The impact of infrastructure-related taxes and fees on domestic fares

MIT Global Airline Industry Program and Daniel Webster College

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Background

- Increased concern about proliferation of ticket taxes and fees
  - Airlines
  - U.S. Congress
  - European Commission
- Industry and media report tax as ≥25%
- Objective:
  - Study the size of infrastructure/security taxes and fees in absolute terms and relative to the total ticket price in the U.S. and in Europe
  - Measure both aggregate and distributive impacts
Industry testimonials

- “Taxes/Fees now add 26% to the price of a ticket, a 145% increase over 10 years”
  – Richard Anderson, CEO, Northwest Airlines

- “Taxes and fees already make up 26% of the total cost of an airline ticket”
  – Sen. John McCain (R-Ariz.)

- “Taxes now represent 24% of the price of the average ticket, a higher rate than liquor and tobacco taxes”
  – Duane Woerth, President, ALPA Int’l
## U.S. ticket taxes and fees

<table>
<thead>
<tr>
<th>Tax/Fee</th>
<th>Symbol</th>
<th>Rate</th>
<th>Recipient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal ticket tax</td>
<td>FTT</td>
<td>7.5%</td>
<td>Airport and Airway Trust Fund</td>
</tr>
<tr>
<td>Federal segment tax</td>
<td>FST</td>
<td>$3 per segment</td>
<td>Collecting airport</td>
</tr>
<tr>
<td>Passenger facility charge</td>
<td>PFC</td>
<td>$3 or $4.50 per enpl.</td>
<td>Collecting airport</td>
</tr>
<tr>
<td>Federal security service fee</td>
<td>FSSF</td>
<td>$2.50 per enpl.</td>
<td>TSA</td>
</tr>
</tbody>
</table>

**Notes:**
- Rates effective 2002-2003
- Only includes domestic taxes and fees added directly to the price of tickets
- PFC and FSSF collection limited to first 2 enplanements per one-way trip
- Rural airports exempt from some taxes
- Special FST & FTT rules exist for Alaska and Hawaii
- FSSF temporarily suspended from June 1 to September 30, 2003
Definitions

- Total taxes and fees:

\[ TTF = FTT + FST + FSSF + PFC \]

- Effective tax rate:

\[ ETR = \frac{E(TTF)}{E(BF)} \times 100\% \]
<table>
<thead>
<tr>
<th>Tax</th>
<th>Rate</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>International arrival tax</td>
<td>$13.70</td>
<td>Per arriving international passenger</td>
</tr>
<tr>
<td>International departure tax</td>
<td>$13.70</td>
<td>Per departing international passenger</td>
</tr>
<tr>
<td>Immigration user fee</td>
<td>$7.00</td>
<td>Per arriving international passenger</td>
</tr>
<tr>
<td>Customs user fee</td>
<td>$5.00</td>
<td>Per arriving international passenger</td>
</tr>
<tr>
<td>Animal and plant health inspection service</td>
<td>$3.10</td>
<td>Per arriving international passenger</td>
</tr>
<tr>
<td>Animal and plant health inspection service</td>
<td>$65.25</td>
<td>Per arriving international aircraft</td>
</tr>
<tr>
<td>aircraft fee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jet fuel tax</td>
<td>$0.043</td>
<td>Per gallon</td>
</tr>
<tr>
<td>Leaking underground storage tank fuel tax</td>
<td>$0.001</td>
<td>Per gallon</td>
</tr>
<tr>
<td>Air carrier security fee</td>
<td>Varies</td>
<td>Per carrier (based on actual 2000 screening costs)</td>
</tr>
<tr>
<td>Cargo waybill tax</td>
<td>6.25%</td>
<td>Domestic freight waybill</td>
</tr>
<tr>
<td>Frequent flyer tax</td>
<td>7.5%</td>
<td>Sale of the right to award frequent flyer miles to third parties</td>
</tr>
</tbody>
</table>

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Methodology

- **DB1A: DOT Origin and Destination Data Bank 1A Ticket Dollar Value database**
  - Includes all tickets ending with “0” (aka “10% ticket sample”)
  - 2nd Quarter of 2002: 2.5 million tickets
  - Note: DB1A only reports total fare

Breakdown of Fare, Tax, and Fee

A. PFCs = \( f \) (airports in itinerary)
B. FSSF = $2.50 x number of segments
C. FST = $3.00 x number of segments
D. FTT = 0.075 x BF
E. BF = (Total – (PFC+FSSF+FST)) / 1.075

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Data filters

- Scope of study limited to:
  - Domestic market in 48 contiguous States
  - O-D markets with at least 10 pax/day
  - Tickets with 1 or 2 segments per one-way

- A significant number of fares were found to be zero, unusually low, or unusually high
  - Frequent flyer and other promotional awards
  - Use of $9999 as “code” (e.g., bulk purchases)
  - Bad data
## Fare filters

<table>
<thead>
<tr>
<th>Filter step</th>
<th>Filter description</th>
<th>Records remaining</th>
<th>Pax remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>Original DB1A(^*) data: One-way trips with 1 or 2 segments</td>
<td>4,138,971</td>
<td>9,615,741</td>
</tr>
<tr>
<td>1</td>
<td>Market filter</td>
<td>3,628,537</td>
<td>8,697,248</td>
</tr>
</tbody>
</table>
| 2           | Minimum fare per distance (D) filter:  
  For D < 100 mi, drop total fares < 10 ¢/mi  
  For 100 mi ≤ D < 200 mi, drop total fares < 8 ¢/mi  
  For 200 mi ≤ D < 300 mi, drop total fares < 6 ¢/mi  
  For 300 mi ≤ D < 400 mi, drop total fares < 5 ¢/mi  
  For any D, drop total fares < 4¢/mi | 3,339,097 | 7,900,610 |
| 3           | Minimum fare rule: Drop base fares < $30 | 3,316,355 | 7,842,225 |
| 4           | Maximum fare rule: Drop base fares > $2,500 | 3,315,662 | 7,840,804 |

Note: All filter limits are based on one-way fares

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# Results

<table>
<thead>
<tr>
<th>BF</th>
<th>TTF</th>
<th>FTT</th>
<th>FST</th>
<th>PFC</th>
<th>FSSF</th>
<th>ETR</th>
</tr>
</thead>
<tbody>
<tr>
<td>$289.96</td>
<td>$44.88</td>
<td>$21.75</td>
<td>$7.93</td>
<td>$8.60</td>
<td>$6.61</td>
<td>15.5%</td>
</tr>
</tbody>
</table>

Notes:
- All results for 2Q 02
- Results expressed on a round-trip basis
  - DB1A records are always expressed as one-way trips
  - We double fare and tax computations to convert to round-trip basis
  - Includes 8.3% of records that represent “true” one-way flights

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**Distribution of taxes**

![Bar chart showing the distribution of taxes with 26% of the share of pax at 0% ETR.](image)
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...and low-cost carriers (but less than expected)

<table>
<thead>
<tr>
<th>Carrier type</th>
<th>BF</th>
<th>TTF</th>
<th>FTT</th>
<th>FST</th>
<th>PFC</th>
<th>FSSF</th>
<th>ETR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-cost</td>
<td>$198.17</td>
<td>$33.94</td>
<td>$14.86</td>
<td>$6.80</td>
<td>$6.60</td>
<td>$5.67</td>
<td>17.1%</td>
</tr>
<tr>
<td>Major</td>
<td>$335.67</td>
<td>$48.88</td>
<td>$25.18</td>
<td>$7.97</td>
<td>$9.10</td>
<td>$6.64</td>
<td>14.6%</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Quarter</th>
<th>BF</th>
<th>TTF</th>
<th>FTT</th>
<th>FST</th>
<th>PFC</th>
<th>FSSF</th>
<th>ETR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2Q 1993</td>
<td>($312.91)</td>
<td>($34.09)</td>
<td>($31.29)</td>
<td>-</td>
<td>($2.80)</td>
<td>-</td>
<td>10.9%</td>
</tr>
<tr>
<td></td>
<td>$389.57</td>
<td>$42.44</td>
<td>$38.96</td>
<td></td>
<td>$3.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Q 2002</td>
<td>$289.96</td>
<td>$44.88</td>
<td>$21.75</td>
<td>$7.93</td>
<td>$8.60</td>
<td>$6.61</td>
<td>15.5%</td>
</tr>
</tbody>
</table>

- In real terms:
  - The average total taxes and fees per ticket has increased by only $2.44 or 5.7%
  - Base fare has decreased by $100 or 26% (!)

Notes:
- Results expressed on a round-trip basis
- 2002 dollars, except results in parentheses, which are 1993 dollars
Conclusions

- The effective tax rate on all domestic tickets in the U.S. is in 15.4%–16.3% range
- Ticket taxes have the greatest impact on the lowest fares; however, impact on low-cost carriers is somewhat mitigated
- Ticket taxes are relatively insensitive to O-D distance traveled
Conclusions (cont.)

- Tax rate has increased from 10.9% to 15.5% over last ten years, but this is due primarily to decrease in fares, not increase in taxes.
- Federal ticket taxes, PFCs, and security fees are almost certainly not a significant factor in the decline of business travel.
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