	1,417,977	15,322,387
At Tarmac Delay Airports	1,117,848	1,151,383	1,185,924	12,814,871
Flights at risk	1,710	1,762	1,814	19,607
Change in cancellations	653	673	693	7,490
Follow-on impact (1:1 assumed)	653	673	693	7,490
Total flights cancelled due to 4-hr rule	1,307	1,346	1,386	14,980
Passengers impacted	158,809	163,574	168,481	1,820,571

Section Five: Regulatory Burdens

Having estimated total passengers impacted annually by cancellations due to the international four-hour rule, we next estimate the cost of the cancellations. For domestic cancellations, we utilize DOT's standard estimate of \$14,818 per flight cancellation. For international cancellations, though, several differences exist that boost the cost of cancellations:

- Disruption to the flight schedule is substantial, as international long-haul flights carry aircraft routings that may last for 24 hours or greater;
- Rebooking opportunities are limited, and usually require paid tickets on other carriers in order to accommodate passengers in a reasonable time period;
- Crews remain with the aircraft, requiring hotel and transportation; and
- Sunk cost of catering, airport fees and other infrastructure fees are substantial.

We assume that total cost per passenger for lost catering, airport departure fees, and other departure-related expenses are incurred for each cancellation, since the metrics above are based on flights that *actually depart the gate* and subsequently return to the gate and cancel (for crew duty time limitations, maintenance restrictions, or other factors). Including transportation to a hotel and a room for one night, we estimate a total per-passenger cost of \$250. We estimate a total cost of \$4,000 per crew (usually numbering 16-24 per flight) for hotel and transport.

Estimating the cost of passenger re-accommodation requires estimation of (1) how many passengers must be rebooked on competitors' flights, and (2) the cost of rebooking those passengers. We assume that rebooking economy class passengers incurs an average cost of \$400, reflecting a mix of short- and long-haul one-way, last-minute fares, and that premium passengers incur an average cost of \$1,000. We assume that 50% of economy passengers must be rebooked (with the remainder waiting for the next operated flight by the airline) and that 75% of premium passengers must be re-accommodated. As Table 22 below illustrates, this translates to an average rebooking cost of \$50 million annually, plus \$45 million in hotel, crew costs, and lost catering and airport services. Finally, using an average of 4,000 gallons of fuel burn per international flight, we offset these costs by fuel savings of \$15 million annually. We therefore estimate the total cost to carriers from the international rule at \$80 million annually, or \$906.8 million over the 10-year period from 2011-2020.

Table 22: Cost of International Flight Cancellations: Incurred by Carriers

Based on assumptions of hotel and carrier costs (See Appendix)

Cost Category	2011	2012	2013	2011-2020
Hotel, airport fees lost	39,702,356	40,893,415	42,120,208	455,142,874
Crew hotel & transportation	5,226,700	5,383,499	5,545,003	59,918,234
Economy passenger rebooking	25,409,508	26,171,785	26,956,933	291,291,440
Premium passenger rebooking	23,821,414	24,536,049	25,272,125	273,085,725
Offset of saved fuel	-15,052,895	-15,504,477	-15,969,608	-172,564,514
Net cost of cancellation	79,107,082	81,480,271	83,924,661	906,873,759

Full-Fare Advertising Rules

Next, we review the costs related to full-fare advertising rule changes. 14 CFR 399.84 specifies that “any advertising or solicitation” for air travel or related airline services to be “an unfair and deceptive practice in violation of 49 U.S.C. 41712, unless the price stated is the entire price to be paid by the customer” (76 *Fed. Reg.* 23166). The rule also states that tax information must be stated “on a per passenger basis that accurately reflects the cost of the item covered by the charge.” These two statements drive the compliance cost and revenue loss associated with the full-fare advertising rules. Because DOT’s shift in policy on full-fare advertising with EAPP-2 reflected a fundamental shift from long-standing policy that had been re-affirmed as recently as 2006, EAPP-2 triggers comprehensive compliance requirements for all airlines.

First, airlines today display reservations systems that list taxes and government fees prior to the consumer deciding to purchase. However, when customers choose the legs of their trips – reviewing options for outbound and return flights – they are usually shown only the pre-tax fare, along with an estimate of the actual taxes and fees that apply. Under the full-fare advertising rules as written and interpreted under EAPP-2, such display of pre-tax airfares without a specific and accurate tax estimate during the itinerary selection process would be an “unfair and deceptive practice” and subject to a fine up to \$27,500 per violation.

Airlines must therefore comprehensively rebuild their flight selection and distribution websites in order to display all fares inclusive of taxes, even before the customer has selected his final itinerary on a one-way or round-trip itinerary. In a 2011 study AAI conducted for Kirstein & Young, we examined the cost of compliance for a range of airline websites, reviewing (1) the number of pages that needed revision, (2) the complexity of altering those pages to incorporate tax and fee information, and (3) the direct and indirect labor time required to execute those changes. We found that, on average, large airlines would require between 7,000 and 8,000 man-hours of time to plan, code, implement, and test the website changes. At an average labor cost (burdened) of \$103 per hour, we found that large carriers would spend an average of \$800,000 in labor cost *alone* not including any architectural investments (new reservations systems or other infrastructure investments) to meet the new requirements. Because smaller carriers generally had less complex websites, we found their respective investments to be between \$500,000 and \$750,000.

Table 23 recaps this direct website compliance cost. We based our estimates on the 87 large foreign carriers and 18 large U.S. carriers listed by DOT and Econometrica in their EAPP-2 Regulatory Impact Analysis. We did not include compliance costs related to large OTAs including Expedia, Orbitz, and Travelocity. For small carriers, we assumed a total of 33 small U.S. carriers and 2 small foreign airlines. We also assumed the same \$103 cost per hour for technology resources, burdened, that Econometrica utilized in its analysis. Our analysis is therefore based on the same fundamental assumptions as the analysis conducted by DOT and Econometrica in the rulemaking process, but with a more realistic (and research-based) analysis of the website changes required and the time needed to execute.

Section Five: Regulatory Burdens

We concluded that the cost of overhauling websites to meet the new rule would be \$108 million, with ongoing maintenance costs estimated at 5% of initial investment, or \$5.7 million annually. **The ten-year cost of compliance for the full-fare advertising rule is therefore estimated at \$156.8 million.**

Table 23: Cost of Compliance, Full-Fare Advertising Measures

Source: AAI Estimates of Website Changes, Econometrica/DOT Baseline Assumptions

Cost Category	2011	2012	2013	2011-2020
Large Websites	840,000	42,000	42,000	1,218,000
Small Websites	210,000	10,500	10,500	304,500
Cost of Websites	108,150,000	5,407,500	5,407,500	156,817,500
Advertising Changes		7,210,000	360,500	10,094,000
Compliance Cost	\$108,150,000	\$12,617,500	\$5,768,000	\$166,911,500

Initial compliance cost is only a small portion of the overall cost of this rule, however. Whether an intended consequence or not, DOT’s mandate that the tax amount displayed for each offered fare “accurately reflects the cost of the item covered” raises a fundamental issue: airlines pay taxes based on both percentage and segment-based tax rates. TSA fees are capped after two flight segments in each direction; airport PFCs are capped at \$18.00 per round-trip itinerary. Airlines today file fares between city points on an all-in basis, and that itinerary-based pricing model carries over into how tickets are reported to the government. However, city-pair based pricing fails when fares must be displayed inclusive of tax, and when the consumer can choose among different itineraries from origin to destination with different tax rates.

EAPP-2 will force airlines to equalize the total price of different itineraries across all the possible itinerary combinations from origin to destination. Only with top-down pricing consistency can airlines meet the rule’s requirements. As we presented in our July 2011 study, airlines will incorporate the worst-case tax payments into their projections. If a customer can choose among nonstop, one-stop or two-stop itineraries between a given origin and destination, then the airline pricing that market under EAPP-2 must assume the worst-case (three-segment) tax structure to meet EAPP-2 requirements. Under DOT’s 2006 policy, airlines could set a base fare and show the incremental tax cost of sub-optimal routings to guide the customer’s purchase. This is not feasible today.

To estimate the fare change required, we first took a domestic nationwide sample of Q4 2010 passenger tickets from DOT DB1B ticket data. We divided the flight coupon and market fare data by airline and city pair, resulting in a total of 14,753 different airline city-pair records. For the entire sample and for each airline/city-pair, we calculated the average fare and the estimated taxes paid for one, two, three, and (if applicable) four segment journeys based on the actual routings taken by passengers. On a nationwide basis, we calculated the average fare for the sample (\$183) and estimated the FAA domestic segment tax (\$3.70/flight), 9/11 security fee (\$2.50, max \$5.00) and airport PFCs (\$4.50, max \$18.00 round-trip) per segment flown. We

excluded the federal ad valorem tax of 7.5% and all fuel, ASIF and other taxes. Based on our sample, we estimated the average tax per itinerary at \$12.83.

Next, we returned to the individual airline-market records. We estimated for each airline-market the maximum number of segments the passenger could reasonably choose as an alternative to a “shorter” routing. We used a 1% threshold – if more than 1% of passengers chose a given flight routing, then it was a viable alternative to the shorter routing, and the airline would price taxes and fees on an all-inclusive basis using that (more complex) routing. While 1% may seem to be an arbitrarily low threshold, in practice it limits routings to either one or two more flight segments than the most direct trip path.

Of the 14,753 airline-market pairs we analyzed, we found that when setting all-in fare estimates, airlines would estimate taxes and fees off the nonstop routing for 18% of pairs, off the two-segment (one-stop connecting) itinerary 55% of the time, and off a two- or three-stop itinerary the remaining 30% of the time – but most of these 30% were routings where no nonstop service was available at all. We then calculated the taxes and fees that would be estimated by the airline based on the priced routings, and determined that base airfares would rise 2.96% to reflect this worst-case tax pricing, for Q4 2010. This is equivalent to \$1.98 billion annually in exposure for airlines, and we assume this exposure will grow at inflation (assumed 3%). We therefore assume that airlines will either pass this exposure on to customers by raising fares by \$1.98 billion per year, or by cutting capacity if fare increases are not successful.

Since every **increase in fare has a negative outcome on passenger demand**, price elasticity for air travel is strong. If airlines succeed in passing \$1.96 billion in new cost on to passengers through higher fares, it will cause (using InterVISTAS elasticity metrics) a -3% change in passenger demand, or a decline of 18.5 million passengers in 2012, all other factors equal. Capacity cuts would have a similar impact. Either way, airlines can expect **an overall reduction in income of \$907 million in 2012, and more than \$10.2 billion over a ten-year period.**

Table 24: Revenue Loss from Full-Fare Advertising Rules

Source: AAI Estimates of Website Changes, Econometrica/DOT Baseline Assumptions

Cost Category	2011	2012	2013	2011-2020
Average airfare	\$121.22	\$123.65	\$126.12	
Fare increase	\$3.14	\$3.23	\$3.33	
% change in airfares	2.52%	2.55%	2.57%	
% kept by airlines	66%	66%	66%	
Change in passengers	(18,001,858)	(18,541,914)	(19,098,171)	(206,371,129)
Passengers (new)	630,405,431	649,317,594	668,797,122	7,226,891,784
New Revenue (bil)	\$77.72	\$81.67	\$85.82	\$981.18
Revenue Change	(876,283,612)	(907,172,281)	(938,804,731)	(10,238,503,818)

Section Five: Regulatory Burdens

Ancillary Revenue Increase Restrictions

The Department has had a long-standing policy to prohibit base fare increases (for the ticketed transportation from origin to destination, and back if a round-trip itinerary) but had not set a policy for ancillary fees and services, with the exception of baggage, before EAPP-2. With the effectiveness of EAPP-2 provisions related to 14 CFR 399.88(a) in January 2012, airlines will be prohibited from increasing the price of ancillary services that are offered to the passenger at the time of booking but not purchased until departure.

As the Department's Aviation Enforcement Office stated in Enforcement Guidance on August 19, 2011, "there are many services related to air transportation that a passenger might not purchase until closer to the date of travel. [Under EAPP-2] an increase in the prices of those services cannot be applied to a passenger who has previously purchased a ticket."³⁹ The memorandum also states "a consumer bases his or her purchase decision on this information. If, after the purchase, the information the consumer relied on is retroactively changed, the Enforcement Office would consider that to be an unfair and deceptive practice" which would carry potential fines of \$27,500 per violation.⁴⁰

While there are fundamental risks for airlines associated with guaranteeing prices on ancillary services for months between ticket purchase and travel, the larger challenge for compliance becomes tracking *what ancillary services* were offered to the customer and *at what prices* the services were offered.

With respect to *what ancillary services* are covered by this rule, the DOT Aviation Enforcement Office issued guidance on August 19, 2011 that stated "food, beverage, seat selection, and in-flight entertainment" are not considered "air transportation" and will be considered "ancillary fees". **By this statement, DOT asserts that 399.88(a) applies to all sales made to passengers including on-board duty-free, food and drink sales, credit card offers, internet/WiFi service, and any other product offered to the customer at any time that is not part of the base fare.** This creates an impossible set of risks for airlines that depend on third-party vendors for these optional products. It creates a very complex set of tracking and auditing requirements for airlines in real-world conditions.

Airlines must track the price of every product that *could* be sold to a passenger as of the day that passenger purchased his or her ticket. It must maintain records of those prices, and guarantee that when an ancillary sale actually occurs at some point in the future, that original price point still applies. People on the same flight could (and likely would) be charged different prices for the same product, such as in-flight duty free items. We are not aware of any airline software or database infrastructure that exists today that can take ancillary price snapshots for the myriad services offered to the customer, including car rentals, hotels, travel insurance, and other

³⁹ See http://airconsumer.dot.gov/rules/EAPP_2_FAQ_81911.pdf p31

⁴⁰ Id., p32

third-party services offered during the booking process. While the airline must assume price risk, it must also create an audit trail for compliance.

It is unlikely that when DOT envisioned these changes, it intended to create this level of complexity for airlines and passengers. It is probable that DOT simply intended to formally ban any price increase *once the customer had actually purchased the ancillary service*. However, subsequent enforcement guidance by the DOT Aviation Enforcement Office has dramatically widened the scope of the regulation and used the threat of punitive fines to force compliance. Regardless, the technical requirements and loss of business flexibility for airlines is massive.

We estimate the cost of compliance at 6,000 hours of technology labor, including planning the databases, implementing and testing. At \$103 per hour and a 5% annual maintenance charge, **this drives total compliance costs of \$65.6 million over the next 10 years**. There is likely an additional impact on airline profitability from lost ancillary revenue, but we have not quantified this impact at this time, as we believe that airline legal challenges against the Department’s positions will likely succeed. Even if airline court challenges against this provision prevail, compliance costs will be incurred, and we have included them below in Table 25.

Table 25: Direct Compliance Cost, Post-Purchase Ancillary Fare Prohibitions
 Source: AAI Estimates of Website Changes, Econometrica/DOT Baseline Assumptions

Cost Category	2011	2012	2013	2011-2020
Website compliance cost	11,124,000			11,124,000
New software investment	9,000,000			9,000,000
Retraining	14,400,000			14,400,000
Maintenance & support cost		3,452,400	3,452,400	31,071,600
Total compliance cost	34,524,000	3,452,400	3,452,400	65,595,600

Denied Boarding Compensation

EAPP-2 increases the minimum denied boarding compensation (“DBC”) limits to \$650/\$1,300 or 200%/400% of the one-way fare, whichever is smaller. It also sets an increase in DBC limits on a biennial basis based on inflation, and applies DBC to frequent flyer tickets when those passengers are involuntarily bumped. EAPP-2 requires that carriers verbally offer cash or check compensation when offering vouchers or coupons for bumped passengers, and forces carriers to disclose restrictions on transportation vouchers. The increase in DBC limits is likely to drive an increase in cash compensation paid versus acceptance of vouchers or frequent flyer awards by passengers. This is a material economic cost, as is the application of DBC compensation to frequent flyer tickets.

To estimate the cost of this regulation, we first estimate the increase in cash payments related to frequent flyer tickets. To provide a quantitative foundation for our analysis, we reviewed Form 251 (denied boarding) filings by carriers for the full year 2010. During 2010, a

Section Five: Regulatory Burdens

total of 65,079 passengers were denied board involuntarily, 115,531 were downgraded into a lower class of service, and 681,105 passengers volunteered to accept compensation. **The average compensation paid per passenger was \$359.50**, not including vouchers and future travel credits. **Under the new rules, we estimate the average compensation to be paid at \$584, reflecting a 163% increase in the DBC compensation levels on weighted average.**

Applying DBC rules to frequent flyer tickets formally extends protection to the 7.3% of passengers annually who travel on award tickets. In 2010, 0.1% of passenger enplanements were denied boarding, downgraded or volunteered for vouchers. Extending this 0.1% ratio to the 45.6 million annual frequent flyer enplanements, we estimate that 48,386 passengers in 2012 will be denied boarding on frequent flyer tickets. At new compensation levels, this will drive an increase of \$10.8 million in DBC compensation.

In addition, we expect that higher cash compensation levels will shift *consumer behavior*, causing passengers to favor cash payments over frequent flyer vouchers. We estimate that up to 20% of passengers receiving vouchers today will elect to receive cash payments when notified of the higher compensation thresholds now in effect. A 20% shift would result in \$39.8 million in incremental DBC compensation in 2012, increasing over time.

As Table 26 details, we estimate the net impact to airlines from DBC changes to be \$569 million over the ten-year period from 2011-2020. Approximately 20% of the increase is driven by frequent flyer applicability of the rules, while the remaining 80% is driven by the shift from voucher and coupon to cash compensation.

Table 26: Direct Compliance Cost, Denied Boarding Compensation Increases
Source: AAI Estimates of Website Changes, Econometrica/DOT Baseline Assumptions

Cost Category	2012	2013	2014	2011-2020
One-way journeys	609,618,080	627,906,622	646,743,820	6,785,036,987
Frequent flyer journeys	45,606,070	46,974,252	48,383,479	507,594,638
Impacted passengers	48,386	49,838	51,333	538,537
Increased payment	10,838,509	11,163,664	11,498,574	120,632,388
Increase in cash payments	103,537	106,643	109,842	1,152,364
Incremental cash payout	39,758,174	40,950,920	42,179,447	442,507,683
Aggregate cost difference	50,596,683	52,114,584	53,678,021	563,140,071
Software upgrades	360,500	360,500	360,500	6,849,500
Total compliance cost	50,957,183	52,475,084	54,038,521	569,989,571

24-Hour Holds and Refunds

EAPP-2 requires that airlines offer customers either (1) the option to hold tickets for 24 hours before purchasing or (2) the right to refund tickets once purchased, as long as the refund request is made within 24 hours of the first booking and the ticket is purchased with less than seven days before departure.

In our July 2011 study, we reviewed how legacy (network) airlines built on travel agency distribution had existing systems to meet this requirement. However, low-fare airlines including Spirit, Allegiant, AirTran and JetBlue Airways did not meet the standard. Ticketless travel systems used by low-fare carriers are not architected for a divided reservation and payment process – the booking is not made until payment is received. While this combination of booking and payment simplifies inventory management, revenue accounting and pricing – reservations can be tied to transactions – it creates a severe obstacle to meeting this EAPP-2 provision.

We focused on eight U.S. carriers that would require substantial changes in revenue procedures and ticketing systems to meet this requirement. Additional costs are focused on (1) building the technology infrastructure to allow 24-hour refunds or holds, and (2) the actual cost of refunding a credit card transaction to the consumer. For low-fare carriers, keeping existing ticketing infrastructure will likely require a refund approach (versus holding reservations). Based on interviews with impacted carriers, we estimate the technology cost of compliance to be \$750,000, based on approximately 5,000 hours of total labor and a \$250,000 investment in new database and financial modules to facilitate refunds. Only the 8 carriers that do not currently comply with the rule would have this cost.

For the impact of refund transactions on carrier distribution and bank fees, we start by calculating the cost of a refund. When a carrier refunds a ticket, it must pay the credit card company to refund the customer's card, plus pay any fees to reservations companies and distribution providers, including both software companies (which usually require guarantees for a certain ratio of click-to-book) and global distribution system vendors. Using an average interchange fee of 1.84% for credit cards and \$0.50 per segment in distribution and GDS fees, we estimate total *direct* costs per refunded ticket of \$21.50. To estimate indirect cost, we assume five minutes of labor is required to process and log the transaction. At the blended skilled labor rate of \$103 per hour, this drives an average *indirect* cost per transaction of \$8.60. We therefore estimate a total cost per refund of \$30.10.

We merge this refund rate per transaction with the expected increase in ticket refunds for the 8 impacted carriers to drive the estimated costs in Table 27. We show that **ticket refunds will drive \$6 million of annual costs** for today's non-compliant airlines. **Including technology changes for compliance, the total 10-year cost will be approximately \$73.2 million.**

Section Five: Regulatory Burdens

Table 27: 24-Hour Refunds and Holds, Incremental Cost for Impacted Airlines Only

Source: AAI Estimates of Website Changes, Econometrica/DOT Baseline Assumptions

Cost Category	2011	2012	2013	2011-2020
Systems changes,	6,120,000	612,000	612,000	11,628,000
Journeys, net awards	547,584,476	564,012,010	580,932,370	6,277,442,349
Journeys, impacted airlines	60,234,292	62,041,321	63,902,561	690,518,658
Increase in refunds	178,896	184,263	189,791	2,050,840
Transaction cost, refunds	11,486,875	6,139,882	6,305,718	73,153,212

Website and e-Ticket Disclosure for Baggage Fees

EAPP-2 requires airlines to include on e-ticket confirmations information about free baggage allowances and applicable fees for the first and second bags, as well as carry-on bag fees. It differentiates between airlines and travel agencies by allowing agencies to meet these requirements through a hyperlink instead of directly printing the required information on ticket confirmations. In our July 2011 study, we estimated a one-time compliance time of 1,250 man-hours of labor per airline, at a cost of \$18 million related to information technology changes across the 18 large domestic carriers, 87 large foreign carriers, 33 small U.S. carriers and 2 small foreign carriers.

The primary driver of time related to e-ticket disclosures is revision of existing advertising on boarding passes, and construction of links between ticketing, pricing and e-mail confirmation engines to ensure the *correct* baggage information is printed. The Department requires that all possible baggage fee combinations are listed on e-ticket confirmations (for example, first-bag charge of \$0 for high-level frequent flyers, \$25 for mid-tier frequent flyers, \$50 for credit card holders and \$75 for those ticketed at the airport) and each may require separate database links to keep information current. Given one-time conversion costs and ongoing maintenance cost, **we estimate ten-year compliance cost of \$34.2 million for the industry, including both domestic and foreign airlines.**

Table 28: Website and Ticketing Changes for Baggage Disclosure Information

Source: AAI Estimates of Website Changes, Econometrica/DOT Baseline Assumptions

Cost Category	2012	2013	2014	2011-2020
Revisions to confirmations	1,802,500	1,802,500	1,802,500	34,247,500

30-Minute Flight Status Changes

EAPP-2's changes to 14 CFR 259.8 require airlines to notify passengers about flight status changes of all causes and types, including cancellations, diversions and delays that are over 30 minutes. Notifications must be provided within 30 minutes "after a carrier becomes aware of any such change to the flight status" including those that occur before departure. The Aviation

Enforcement Office has specified a seven-day threshold for notification – that is, if a flight status changes five days before departure, the airline must *still* notify passengers within 30 minutes.

On one hand, DOT stated that “the main purpose of this rule is to avoid unnecessary waits at, or pointless trips to, an airport.”⁴¹ DOT then defines in intricate detail for carriers how to compute a seven-day window prior to departure during which any change in flight status requires notification in 30 minutes to customers, presumably to protect passengers who leave home for the airport *six days* prior to departure.

As we reported in our July 2011 study, the challenge for airlines comes from advance planning related to forecast weather events between 24 and 72 hours prior to departure. During this period, airlines routinely change flight assignments and schedules, arranging crews and staging airport resources. Today, those tentative plans are not considered final, even though they are known and “aware” to the carriers are likely or highly likely to occur. **Because customers are not notified, if the carrier first delays a flight and then returns it to schedule, passengers will have planned for the original departure time and will appear at the airport for the on-time departure.** But if the carrier posts a delayed departure to customers, customers will plan to show late to the airport (meeting the Department’s goal of avoiding “unnecessary waits”). However, this makes a return to the original schedule difficult, if not impossible, without stranding passengers who did not realize the flight had returned to schedule, even with notification.

In the absence of enforcement guidance to carriers defining how to handle test operational plans – which often changes multiple times before departure – carriers will shift from delays to cancellations. To quantify this cancellation impact, we isolated gate departure delays during 2010, and estimated that 25% were known to the carrier (as likely or very likely to occur) more than four hours prior to departure. We utilize a four-hour cutoff as a reasonable period before which passengers will likely not have left for the airport. Then estimating that 20% of 4+ hour advance delays will be cancelled in lieu of a series of back-and-forth schedule changes, **we estimate an incremental 22,000 cancellations per year from the 30-minute rule. At an average cost of \$14,818 per cancellation, this translates to \$328.3 million in 2012 of incremental cost to the airlines, or \$3.65 billion over the ten-year period from 2011-2010.**

Table 29: Indirect Cancellations from Loss of Flexibility, 30-Minute Notification

Source: AAI Estimates of Website Changes, Econometrica/DOT Baseline Assumptions

Cost Category	2012	2013	2014	2011-2020
Domestic flights	9,231,411	9,508,353	9,793,604	102,745,416
Gate delay > 45 minutes	553,885	570,501	587,616	6,164,725
Known +4 hours	110,777	114,100	117,523	1,232,945
Incrementally cancelled	22,155	22,820	23,505	246,589
Cancellation Cost	328,298,507	338,147,462	348,291,886	3,653,955,785

⁴¹ See EAPP-2 Frequently Asked Questions, p19

Section Five: Regulatory Burdens

All-In Cost Per Round-Trip Itinerary

Finally, we add the compliance costs for the EAPP-1 and EAPP-2 regulations outlined above to calculate the all-in cost for airlines. We find that:

- **The loss of revenue associated with full-fare advertising rules has the highest cost to airlines and to consumers, driving \$10 billion of the \$18 billion in total cost over the next 10 years.**
- **Flight cancellations** caused by consumer protection policy are the next major driver of financial cost, **causing \$3.6 billion in cost** related to the loss of flexibility for flight schedule changes under the 30-minute delay rule, and **\$2.2 billion due to the three-hour domestic tarmac rule.**
- The international tarmac rule and denied boarding compensation changes are significant drivers of cost, particularly for major network carriers.
- The cost of compliance for ancillary pricing, 24-hour holds and e-ticket baggage confirmation are significant for a select group of carriers, but also do not incur costs for a number of airlines already compliant with the rule.

In 2011, we find that compliance costs and meeting EAPP-2 regulations will drive more than \$1.7 billion in incremental cost to airlines, which is equivalent to \$2.12 per flight segment flown by passengers, or \$5.82 for the typical round-trip itinerary. As Table 30 below shows, over a ten-year period, the average cost of EAPP-1 and EAPP-2 regulations per passenger round-trip is \$5.39, reflecting the front-loading of compliance costs.

Table 30: All-In Cost of Consumer Regulations, EAPP-1, EAPP-2 and SNPRM
Source: AAI Estimates of Website Changes, Econometrica/DOT Baseline Assumptions

Cost Category	Year 1	Year 2	Year 3	2011-2020
Food and water	29,579,860	30,467,244	31,381,274	339,099,900
3-Hour Domestic Rule	193,923,166	199,731,822	205,747,930	2,223,188,994
4-Hour Int'l Rule	79,107,082	81,480,271	83,924,661	906,873,759
Full-fare: direct cost	108,150,000	12,617,500	5,768,000	166,911,500
Full-fare: lost revenue	876,283,612	907,172,281	938,804,731	10,238,503,818
Ancillary price rules	34,524,000	3,452,400	3,452,400	65,595,600
Denied boarding rules	52,727,994	50,957,183	52,475,084	569,989,571
24-Hour holds	11,486,875	6,139,882	6,305,718	73,153,212
Baggage information	18,025,000	1,802,500	1,802,500	34,247,500
30-Minute notice rule	318,736,414	328,298,507	338,147,462	3,653,955,785
Cost to Airlines	1,722,544,004	1,622,119,589	1,667,809,760	18,271,519,640
All-in, per segment	\$2.12	\$1.94	\$1.94	\$1.97
All-in, per round trip	\$5.82	\$5.32	\$5.31	\$5.39

Additional Regulatory Burden Costs: Appendices

We have provided two appendices to this report that are relevant to ongoing debate in Washington and development of a national aviation policy. Appendix 3 examines the cost of Form 41 financial reporting to the government. We find that annual reporting of financial statements, ticket data, traffic metrics and other information that must be submitted throughout the year costs the industry \$30 million today. Appendix 4 provides a detailed review of how U.S. airline costs would be impacted if passenger protection measures from Europe (specifically, EU 261/2004) were imposed on flights in the United States. We find that EU-style passenger protections would add \$886.6 million in annual cost to the U.S. industry (or \$3.86 per round-trip ticket) and would have a corresponding negative impact on local economies.

Conclusions: Airline Regulatory Burden

In this section, we have reviewed the total cost of consumer protection regulations introduced by the current administration. These regulations have added direct and indirect compliance costs, will cause an ongoing decrease in airline revenue, and have driven a sustained increase in flight cancellation rates. The total cost to the public is substantial.

We find that consumer protections introduced since 2009 increase airline costs by \$5.39 per round-trip ticket. In addition, our Appendices demonstrate that financial reporting burden totals \$0.10 per round-trip ticket and that the application of EU passenger regulations would result in an *additional increase* of \$3.86 per round-trip ticket sold.

SECTION SIX: LOCAL IMPACT OF REGULATIONS & TAXES

In this section, we review the economic impact on the nation, and on specific local economies, of changes in tax policy and airline pricing. We analyze the specific scenarios where airlines compensate for higher taxes and operating costs through higher fares, lower capacity, or a combination of the two. We consider the impact on domestic flights and market demand only. As we demonstrate, if fare increases are successful, they cause a drop in demand, as consumer demand is elastic relative to price. Fewer passengers can afford (or choose) to take trips. Alternatively, if fare increases are not successful, carriers cut capacity. Fewer passengers can find affordable seats to take trips. Either way, the loss of passenger traffic is similar, and felt in both business and leisure markets where low fares stimulate traffic.

Components Analyzed

We focus on four components of tax and consumer regulation that impact airlines:

1. **An increase of airport PFCs from \$4.50 to \$5.00 per passenger.** While various Congressional and DOT measures have proposed an increase to as much as \$7.00 per passenger, we analyze \$5.00 as a likely increase that may be effective as early as 2014.
2. **An increase in the security fee per segment from \$2.50 to \$5.00.** The current administration has proposed this increase in order to fund additional TSA equipment and contribute to deficit reduction. Given the ever-increasing TSA infrastructure, it is likely that both Congress and the administration will continue to seek funding from airlines for expensive screening equipment and new hiring.
3. **A new per-flight departure tax of \$100.** The current administration has proposed this tax in order to fund deficit reduction. At an average of 78.7 passengers per domestic flight, this \$100 per flight tax equates on average to \$1.27 per passenger segment flown. It also represents 20% (or more) of total operating revenue per flight for some major airlines.
4. **The cost (per one-way flight) of consumer regulations effective in 2010 and 2011.** Using the models from in Sections 4 and 5 we estimate one-way cost at \$2.69, half of the round-trip cost of \$5.39 presented in Table 30.

Table 31 below summarizes these changes, and calculates the total change in fare and taxes due to these components. We use 2010 traffic and fare data as our baseline for analysis, as the last full year available before tax and consumer regulation impact is fully felt.

Section Six: Local Impact

Table 31: Assumed Changes in Taxes and Consumer Regulation Cost, Per One-Way Ticket

Source: Elasticity Based on IATA/InterVISTAS, Lodging Tax Average (AAI)

Tax	Tax Description	2010	2014	Change
PFCs	Airport Passenger Facilities Charge	\$4.38	\$5.00	\$0.62
TSA	9/11 Passenger Security Fee	\$2.50	\$5.00	\$2.50
NEW	\$100 Per Flight, Per Passenger Departure		\$1.27	\$1.27
REGS	Consumer regulations 2010-2011		\$2.69	\$2.69
	Total Change in Fare and Taxes			\$7.08

Methodology

Our methodology for estimating local economic impact of these fees is as follows:

- First, we compile the average fare for flights *into* the top 200 airports nationwide, ranked by arriving passengers. Average fares are collected from the DOT DB1B ticket survey for calendar year 2010. Arriving passengers are collected from T-100 market data reported to DOT for calendar year 2010, for all carriers on domestic flights only. The gross fares collected for each destination are gross, inclusive of taxes and fees. This allows us to apply the change in taxes directly to the tax-inclusive “old” value, simplifying elasticity calculations.
- Second, we calculate the percentage of arriving passengers that are local-market (terminating their journeys at that airport) versus connecting onto other points.
- Third, we calculate the percentage change in prices (gross average fare before the change, plus the cumulative change in taxes and consumer regulation cost) and using an elasticity estimate on a nationwide basis, calculate the change in passenger demand.
- Fourth, we apply that percentage change in passenger demand to local traffic only to estimate the loss of visitors due to fare increases. Using an assumed local spending per passenger, we estimate the economic impact from fewer visitors. We offset this loss with any gains from changing PFCs to \$5.00.

We also evaluated the reduction in capacity that would result if fare *increases* to the passenger were not successful – that is, if carriers were unable to recover the higher cost of taxes and regulatory compliance from their passengers. In practice, carriers have very limited ability to completely pass through increases in cost or taxes, and consider capacity cuts as an alternative. Reducing capacity (versus raising fares) has a similar impact on inbound traffic to key leisure and business markets nationwide: with fewer seats available, fewer visitors arrive. The change in local traffic was similar using both methods.

Price Elasticity of Demand

Table 32 summarizes the key assumptions used in our analysis. Our assumed price elasticity of demand is -1.1, based on the 2007 InterVISTAS study prepared for IATA. For local spending, we assume an average of \$500 per passenger, which accounts for differences among local (resident) passengers and those visiting on holiday or business. We assume that local sales tax is 5%, and that PFCs are assessed on 89% of passengers departing from that market.

Table 32: Key Assumptions for Estimating Impact on Local Communities

Source: Elasticity Based on IATA/InterVISTAS, Lodging Tax Average (AAI)

Key Assumptions	
Assumed Price Elasticity of Demand	(1.10)
Average local spending, per pax	\$500
Local sales/lodging tax	5%
PFC applicability (% of Pax)	89%

For our analysis, we chose to utilize a route-level elasticity metric that was conservative. Our selection of -1.1 was based on several prior research reports and economic analysis, taking the weighted average of itinerary lengths (short versus long haul), traffic mix (business versus leisure) and route substitutes (train and car service versus only air competition). We focused exclusively on domestic market price elasticity.

Previous studies have established a range of price elasticity between -1.2 and -1.5 based on regression of the relevant data set in this study, domestic U.S. ticket data. The 2007 InterVISTAS study estimated route-level elasticity capturing the effects of route substitution. To isolate the impact of route substitution – and recognizing the lack of alternatives to air travel across significant portions of the United States – we have utilized -1.1 to be conservative. This also aligns our analysis with previous studies that assessed market traffic, populations, dummy variables for business and leisure travel, average fares, income, consumer assets, hotel accommodations, and other factors. We reviewed the following academic literature in determining the -1.1 elasticity utilized:

- Talpin (1980) *A Coherence Approach to Estimates of Price Elasticities in the Vacation Travel Market*: -0.9 to -3.3 for leisure demand.
- Abrahams (1983) *A Service Quality Model of Air Travel Demand*: -0.36 to -1.81 for leisure and business demand.
- Oum et al (1986) *Demands for Fareclasses and Pricing in Airline Markets*: -1.152.
- Oum et al (1993) *Inter-firm rivalry and firm-specific price elasticities in deregulated airline markets*: -1.24 to -2.34 for all U.S. domestic routes.

Section Six: Local Impact

- Gillen et al (2002) *Air Travel Demand Elasticities*: -1.1 long-haul to -1.52 short-haul.

Based on this literature review, we determined that assessing a uniform -1.1 elasticity for all markets, including business and leisure travel, short- and long-haul itineraries, and the varying availability of substitute transportation would be a conservative approach to assessing the change in passenger demand from higher total fares.

Results of Analysis

Appendix 5 contains a full list of markets analyzed, passenger fare and traffic data, local traffic percentages, and changes in traffic and economic welfare due to increased taxes and consumer regulations. In the following section, we review the total economic impact and list the top individual airports and metropolitan airports impacted.

By definition, price elasticity will impact those markets with lower average fares more than it will impact high-fare hub markets in key business markets. In particular, airports with strong competition for leisure and price-sensitive business traffic by both network and low-fare carriers will be most impacted by changes in airline taxes and regulatory compliance costs. If taxes raise the total cost of air travel, the stimulation effect is muted. Table 33a below provides the aggregate impact of a \$7.08 increase in taxes and regulatory costs on the national economy. The increase represents a change of 3.7% in average fares, and can be projected to result in a 4.1% decline in passenger traffic. **This translates to a 17.7 million annual passenger enplanement reduction, with a \$9.1 billion annual negative impact on local economies nationwide.** Table 33b breaks the total annual change into its components of TSA 9//11 fees, \$100 per flight taxes, airport PFC changes, and EAPP-1/EAPP-2 compliance costs.

Table 33a: Change in Economic Welfare from Taxes and Consumer Regulations

Source: Elasticity Based on IATA/InterVISTAS, Lodging Tax Average (AAI)

Component	Unit
Average Fare	\$189
Passengers	628,912,377
Local Traffic	69%
Change in Price	3.7%
Change in Demand	-4.1%
Change in Inbound Visitors to Local Economies	-17,747,176
Total Annual Change in Local Economic Welfare	-\$9,056,844,311

Table 33b: Change by Major Component

	TSA Fee	\$100 Tax	PFCs	EAPP1/2	Total
Annual Impact	-\$3.3 billion	-\$1.7 billion	-\$440 million	-\$3.6 billion	-\$9.05 billion

Table 34 below lists the top 10 airports ranked by economic impact from higher taxes and consumer regulation costs. Not surprisingly, the top airports impacted are the primary leisure destinations nationwide and are dominated by low-fare carriers. Atlanta, Chicago O’Hare and New York LaGuardia are also heavily impacted primarily because of the size of their local economies.

Table 34: Individual Airports with Highest Impact

Source: 2010 Average Fares, Local Traffic Percentages; Elasticity Assumptions

RANK	CODE	Fare	Local %	Visitors	Total \$ Loss
1	Orlando MCO	\$148	87%	-711,262	-367,872,898
2	Las Vegas LAS	\$166	79%	-660,864	-340,119,991
3	Denver DEN	\$162	49%	-574,347	-292,338,517
4	Los Angeles LAX	\$210	72%	-564,415	-287,117,171
5	Atlanta ATL	\$175	32%	-542,447	-269,501,552
6	Chicago ORD	\$189	46%	-514,687	-259,027,857
7	Phoenix PHX	\$177	58%	-453,333	-230,868,616
8	New York LGA	\$178	89%	-446,029	-229,595,410
9	Ft. Lauderdale FLL	\$150	92%	-439,526	-227,452,988
10	Boston BOS	\$187	90%	-440,130	-226,232,439

Table 35: Impact from Taxes and from Consumer Regulations

Table 35 & 36 source: 2010 Average Fares, Local Traffic Percentages; Elasticity Assumptions

Rank	Airport	Total \$ Loss	Taxes	Regulation
1	Orlando International	-367,872,898	-224,353,394	-143,519,504
2	Las Vegas McCarran	-340,119,991	-206,625,133	-133,494,859
3	Denver Intl	-292,338,517	-175,486,716	-116,851,800
4	Los Angeles International	-287,117,171	-172,966,563	-114,150,608
5	Atlanta Hartsfield-Jackson Intl	-269,501,552	-157,978,815	-111,522,737
6	Chicago O'Hare International	-259,027,857	-154,179,833	-104,848,025
7	Phoenix Sky Harbor Intl	-230,868,616	-139,616,823	-91,251,792
8	New York La Guardia	-229,595,410	-138,891,413	-90,703,997
9	Fort Lauderdale/Hollywood Intl	-227,452,988	-138,818,501	-88,634,487
10	Boston Logan International Apt	-226,232,439	-137,454,612	-88,777,827

Section Six: Local Impact

The economic impact above incorporates *both* taxes and regulatory compliance costs. What losses are driven by taxes, and what portion by consumer regulation? Table 35 above breaks out total compliance costs by cause. Taxes reflect higher PFCs, an increase in 9/11 security fee, and the \$100 per flight tax. Consumer regulations reflect new protections in place since 2010. The impact of higher taxes represent between 58% and 61% of the total economic loss, while the impact of consumer regulations make up the rest.

Table 36: Top 10 Impact, Metropolitan Area Groupings

	Average Fare	Inbound Passengers	Traffic Change	Loss of Visitors	Economic Loss
LAX	\$210	21,175,934	-785,711	-564,415	-287,117,171
ONT	\$175	2,359,302	-105,094	-105,094	-54,237,126
BUR	\$155	2,229,437	-111,895	-111,895	-57,922,169
SNA	\$180	4,299,227	-185,582	-183,739	-94,725,275
LGB	\$135	1,445,607	-83,306	-76,887	-39,885,726
#1 Los Angeles Area		31,509,507	-1,271,589	-1,042,029	-533,887,467
JFK	\$204	11,628,232	-444,636	-321,953	-164,039,112
LGA	\$178	11,406,514	-500,419	-446,029	-229,595,410
EWR	\$232	10,837,843	-364,635	-259,848	-131,523,790
#2 New York Area		33,872,589	-1,309,690	-1,027,830	-525,158,312
SFO	\$214	15,052,655	-549,258	-412,591	-210,024,129
SJC	\$169	3,992,240	-183,652	-177,233	-91,490,251
OAK	\$151	4,565,776	-236,208	-224,809	-116,375,219
#3 San Fran. Area		23,610,671	-969,119	-814,634	-417,889,600
MDW	\$149	8,485,119	-444,184	-294,574	-151,611,455
ORD	\$189	27,016,357	-1,113,455	-514,687	-259,027,857
#4 Chicago Area		35,501,476	-1,557,639	-809,261	-410,639,313
IAD	\$225	8,265,538	-286,120	-152,257	-76,240,684
DCA	\$209	8,614,408	-320,610	-247,772	-126,342,275
BWI	\$159	10,534,612	-515,577	-392,299	-202,003,642
#5 Washington Area		27,414,558	-1,122,306	-792,328	-404,586,600
MCO	\$148	15,518,236	-816,296	-711,262	-367,872,898
SFB	\$90	345,258	-29,993	-25,565	-13,357,417
#6 Orlando Area		15,863,494	-846,290	-736,827	-381,230,315
#7 Las Vegas Area		17,752,819	-732,771	-580,178	-297,250,808
MIA	\$186	8,655,904	-363,220	-187,477	-94,874,912
FLL	\$150	9,159,877	-476,147	-439,526	-227,452,988
#8 Miami Area		17,815,781	-839,367	-627,004	-322,327,900
BOS	\$187	11,736,605	-488,162	-440,130	-226,232,439
PVD	\$180	1,940,230	-84,034	-84,034	-43,335,316
MHT	\$176	1,381,201	-61,120	-61,120	-31,536,993
#9 Boston Area		15,058,036	-633,316	-585,284	-301,104,748
#10 Denver Area		24,213,843	-1,163,738	-574,347	-292,338,517

Recognizing that metropolitan areas often have more than one major airport, we group airports by metropolitan areas and rank the top 10 markets impacted by higher taxes and consumer regulations. Aggregating airports changes the rank order, and closely approximates the economic output of major U.S. cities. Finally, we group the top 200 markets impacted by state to identify which states are impacted most by changes in taxes and consumer regulations. California leads, but Florida and Nevada are notable on this list.

Table 37: Top 20 States/Regions Impacted

Source: AAI Models, 2010 Traffic (Wash. DC includes IAD, DCA only)

Rank	State	Annual Impact	Rank	State	Annual Impact
1	California	-1,242,315,210	11	Massachusetts	-226,232,439
2	Florida	-1,174,522,228	12	Washington	-219,845,419
3	Texas	-687,408,513	13	Missouri	-217,884,390
4	New York	-576,495,397	14	North Carolina	-217,379,928
5	Illinois	-430,342,002	15	Wash. DC Area	-202,582,958
6	Nevada	-378,743,297	16	Maryland	-202,003,642
7	Colorado	-321,629,376	17	Ohio	-195,136,796
8	Georgia	-286,576,154	18	Michigan	-170,567,488
9	Arizona	-281,942,845	19	New Jersey	-156,657,319
10	Pennsylvania	-270,666,443	20	Hawaii	-155,607,605

Conclusions

We recognize that taxes and fees on airlines are viewed by some in government as an endless source of revenue. The truth is that travel taxes/fees do impact local economies by curbing demand and/or market capacity. Markets with high volumes of leisure and price-sensitive business passengers are particularly impacted, making cities in Florida, Nevada, and Arizona particularly vulnerable to the impact of higher taxes. Connecting hubs such as Atlanta, Dallas and Chicago are also hurt.

The tax increases proposed by the current administration, including a raise in PFCs, 9/11 security fees and a \$100 per departure tax, are likely drive a **\$5.5 billion annual change in economic welfare nationwide, hitting those states hardest that have suffered during the economic recession.** Similarly, consumer protection measures do have measurable costs, and result in higher fares. When airlines pass on higher operating costs to passengers, passenger demand wanes, and local economies suffer from lower tourism and business travel.

SECTION SEVEN: CONCLUSIONS AND RECOMMENDATIONS

In this report, we have addressed the core regulatory trends that have shaped the industry since 9/11. Throughout this period, airlines have adapted with new business models that separate airfares into base tickets and ancillary revenues, and placed a higher emphasis on operational reliability. Customers, in turn, have benefitted from lower airfares today than 10 years ago. Yet consumers, airlines, and local economies remain pressured by ever-increasing federal taxes on airlines, costly consumer protection regulations, and an uncoordinated federal aviation policy characterized by ad hoc decision making by DOT and Congress.

Since 1978, there have been 17 taxes, fees or financial measures enacted by Congress and the executive branch on airlines. In 2011, the average federal tax rate paid by airlines for domestic itineraries exceeds comparable “sin taxes” on alcohol, tobacco and firearms. **In 2011, for the typical \$300 round-trip fare, airlines pay a total of \$60 in federal taxes and airport fees.** Aviation taxes are fractured and penalize airlines in both leisure and business markets.

Total tax collections from the industry now total \$17 billion, and we project that by 2014 collections will exceed \$19.5 billion. This **does not include any *new* taxes** currently proposed by the current administration, including doubling the TSA security fee structure, introducing a new \$100 per flight tax on airlines and authorizing airport authorities to raise fees charged. The federal government should prioritize rationalization of existing taxes.

Consumer protection regulations were perceived as necessary by interventionist, pro-consumer regulators in the current administration after fundamental shifts in airline product during the recession of 2008-2009. To stimulate recessionary demand by price-sensitive consumers and to mitigate the impact of skyrocketing oil prices, both network (legacy) and low-fare airlines aggressively “unbundled” their product, reducing base fares but charging the consumer for services that used to be included. The government’s response – to frustrate ancillary service flexibility, to restrict how airlines display fares, and to impose ticket refundability and other rules on airlines – has been rife with unintended consequences. **Consumer regulations since 2009 will add more than \$1.7 billion annually in cost to the industry for the next 10 years.**

The impact of both higher taxes and costly consumer protections is acutely felt in leisure and holiday markets where passengers are most price-sensitive. It is also felt in small communities served by major network carriers, where service viability already depends on thin operating margins. Negative price elasticity of demand means that when taxes increase, local economies suffer. Our route- and city-level analysis demonstrates that higher taxes and consumer regulations most acutely impact vacation destinations, led by Orlando and Las Vegas.

Consumer regulations introduced since 2009 are already negatively impacting the national economy by \$3.5 billion per year, and the tax increases proposed would drive a further reduction of \$5.5 billion annually.

Section Seven: Conclusions & Recommendations

Recommendations

Based on our analysis, we make three fundamental recommendations to rationalize aviation policy, consolidate taxes and fees to a sustainable level, and balance consumer protection objectives with economic efficiency and passenger traffic stimulation.

First, **we recommend that federal authorities (including DOT, IRS and Congressional representatives) halt all proposed taxes and non-safety regulatory rulemaking currently underway.** In addition, we recommend that Congress examine a consolidation of federal taxation to align the burden on air travel with other industries. While airline passengers may be perceived as a bottomless source of revenue, ultimately the federal government is appropriating tax revenue and local spending from local economies nationwide. **Hard-hit leisure and business should not subsidize deficit reduction for the rest of the country.** Instead of introducing yet more taxes, federal authorities should rationalize the tax collection process for aviation to ensure the industry acts as a growth engine instead of an industry whose costs drag down economic prosperity. **Lower aviation taxes stimulate tourism and business through higher capacity and lower fares.**

Second, **we recommend that DOT accelerate its review of all consumer regulations introduced since 2009,** expanding the scope to cover more than just the tarmac delay rule review dictated by GAO in its September 2011 report. Both EAPP-1 and EAPP-2 are rife with predictable consequences and costly compliance. Both negatively impact competition and market expansion. Bloated consumer rules have fundamental economic impact on key markets nationwide, and jeopardize local economies, airline employment and the availability of air service for small communities. Instead of issuing its analysis as a *fait accompli*, DOT should submit its review methods and study results for peer review by independent academic authorities and modify its method as required.

We find pervasive costs related to ambiguity, lack of concrete enforcement guidance, and a need for “regulatory flexibility” by DOT. Airlines (and consumers) are not given clear guidance about expectations, enforcement standards and fine structures by DOT under the current administration. GAO noted this lack of transparency in its report, and setting clear expectations may reduce unnecessary risk avoidance that negatively impacts consumers through flight cancellations and operational disruptions. Before introducing any new regulations, DOT must emphasize the efficacy of existing rules.

Third, **we urge all industry stakeholders to produce a National Aviation Policy to set common operational targets, rationalize taxes and focus on the long-term viability and competitiveness of the industry.** Fundamental shifts in aviation policy by the current administration, reversing long-standing policies in consumer affairs, distribution and operations, has created uncertainty by airlines and increased costs. Ad-hoc tax policy has resulted in a jumbled array of different taxes and bases, with a mix of per-segment, fare-based and airport-based taxes. A National Aviation Policy that prioritizes the competitiveness of the U.S. aviation industry is needed.

EXHIBITS AND APPENDICES

APPENDIX 1: NOTABLE TARMAC DELAYS WITH MEDIA COVERAGE

<i>Airline</i>	<i>Date</i>	<i>Event</i>
American Airlines	December 29, 2006	Severe weather and tornadoes at DFW caused more than 100 diversions to regional airports, including diversions to Austin where flights took up to 9 hours to deplane.
JetBlue Airways	February 14, 2007	Unforecast ice storm stranded more than 52 flights on tarmac for up to 10 hours. JetBlue cancelled 355 flights and diverted 6 flights. There were 26 on-board delays of 4+ hours with 2,962 passengers on these flights. ⁴²
US Airways	August 9, 2007	Severe weather along the eastern seaboard caused tarmac delays at PHL for up to 6 hours.
Multiple Carriers	August 11, 2007	More than 17,000 passengers on 73 international flights were stranded for up to 10 hours due to computer failure by US Customs.
ExpressJet (Continental Airlines)	August 8, 2009	Aircraft diverted to Rochester, MN and arrived at 12:28am. Crew requested to deboard passengers and was refused. Passengers ultimately released at 6:00am.
Virgin Atlantic	June 22, 2010	Weather diversion, equipment failure and crew legalities prevented a fully-loaded Airbus A340 from London from departing Hartford; passengers were held on aircraft for five hours

⁴² According to the DOT IG, “Initial weather forecasts for JFK on February 14 predicted rain in the morning with temperatures slightly higher than 32 degrees; the weather was dramatically worse with freezing rain starting at 8:00am. JetBlue’s flights continued to arrive at the airport, although flights could not depart... thereby causing gridlock on the airport tarmac.”

APPENDIX 2: AVIATION EXCISE TAX STRUCTURE (FAA)

AUTHORITIES: TAXPAYER RELIEF ACT OF 1997, PUBLIC LAW 105-35

Aviation Tax	Title	Rate
Domestic passenger ticket tax	Ad valorem	7.5% of ticket price (10/1/1999 to present)
Domestic flight segment tax	Domestic segment, consisting of one flight leg (defined as one takeoff and one landing)	Price is indexed: 2003 \$3.00 2004 \$3.10 2005 \$3.20 2006 \$3.30 2007 \$3.40 2008 \$3.50 2009 \$3.60 2010 \$3.70 2011 \$3.70 (unchanged)
Passenger ticket tax, rural airport	Assessed on flights that begin or end at an airport with < 100K enplanements, located beyond 75 miles from airport with >100K, and is not connected by paved roads to another airport	7.5% of ticket price no segment fee applies
International arrival and departure taxes	Per passenger taxes assessed on passengers arriving from or departing to foreign destinations (excluding Canada/Mexico and including US territories)	Price is indexed: 2003 \$13.40 2004 \$13.70 2005 \$14.10 2006 \$14.50 2007 \$15.10 2008 \$15.40 2009 \$16.10 2010 \$16.10 2011 \$16.30
Flights between continental U.S. and Alaska/Hawaii		Price is indexed: 2003 \$6.70 2004 \$6.90 2005 \$7.00 2006 \$7.30 2007 \$7.50 2008 \$7.70 2009 \$8.00 2010 \$8.10 2011 \$8.20
Frequent flyer tax	Assessed on mileage awards	7.5% of value of miles
Fuel taxes	Assessed per gallon of fuel consumed in commercial ops	\$0.043 per gallon

APPENDIX 3: THE COST OF FORM 41 FINANCIAL REPORTING

DOT requires informational reports and filings to be made on a monthly, quarterly, semi-annual and annual basis by U.S. carriers, and requires foreign carriers to provide traffic information for all flights to and from the United States. Together, these filing requirements add significant overhead to airlines, including dedicated financial, operational and revenue resources. We focus on a simple question: based on the projected time required by DOT to complete each form, how much cost does this financial reporting infrastructure add to our nation’s airlines?

Table A: DOT Form 41 Components and Direct Hours Required (DOT BTS)
 Source: Indirect Estimates Based on 3:1 ratio of collection and background per hour

Form	Interval	Direct	Indirect	Carriers
Interim Operations Report (P-1a)	Monthly	1.0	3.0	65
Fuel Cost and Consumption (P-1.2a)	Monthly	4.0	12.0	65
Political Candidates (Form 183)	Monthly	1.0	3.0	65
Traffic & Capacity by Segment and Market (T-100)	Monthly	6.0	18.0	18
On-time performance (Part 234)	Monthly	40.0	120.0	18
Mishandled Baggage Report (Part 234.6)	Monthly	20.0	60.0	18
Certification (Schedule A)	Monthly	0.3	0.9	52
Passengers Denied Boarding (251)	Monthly	5.0	15.0	52
Origin & Destination Survey (DB1B)	Quarterly	60.0	180.0	52
Balance Sheet: Assets (B-1)	Quarterly	7.0	21.0	52
Balance Sheet: Liabilities & Stockholder Equity (B-1)	Quarterly	7.0	21.0	52
Airframe/Engine Acquisition/Retirement (B-7)	Quarterly	7.0	21.0	52
Cash Flow (B-12))	Quarterly	5.0	15.0	52
Income Statement (P-1.2)	Quarterly	7.0	21.0	52
Notes (P-2)	Quarterly	4.0	12.0	52
Aircraft Operating Expense (P-5.2)	Quarterly	15.0	45.0	52
Expenses by Objective Grouping (P-6)	Quarterly	7.0	21.0	52
Expenses by Functional Grouping (P-7)	Quarterly	10.0	30.0	52
Report of Financial Data (F-1)	Quarterly	4.0	12.0	52
Aircraft Operating Expenses & Statistics (F-2)	Quarterly	10.0	30.0	52
Balance Sheet (B-1.1)	Semi-An.	2.0	6.0	13
Income Sheet (P-1.1)	Semi-An.	2.0	6.0	13
Aircraft Operating Expense (P-5.1)	Semi-An.	2.0	6.0	13
Airframe/Engine Inventory (B-43)	Annual	8.0	24.0	65
ICAO Financial Supplement (EF)	Annual	0.5	1.5	65
Employee Statistics (P-10)	Annual	2.0	6.0	65
Report of All Cargo Operations (T-8)	Annual	2.0	6.0	65
Operations & Summary Statistics (291-A)	Annual	2.0	6.0	65

Exhibits and Appendices

Using DOT's website, we identified forms and reports prepared and submitted to DOT on an ongoing basis. For each form, we used DOT's official direct time estimate to prepare the form. We assumed for every hour of direct preparation time, there were three additional hours of information collection, technology programming, analysis and validation for data sets. Based on these metrics, we calculate that a total of 10,310 hours of direct labor and 30,930 hours of indirect labor are spent by airlines annually assembling, processing and reporting information to the government. At an average cost per hour of labor of \$103, **this translates to an annual cost burden of \$30 million, or \$318 million over the next 10 years**, as Table 32 below demonstrates. On a round-trip ticket basis, DOT reporting requirements add \$0.10 in cost.

Table B: DOT Form 41 Reporting Cost, Direct and Indirect

Source: Indirect Estimates Based on 3:1 ratio of collection and background per hour

Cost Category	2011	2012	2013	2011-2020
Monthly Reports (hours/carrier)	288	288	288	2,880
Monthly Reports (all-in cost)	15,484,608	16,374,528	16,967,808	183,976,128
Quarterly reports (hours/carrier)	593	673	673	6,652
Quarterly reports (all-in cost)	12,708,717	14,422,637	14,422,637	155,221,165
Annual reports (hours/carrier)	58	58	58	580
Semi- and Annual reports (all-in)	840,892	840,892	840,892	9,249,812
Total Cost of Reporting	\$29,034,217	\$31,638,057	\$32,231,337	\$348,447,105
Per Passenger Segment	\$0.04	\$0.04	\$0.04	\$0.04
Per Round-Trip Ticket	\$0.11	\$0.11	\$0.11	\$0.10

APPENDIX 4: DISCUSSION OF APPLYING EU-STYLE PASSENGER PROTECTIONS TO THE UNITED STATES AVIATION MARKET

Some in the current Congress and administration have proposed an European Union-like passenger protection rule that would compensate passengers for flight cancellations and guarantee hotel rooms, meals and other provisions for delayed flights, as required. Such measures would be prohibitively expensive for U.S. carriers, given the inefficiency of the current U.S. airspace system (which encourages delays) and government policy that encourages flight cancellations over on-board delays, publicizing on-time performance instead of flight completions. We estimate that applying EU passenger rules onto U.S. carriers would cause a *minimum* of \$886 million annually in new costs, and fares would increase at least \$3.86 per round-trip ticket.

Impact of Applying EU Passenger Protections on U.S. Airlines

Having reviewed existing passenger regulations (EAPP-1 and EAPP-2) as well as airline reporting costs, we turn to a final issue reviewed by GAO in their recent report. GAO-11-733, published in September 2011, reviewed the EU requirements that set minimum care standards for passengers on delayed and cancelled flights, including defined cash payments for flight cancellations (from the airline to the passenger) as well as uniform performance standards for hotels, meals and transportation for passengers on delayed flights. GAO noted that EU-261/2004, the suite of regulations that standardize customer care in Europe, may “increase costs for airlines and passengers.”

There are notable differences between the EU approach to consumer protection and the American approach, particularly as defined by the current Department of Transportation. Under EU regulations, passengers receive cash payments for cancelled flights, and receive care during long delays. As we review in this section, this creates financial incentives for airlines to *delay* flights over cancelling them, emphasizing flight *completions* (where a flight ultimately arrives at its destination) over *on-time performance*. In contrast, the U.S. DOT has favored on-time performance (and avoidance of long on-board delays) over flight cancellations. While DOT reviews on-time performance in detailed reports each month, it spends little time assessing the causes and trends in flight cancellations. This has been particularly evident in the Department’s approach to, and analysis of, the tarmac delay rule and 30-minute notification components of EAPP-1 and EAPP-2.

Flight Delays. Table A below summarizes an airline’s obligation to delayed passengers under EU 261/2004. Flights are divided into groups by the length of the flight, with short-haul flights (0-932 miles), medium-haul (933-2,175 mi) and long-haul flights. If passengers are delayed more than 2, 3 or 4 hours respectively, they are eligible to receive:

- Meals and drinks in a quantity proportional to the total delay time;
- Hotel accommodation if a stay overnight is necessary;
- Transportation to and from the airport; and
- Telephone calls, fax messages, or emails

Exhibits and Appendices

If the total delay exceeds five hours (including long-haul flight operations) and passengers choose not to travel, they are entitled to a full refund of the unused portion of their tickets under E.U. rules, and if necessary, a return flight to their point of origin.

Table A: EU 261/2004 Compensation Levels, Flight Delays

Source: EU 261/2004, 17-2-2004 L46/4 (Article 6)

	Short-Haul	Medium-Haul	Long-Haul
Definition	Less than 1,500 km (< 932 mi)	1,500-3,500 km (933-2,175 mi)	3,500 km or more (2,176 mi or more)
Delay Threshold	2 hours	3 hours	4 hours
Hotel if necessary	☐	☐	☐
Transportation	☐	☐	☐
Phone Calls	☐	☐	☐
Meals	☐	☐	☐
Fare refund	If >5 hour delay	If >5 hour delay	If >5 hour delay

Flight Cancellations. Table B below summarizes obligations to passengers on cancelled flights. When a flight is cancelled, airlines must provide care to passengers (hotel, food and transportation) as shown in Table B above. In addition, airlines have cash liability to passengers, unless the airline can prove that the flight cancellation was caused by factors outside of the airline’s control. In contrast, U.S. rules do not compensate passengers for cancellations, although airlines must provide a full refund to passengers if the cancellation disrupts travel.

As Table B lists, flight compensation is divided into the same three intervals of short-, medium- and long-haul flights. The airline faces two fine levels: if they can re-route passengers such that their new arrival times are not more than 2, 3, or 4 hours respectively from the original itinerary, the carriers pay half the fine. If passengers cannot be re-accommodated in that time window, the higher fine levels apply, up to \$848 for passengers on long-haul flights.

Table B: EU 261/2004 Compensation Levels, Flight Cancellations

Source: EU 261/2004, 17-2-2004 L46/5 (Article 7)

	Short-Haul	Medium-Haul	Long-Haul
Definition	Less than 1,500 km (< 932 mi)	1,500-3,500 km (933-2,175 mi)	3,500 km or more (2,176 mi or more)
Re-route passengers within X hours of original schedule	2 hours	3 hours	4 hours
If re-route within given time period	125 EUR (\$176)	200 EUR (\$283)	300 EUR (\$424)
If not re-routed within time period	250 EUR (\$352)	400 EUR (\$566)	600 EUR (\$848)

Given the magnitude of EU fines in the event of flight cancellations, airlines have a strong incentive to avoid cancellations. In either case (delay or cancel) the airline is liable for hotel, meals and other “care” for the passenger. From a public policy perspective, this creates significant challenges for both airlines and regulators. Is an airline preference for delays over cancellations a positive outcome for society and public welfare? While there is little debate that EU passenger regulations add cost, an important component to assessing the public policy of the rules is estimating the magnitude of added cost. GAO notes that while academic studies have estimated the cost of compliance from 0.1 to 0.5 percent of annual revenue for European carriers, airlines and trade associations have maintained that “airlines’ cost of compliance exceeds this estimate.”⁴³ The passenger protections create financial burdens for airlines for events both within and outside of their control. The question is how much of a burden it creates.

We modeled the application of EU-261/2004 onto U.S. carrier delays and cancellations, with one important difference. For flight delays, we assumed that flight delays caused by severe weather events would not be subject to compensation. Given the severity of convective thunderstorm and winter storms in the United States versus Europe, creating penalties for airlines that choose not to operate in unsafe conditions would be inconsistent with our national focus on safety above all other factors. In tallying the number of cancelled and delayed flights to which EU rules could apply, we therefore exclude from *both* categories flights for which the airline lists severe weather as the primary cause of the event.

Calculating flight exposure for U.S. carriers. We first examine the DOT Part 234 ASQP data set for the full-year 2010 and segregate the 6.438 million flight records individually into three categories: short-haul flights (0-950 miles), medium haul flights (951-2,249) and long-haul flights (2,250 mi or greater). In 2010, there were a total of 4.8 million short-haul flights reported under ASQP, of which 58,018 cancelled for reasons outside of carriers’ control, and of which approximately 70,000 were delayed more than two hours. The average seat count per departure was 98.7 seats. Note that regional flight operations are under-reported relative to mainline flights, and that adjustment of this average seat count is required.

Within each segment length bucket, we identify total flight cancellations, due to factors within the airline’s control (carrier-coded) and those outside the airline’s control (weather, airspace, or security coded). For flight delays, we break into hourly categories, including 2-3 hour delays, 3-4 hours, 4-5 hours, and 5+ hours. We exempt only those delays coded for weather (we treat late arriving aircraft as a carrier-controlled delay factor for compensation purposes). On a flight-by-flight basis, we match the tail number or scheduled aircraft type for that operation with the total seat capacity and estimate the number of passengers on board based on T-100 segment information. See Table C below.

⁴³ GAO-11-783 p46

Table C: Estimating At-Risk U.S. Short-Haul Flights (less than 950 miles)

Source: 2010 Full Year Part 234 Flight Reports (Domestic 1% Revenue Carriers)

	All Flights	Exempt	Liabe
Total Flights Operated	4,798,634		
Average Seats per Flight	98.7		
Cancellations	93,474	58,018	35,456
Departure Delays: 2-3 hours	50,217	4,977	45,240
Departure Delays: 3-4 hours	17,037	2,029	15,008
Departure Delays: 4-5 hours	6,109	809	5,300
Departure Delays: 5+ hours	4,580	516	4,064
Total		66,349	105,068

For medium-haul flights, there were a total of 1.4 million domestic medium-haul operations by reporting U.S. carriers. Of these, 5,222 cancelled for reasons inside the airlines' control. About 6,000 flights were delayed more than three hours, as Table 36 below shows.

Table D: Estimating At-Risk U.S. Medium-Haul Flights (951-2,249 miles)

Source: 2010 Full Year Part 234 Flight Reports (Domestic 1% Revenue Carriers)

	All Flights	Exempt	Liabe
Total Flights Operated	1,419,880		
Average Seats per Flight	143.1		
Cancellations	15,794	10,572	5,222
Departure Delays: 2-3 hours	13,546	1,363	12,183
Departure Delays: 3-4 hours	4,647	594	4,053
Departure Delays: 4-5 hours	1,844	209	1,635
Departure Delays: 5+ hours	1,699	153	1,546
Total		12,891	24,639

Finally, Table E below lists comparable metrics for long-haul flights.

Table E: Estimating At-Risk U.S. Long-Haul Flights (2,250 miles or greater)

Source: 2010 Full Year Part 234 Flight Reports (Domestic 1% Revenue Carriers)

	All Flights	Exempt	Liabe
Total Flights Operated	220,073		
Average Seats per Flight	178.2		
Cancellations	2,444	1,640	804
Departure Delays: 2-3 hours	2,253	136	2,117
Departure Delays: 3-4 hours	961	62	899
Departure Delays: 4-5 hours	440	37	403
Departure Delays: 5+ hours	396	15	381
Total		1,890	4,604

Scaling Data to Reflect Non-Reporting Carriers. Given that ASQP data reflects only reporting airlines, we then scale each category of flights in order to account for non-reporting regional airlines and international flights. We use August 2011 OAG data as a proxy for 2010 schedules, comparing average seats on reported and non-reported flights.

For short-haul flights, Table F illustrates this scaling. In addition to the 173,902 reported flights, there were another 187,902 non-reported flight operations. Almost all of these non-reported flights were regional operations, as the average non-reported flight capacity was 53 seats per flight. Scaling cancellation and delay metrics linearly for non-reported flights, we estimate a total nationwide of 73,766 flight cancellations due to controllable reasons per year, and a total of about 145,000 flight delays for which airlines would face compensation or care.

Table F: Scaling Reported Flights for All U.S. Carriers, Short Haul (0-950 mi)

Source: 2010 Full Year Part 234 and OAG Scheduled Flights

Full-Year 2010 Flights (Short-Haul, 0-950 miles)	
Reported Short-Haul	173,902
Non-Reported Short Haul	187,902
Reported as % of All	48%
Seats/Flight	53
Total Reported, 2010	4,798,634
Non-Reported Flights	5,184,949
Total Flights	9,983,583
New Average Seats	75
Cancellations, Scaled	73,766
2-3 Hr Delays, Scaled	94,122
3-4 Hr Delays, Scaled	31,224
4-5 Hr Delays, Scaled	11,027
5+ Hr Delays, Scaled	8,455

For medium-haul flights, we use the same methodology. Unlike short-haul flying, almost 90% of medium-haul flying is done by carriers that report operating statistics to DOT under the Part 234 ASQP program. Little adjustment is therefore required; total cancellations for this group are 5,842 and total delays over three hours are about 8,000 flights.

Table G: Scaling Reported Flights for All U.S. Carriers, Medium Haul (951-2,249 mi)

Source: 2010 Full Year Part 234 and OAG Scheduled Flights

Full-Year 2010 Flights (Medium-Haul, 951-2,249 miles)	
Reported Medium-Haul	163,918
Non-Reported Medium Haul	19,453
Reported as % of All	89%
Seats/Flight	137
Total Reported, 2010	1,419,880
Non-Reported Flights	168,505
Total Flights	1,588,385
New Average Seats	142
Cancellations, Scaled	5,842
3-4 Hr Delays, Scaled	4,534
4-5 Hr Delays, Scaled	1,829
5+ Hr Delays, Scaled	1,729

Finally, we apply the same logic to long-haul flights. 83% of long-haul flights by U.S. carriers are reported in the DOT database. Aircraft utilized are large, multi-cabin planes. We calculate a total of 967 cancellations annually for which U.S. carriers would be liable, plus approximately 1,000 delays per year.

Table H: Scaling Reported Flights for All U.S. Carriers, Long Haul (2,250 mi or more)

Source: 2010 Full Year Part 234 and OAG Scheduled Flights

Full-Year 2010 Flights (Long-Haul, 2,250 miles or more)	
Reported Long-Haul	203,622
Non-Reported Long Haul	41,287
Reported as % of All	83%
Seats/Flight	172
Total Reported, 2010	220,073
Non-Reported Flights	44,623
Total Flights	264,696
New Average Seats	177
Cancellations, Scaled	967
4-5 Hr Delays, Scaled	485
5+ Hr Delays, Scaled	458

Estimating the cost of delays. We assume that cancellations require *only* cancellation payments, while delays require *only* delay compensation. For cancellations, we assume compensation levels of \$350 for short-haul cancellations, \$550 for medium-haul flights, and \$800 for long-haul flights. We assume that 25% of short-haul passengers are re-accommodated within the given 2-hour window, 15% of medium-haul passengers within the three-hour window, and 10% of long-haul within the four-hour window. Table 41 lists our estimates for total compensation on cancelled flights. **We estimate total compensation paid by U.S. carriers**

under an EU-like regime would total \$734.8 million annually, with the significant majority paid for short-haul flight cancellations.

Table I: Calculating Compensation for Cancelled Flights
Source: 2010 Full Year Part 234 and OAG Scheduled Flights

	Short	Medium	Long	Total
Compensation	\$350	\$550	\$800	
Passenger Segments (000s)	4,153	666	146	4,965
Passenger Itineraries (1.37:1)	3,032	486	106	3,624
Rebooking Window	2	3	4	
% Rebooked w/o penalty	25%	15%	10%	
Penalty Passengers	2,274	413	96	2,782
% Rebooked in Window	75%	50%	25%	
Payments (mm)	\$298.4	\$56.8	\$9.6	\$364.8
% Not Rebooked in Window				
Payments (mm)	\$199.0	\$113.6	\$57.4	\$370.0
Total Compensation Paid	\$497.4	\$170.4	\$67.0	\$734.8

Estimating the cost of cancellations. Table J below lists our estimates for total delay consideration to be paid under an EU-like compensation regime for U.S. airlines. We find that total services provided to passengers (including hotels, meals and transportation) would total \$152 million per year.

Table J: Calculating Compensation for Delayed Flights
Source: 2010 Full Year Part 234 and OAG Scheduled Flights

	Short	Medium	Long	Total
Liability Threshold (hr)	2	3	4	
Delayed beyond Thrsh.	144,828	8,092	943	153,864
Impacted Pax. Segments	8,154,397	922,208	142,068	9,218,673
Impacted Itineraries	5,952,115	673,144	103,699	6,728,959
Meal Cost:				
Total Meals	5,952,115	673,144	207,398	6,832,658
Total Spend (mm)	\$89.3	\$10.1	\$3.1	\$102.5
Hotel Cost:				
Total Hotel Rooms	297,606	67,314	15,555	380,475
Total Spend (mm)	\$37.2	\$8.4	\$1.9	\$47.6
Transportation Cost:				
Total Transport Given	0	67,314	20,740	88,054
Total Spend (mm)	\$0.0	\$1.3	\$0.4	\$1.8

Conclusions. We estimate that an EU-style passenger protection regime in the United States would drive **total cost increases to U.S. carriers of \$886.6 million per year**, of which the significant majority would be driven by cancellation payments.

Table K: Total Annual Cost if EU-261/2004 Applied to U.S Airlines

Source: 2010 Full Year Part 234 and OAG Scheduled Flights

Cancellation Compensation, Annually	\$734.8
Delay Compensation, Annually	\$151.8
Total EU-Style Compensation Cost	\$886.6
Enplaned Domestic Passengers (mm)	629.5
Cost per Enplanement	\$1.41
Cost per round-trip ticket (average)	\$3.86

These estimates are based on 2010 traffic levels. In 2010, we estimate total base passenger revenue (not including ancillary revenue, cargo, charter, and other revenue sources for airlines) at \$74.8 billion for domestic flight operations, plus an additional \$34.9 billion for international flights. Applying \$886 million of incremental cost would reflect a total burden of 0.8% of revenue, within the estimated range from previous academic studies and airline analysis. As we review in the next section, however, a cumulative cost (and fare) increase of 0.8% would have a significantly negative impact on nationwide air service demand.

There is a significant cost to **local economies** as well. We estimate that imposing EU-style protections would **cost local economies \$2.6 billion annually** as higher fares suppress passenger demand. Hardest-hit markets would include Orlando (\$102.7 million negative impact), Las Vegas (\$95.5 million) and Denver (\$83.6 million).

EU Passenger Regulations: Summary

- There has been recent debate in Washington about applying European Union-style passenger protections to the U.S. domestic market. GAO concluded in September 2011 that such measures would significantly increase airline costs and airfares. We modeled the impact to quantify this damage to consumers.
- **Applying EU rules** for flight delays (hotels, meals, transportation, and other care provisions) and flight cancellations (cash payments to consumers) **would add \$886.6 million per year in cost to U.S. airlines, or \$3.86 per round-trip ticket.**
- Fundamentally, EU passenger regulations are incompatible with current DOT policy. EU rules encourage airlines to avoid cancellations, instead delaying flights until they can be completed (and caring for passengers in the meantime). DOT policy currently encourages airlines to cancel flights when on-time performance or tarmac delays are risked. DOT reports intricate detail monthly on on-time flight performance with little detail on cancellations and *no attention whatsoever* to flight completion rates.
- Imposing EU-style protections would cost local economies \$2.6 billion annually as higher fares suppress passenger demand. Hardest-hit markets would include Orlando (\$102.7 million negative impact), Las Vegas (\$95.5 million) and Denver (\$83.6 million).

APPENDIX 5: MARKET IMPACT FROM CHANGES IN TAXES, PFCs AND CONSUMER REGULATIONS 2009-2011

<u>Tax</u>	<u>Tax Description</u>	<u>2010</u>	<u>2014</u>	<u>Change</u>
PFCs	Airport Passenger Facilities Charge	\$4.38	\$5.00	\$0.62
TSA	9/11 Passenger Security Fee	\$2.50	\$5.00	\$2.50
NEW	\$100 Per Flight, Per Passenger Departure	\$0.00	\$1.27	\$1.27
EAPP-2	EAPP-2 Consumer Regulations	\$0.00	\$2.69	\$2.69
Total Change in Fare and Taxes				\$7.08

<u>ARRIVING</u>		<u>LOCAL</u>		<u>2010</u>				<u>Change from Taxes</u>				<u>Annual Change In:</u>			<u>Total</u>
<u>PAX</u>	<u>LOSS</u>	<u>Code</u>	<u>Airport Name</u>	<u>Av. Fare</u>	<u>Arr. Pax</u>	<u>Local %</u>	<u>% P</u>	<u>% Q</u>	<u>% Traffic</u>	<u>Visitors</u>	<u>PFC</u>	<u>Economy</u>	<u>Sales Tax</u>	<u>Local Impact</u>	
1	5	ATL	Atlanta Hartsfield-Jackson Intl Apt, GA	\$175	38,439,845	32%	4.0%	-4.4%	-1,709,923	-542,447	15,283,087	-271,223,465	-13,561,173	-269,501,552	
2	6	ORD	Chicago O'Hare International Apt, IL	\$189	27,016,357	46%	3.7%	-4.1%	-1,113,455	-514,687	11,182,867	-257,343,547	-12,867,177	-259,027,857	
3	13	DFW	Dallas/Fort Worth Intl Apt, TX	\$211	24,542,248	40%	3.4%	-3.7%	-907,078	-366,278	10,680,804	-183,139,220	-9,156,961	-181,615,377	
4	3	DEN	Denver Intl Apt, CO	\$162	24,213,843	49%	4.4%	-4.8%	-1,163,738	-574,347	9,193,892	-287,173,723	-14,358,686	-292,338,517	
5	4	LAX	Los Angeles International Apt, CA	\$210	21,175,934	72%	3.4%	-3.7%	-785,711	-564,415	9,200,524	-282,207,329	-14,110,366	-287,117,171	
6	7	PHX	Phoenix Sky Harbor Intl Apt, AZ	\$177	17,831,809	58%	4.0%	-4.4%	-784,864	-453,333	7,131,402	-226,666,683	-11,333,334	-230,868,616	
7	2	LAS	Las Vegas McCarran International Apt, NV	\$166	17,752,819	79%	4.3%	-4.7%	-834,677	-660,864	6,833,364	-330,431,767	-16,521,588	-340,119,991	
8	37	CLT	Charlotte, NC	\$197	17,358,331	25%	3.6%	-4.0%	-687,473	-174,884	7,324,802	-87,441,770	-4,372,088	-84,489,056	
9	1	MCO	Orlando International Apt, FL	\$148	15,518,236	87%	4.8%	-5.3%	-816,296	-711,262	5,539,824	-355,631,164	-17,781,558	-367,872,898	
10	27	IAH	Houston George Bush Intercontinental Ap, TX	\$224	15,366,657	38%	3.2%	-3.5%	-534,348	-204,273	6,855,585	-102,136,296	-5,106,815	-100,387,526	
11	11	SFO	San Francisco International Apt, CA	\$214	15,052,655	75%	3.3%	-3.6%	-549,258	-412,591	6,586,354	-206,295,699	-10,314,785	-210,024,129	
12	20	MSP	Minneapolis International Apt, MN	\$199	14,369,312	50%	3.6%	-3.9%	-561,527	-280,662	6,101,339	-140,330,988	-7,016,549	-141,246,198	
13	21	DTW	Detroit Wayne County, MI	\$187	14,205,157	46%	3.8%	-4.2%	-590,659	-271,523	5,853,904	-135,761,407	-6,788,070	-136,695,573	
14	14	SEA	Seattle/Tacoma International Apt, WA	\$218	14,030,506	71%	3.3%	-3.6%	-501,949	-354,958	6,189,171	-177,479,127	-8,873,956	-180,163,912	
15	18	PHL	Philadelphia International Apt, PA	\$191	13,171,439	60%	3.7%	-4.1%	-536,290	-319,850	5,484,843	-159,924,991	-7,996,250	-162,436,398	
16	10	BOS	Boston Logan International Apt, MA	\$187	11,736,605	90%	3.8%	-4.2%	-488,162	-440,130	4,835,885	-220,065,070	-11,003,254	-226,232,439	
17	16	JFK	New York J F Kennedy International Apt, NY	\$204	11,628,232	72%	3.5%	-3.8%	-444,636	-321,953	4,986,324	-160,976,606	-8,048,830	-164,039,112	
18	8	LGA	New York La Guardia Apt, NY	\$178	11,406,514	89%	4.0%	-4.4%	-500,419	-446,029	4,569,944	-223,014,623	-11,150,731	-229,595,410	
19	22	EWR	Newark Liberty International Apt, NJ	\$232	10,837,843	71%	3.1%	-3.4%	-364,635	-259,848	4,896,285	-129,923,881	-6,496,194	-131,523,790	
20	12	BWI	Baltimore Washington International Apt, MD	\$159	10,534,612	76%	4.4%	-4.9%	-515,577	-392,299	3,953,577	-196,149,732	-9,807,487	-202,003,642	
21	29	SLC	Salt Lake City, UT	\$185	9,655,517	48%	3.8%	-4.2%	-406,733	-195,177	3,952,756	-97,588,744	-4,879,437	-98,515,425	
22	9	FLL	Fort Lauderdale/Hollywood Intl Apt, FL	\$150	9,159,877	92%	4.7%	-5.2%	-476,147	-439,526	3,298,389	-219,763,216	-10,988,161	-227,452,988	
23	30	MIA	Miami International Apt, FL	\$186	8,655,904	52%	3.8%	-4.2%	-363,220	-187,477	3,550,560	-93,738,545	-4,686,927	-94,874,912	
24	23	DCA	Washington Ronald Reagan National Apt, DC	\$209	8,614,408	77%	3.4%	-3.7%	-320,610	-247,772	3,737,883	-123,885,864	-6,194,293	-126,342,275	
25	19	MDW	Chicago Midway Apt, IL	\$149	8,485,119	66%	4.8%	-5.2%	-444,184	-294,574	3,039,853	-147,286,961	-7,364,348	-151,611,455	