COMPASS LEXECON

Impact of Terminal Financing Options on Demand at Sea-Tac

May 27, 2014

Presentation Overview

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1. Overview and Summary of Findings

Overview

- CompassLexecon is a leading international economic consulting firm, providing analysis and advice to clients in both the private and public sectors around the world.

- Dan Kasper has been a recognized expert on airline and aviation economics for over 30 years and has frequently consulted with government agencies and aviation clients. He has served on the faculty of the Harvard Business School and the Univ. of Southern California, as a senior executive at the U.S. Civil Aeronautics Board, and as a Member of the U.S. National Airline Commission.

Overview (cont.)

- We were asked to assess the impact on domestic traffic at Sea-Tac International Airport ("SEA") of two alternative terminal financing options for improvements under consideration to the international (IAF) and domestic (Northstar) terminal facilities.

- In particular, we were asked to assess the likely effects on traffic in light of the elasticity of demand for air travel.

Overview (cont.)

- For comparison purposes, we analyzed two hypothetical financing approaches.
  - One approach—the "unequal" approach—would require that Northstar improvements be financed with a higher percentage of bond financing and a lower percentage of "equity" (e.g., PFC) funding than would be used for IAF.
  - Under the "equalized" approach, Northstar would be financed using the same proportions of debt and equity as proposed for IAF under the "unequal" approach.
- The "unequal" approach would raise the cost per domestic passenger by $0.67 compared to an alternative ("equalized") approach that utilized the same percentages of bond and "equity" financing for these projects.

Summary of Findings

- It is well-established in the economic literature that demand for domestic air travel is *both* price elastic and *more* price elastic than the demand for international air travel.
- As a consequence, higher airport costs resulting from the "unequal" financing option can be expected to reduce domestic traffic at SEA by proportionally more than a comparable increase would reduce international traffic.

Summary of Findings (cont.)

- Our analysis shows that after taking account of demand elasticities:
  - *The reduction in domestic demand caused by the increase in domestic passenger costs under the "unequal" financing method would significantly reduce domestic traffic at SEA compared to the "equalized" financing approach.*
  - *The loss in domestic traffic at SEA would be substantially greater than the loss in traffic caused by a comparable cost increase for international traffic.*

2. Results of Economic Research on Airline Demand Elasticity

It Is Well-Documented That Domestic Demand Is More Price-Elastic Than International Demand

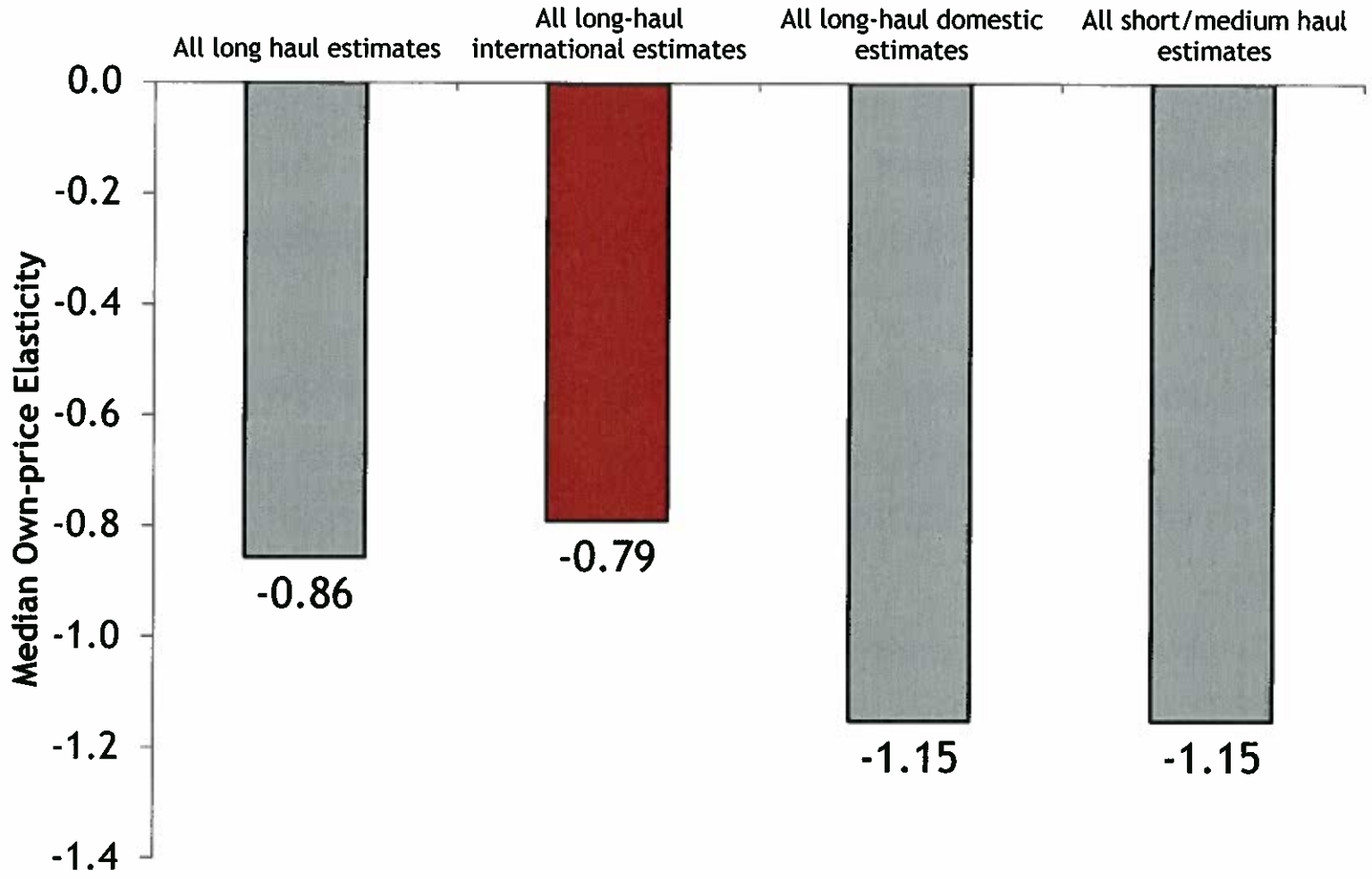
- Demand elasticity measures consumers responsiveness to a change in price.
  - In this context, an elasticity estimate can be interpreted as the percent reduction in traffic for a one percent increase in price (other things equal).
  - Larger (more negative) elasticity values indicate that consumers are more responsive to changes in price.
- Demand elasticity often reflects the availability of alternate options.
  - Domestic passengers in the U.S. typically have more options—including low cost carriers and surface transportation—than passengers traveling internationally.
  - Similarly, short-haul passengers tend to have more elastic demand, in part because of more competing options (including surface transportation).

Numerous Studies Demonstrate That Demand for Domestic Air Travel Is More Price-Elastic Than Demand for International Air Travel

- Peer reviewed studies have consistently found that the demand for domestic air travel is more price elastic than the demand for international air travel.
  - In other words, domestic travelers are, on average, considerably more price sensitive than are international travelers.
- Our figures are taken from a comprehensive review of airline demand elasticity studies by Gillen, Morrison and Stewart* and show the median elasticity estimates from a large number of airline elasticity studies.
  - Their review finds a median long-haul international elasticity of -0.79 and a domestic elasticity of -1.15.
  - Other studies find similar results. For example, a 2007 Intervistas study** finds a trans-Pacific elasticity of -0.84 versus a domestic elasticity between -1.4 and -1.54, while Berry and Jia (2010)*** find a domestic elasticity of -1.67.

*D. Gillen, W.G. Morrison and C. Stewart, Air Travel Demand Elasticities: Concepts, Issues and Measurement, in *Advances in Airline Economics, Vol. 2*, ed. Darin Lee, 2007. p 390 .
**InterVISTAS Consulting (prepard for IATA), Estimating Air Travel Demand Elasticities, Final Report, 2007. p v. Route/Market level elasticities.
***Steven Berry and Panle Jia, "Tracing the Woes: An Empirical Analysis of the Airline Industry", *American Economic Journal: Microeconomics*, Vol. 2, No. 3 (August 2010), pp. 1-43

Airline Demand Elasticities from Gillen, et al



Source: D. Gillen, W.G. Morrison and C. Stewart, Air Travel Demand Elasticities: Concepts, Issues and Measurement, in *Advances in Airline Economics, Vol 2*, ed. Darin Lee, 2007. p 390

3. Impact of Alternative Financing Options on Domestic Passenger Traffic at SEA

Comparison of Terminal Financing Alternatives

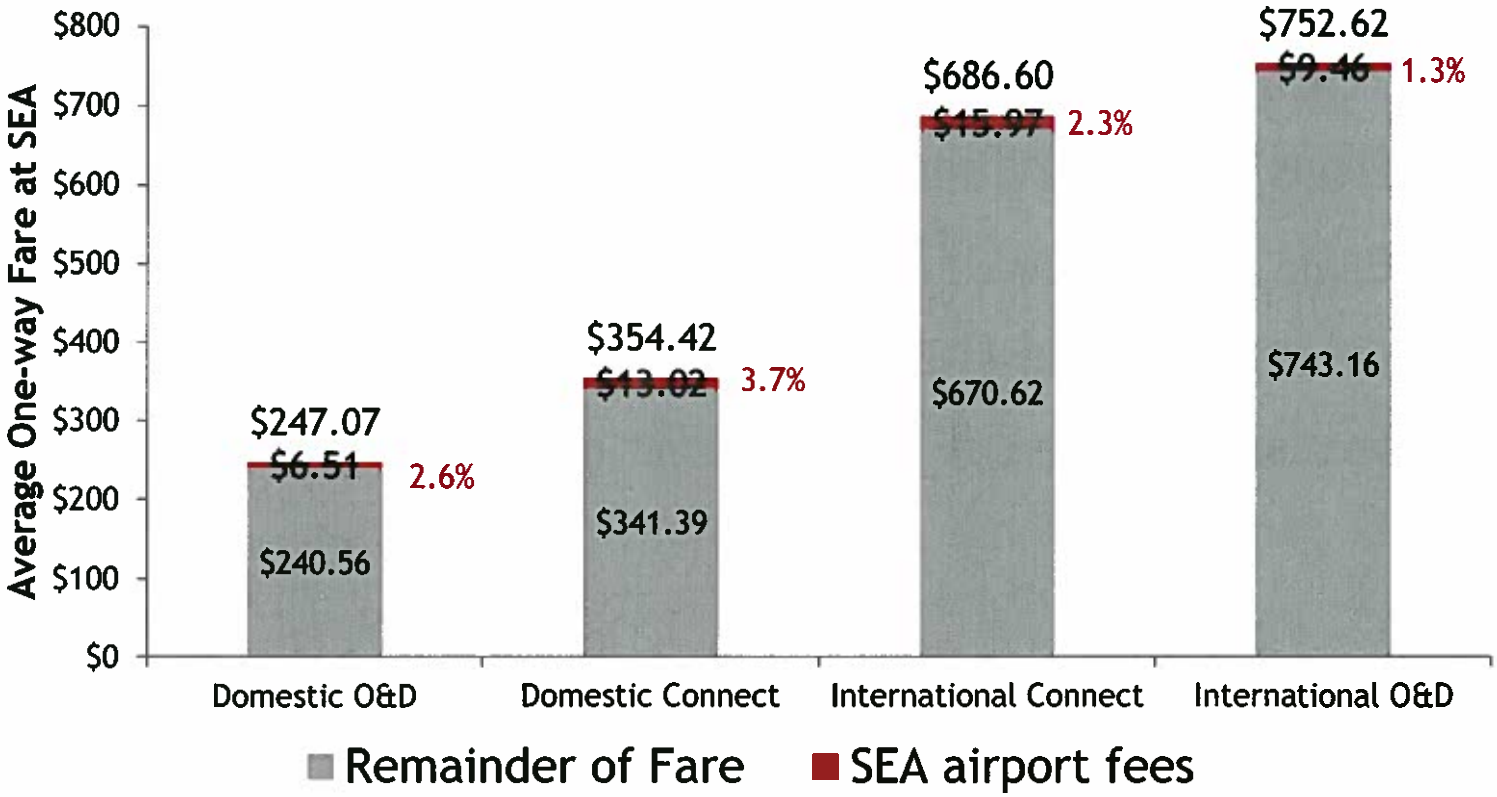
Unequal Financing

- Improvements to International Arrival Facility (IAF) funded through a combination of PFCs, the Airport Development Fund (ADF), and Bonds. NorthSTAR improvements are funded principally by bonds with little or no ADF and PFC funding.
- 2020 FIS rate estimated to be $11.55 per passenger.

Equalized Financing

- Uses the same percentage of financing from bonds, PFCs and ADF for both IAF and NorthSTAR.
- Fees for other cost centers would be reduced. Assuming 85% of the reduction is from domestic carriers, domestic CPE would decrease by $0.67 compared to unequal financing option.

Airport Fees Constitute A Higher Proportion of Total Ticket Costs For Domestic Than International Passengers



Source: US DOT O&D Survey YE 2013-Q3. FAA Form 127 data, 2012; U.S. DOT t100; airport annual and financial reports.
Note: Average one-way fares to/from or connecting at SEA. Includes taxes and fees. Passengers connecting to/from international flights at SEA are international connect passengers. International O&D passengers are O&D passengers at SEA with an international segment to/from SEA. Airport fees per ticket based on passenger airline cost per enplanement at SEA 2012, with FIS fees allocated to international passengers.

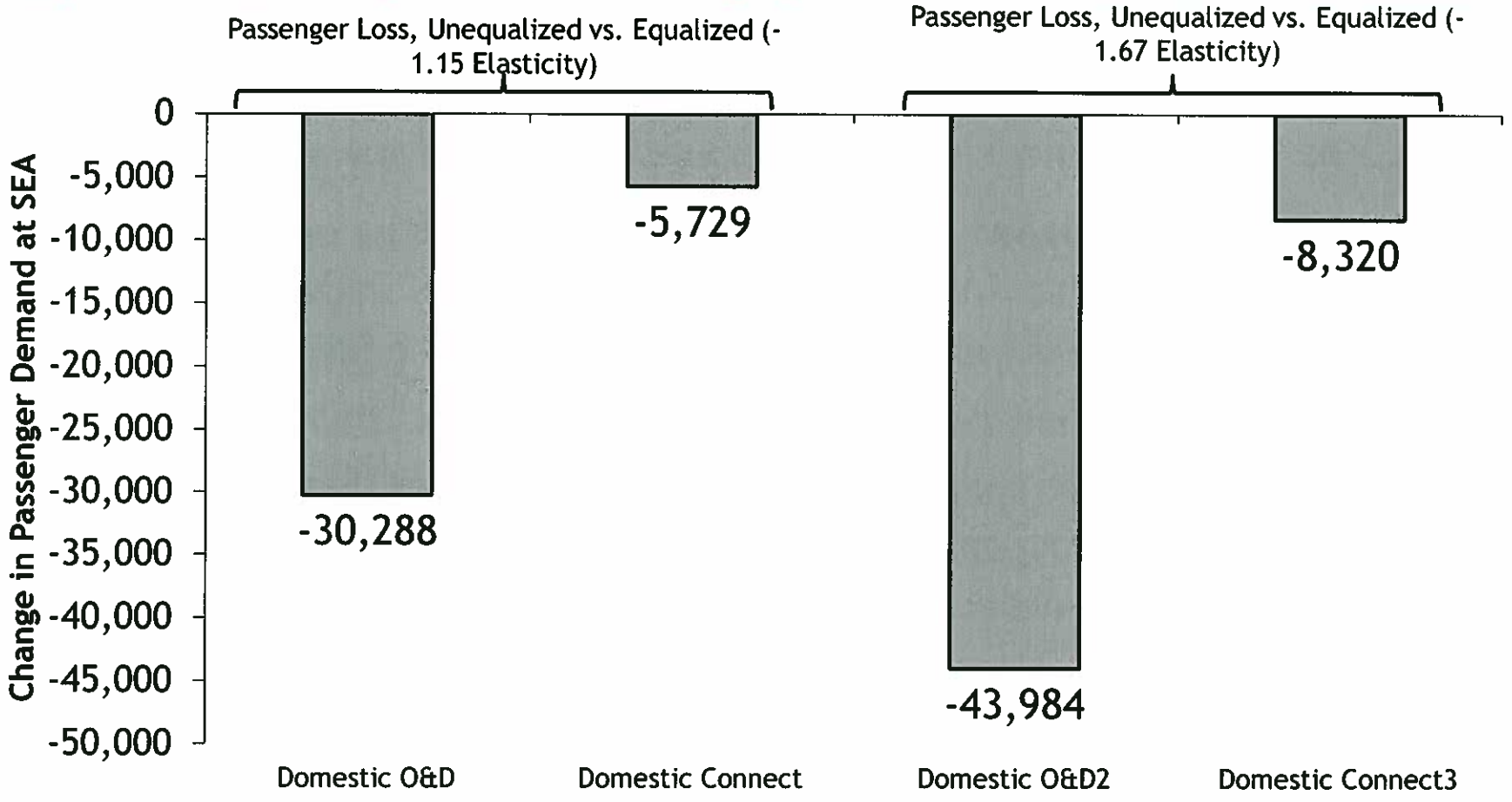
Airport Fees Constitute A Higher Proportion of Total Ticket Costs For Domestic Than International Passengers

- Because airport costs constitute a lower proportion of total ticket costs for international than for domestic travelers, an increase in airport costs imposed on domestic traffic will have a greater adverse impact on domestic demand than a comparable increase in airport costs would have on international traffic.

The Unequal Financing Option Would Reduce Demand at SEA By Between 36,000 and 52,000 Passengers Compared to the Equalized Financing Option

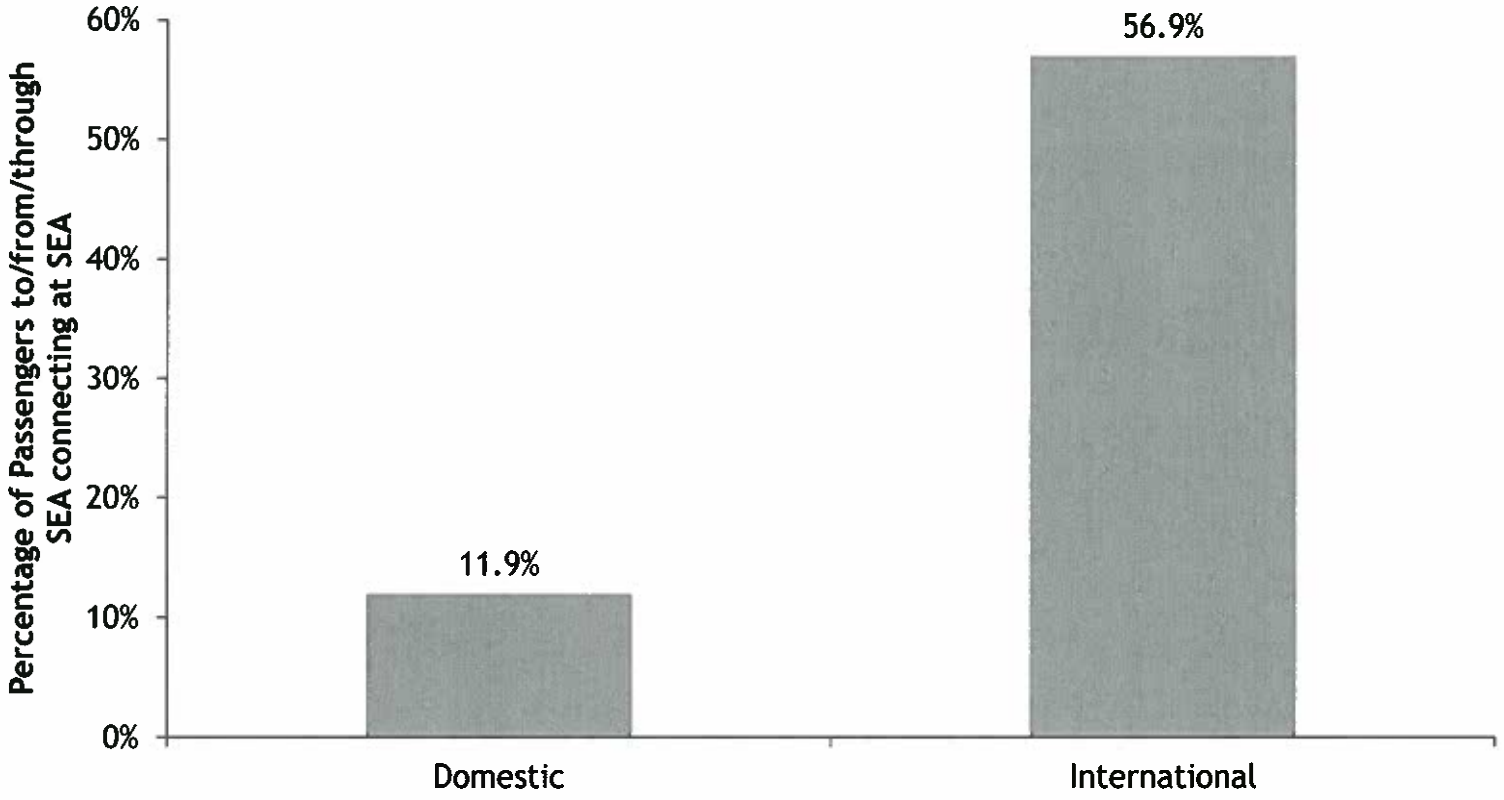
- The increase of $0.67/enplanement under the unequal financing approach would increase the average domestic fare at SEA by 0.14%.
  - Based on the median domestic airline price elasticity of -1.15 from Gillen, et al, *this would lead to a reduction in domestic passenger demand of 36,000 passengers compared to an equalized approach.*
  - Using more recent domestic elasticity estimate of -1.67 from Berry and Jia, a $0.67 fare increase resulting from the higher financing cost of the unequal financing option *would reduce passenger demand at SEA by 52,000 passengers compared to the equalized approach.*
  - In comparison, a $5 increase in international CPE would be expected to reduce international traffic at SEA by approximately 5,700 passengers/year.

Overall, the Unequal Financing Approach Would Reduce Traffic To/From/Through Sea-Tac by between 36,000 and 52,000 Passengers/Year Compared to the Equalized Financing System



Source: US DOT O&D Survey YE 2013-Q3. Alaska Airlines cost forecasts; Gillen et al elasticity study.
Note: Based on an increase in domestic CPE of $0.67 under the unequalized proposed charges relative to equalized charges.

A Much Larger Share of International Than Domestic Passengers Make Connections at SEA



Source: US DOT O&D Survey YE 2013-Q3.
Note: Passengers connecting to/from international flights at SEA are international connect passengers. International O&D passengers are O&D passengers at SEA with an international segment to/from SEA.

4. Conclusions

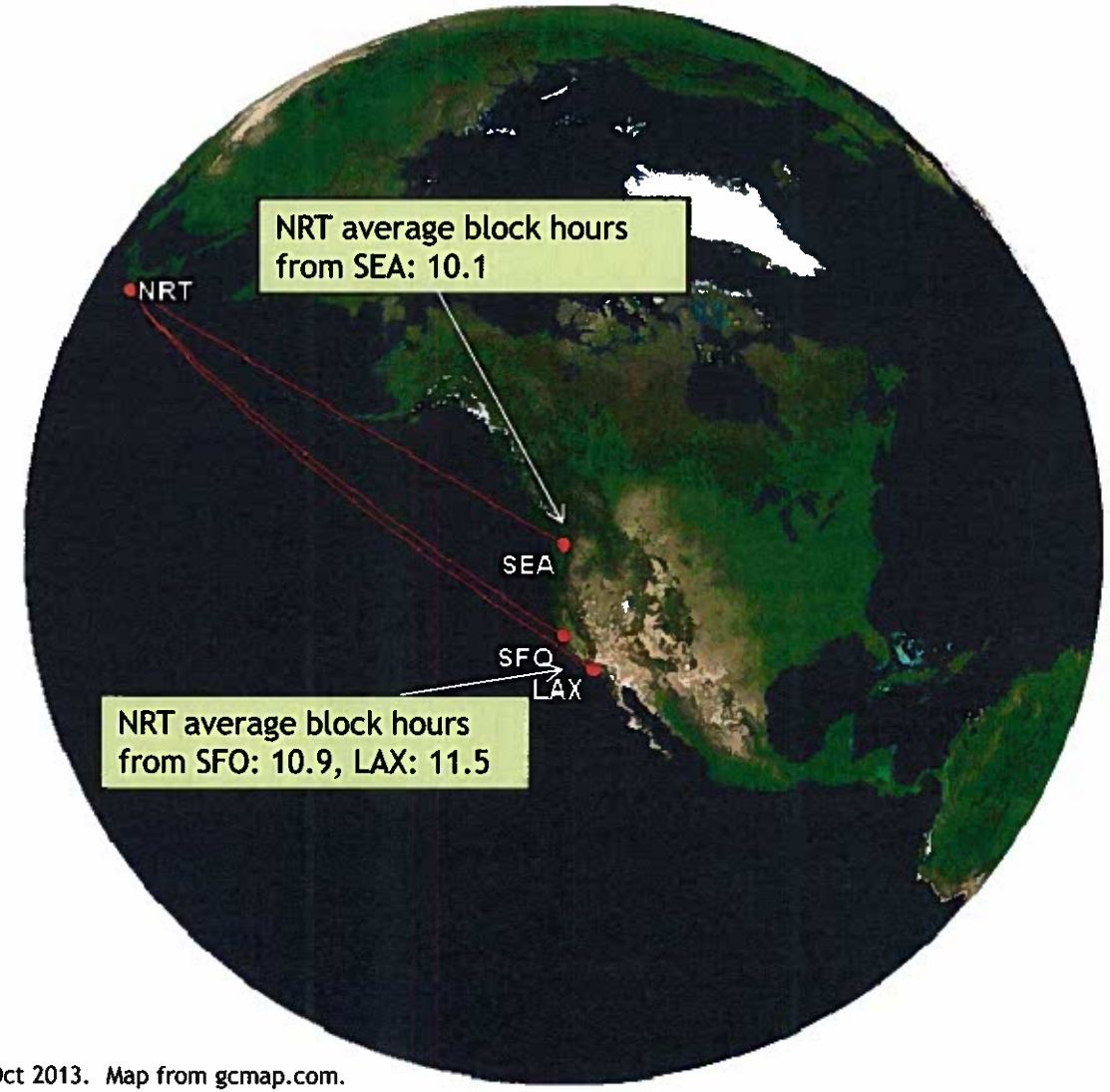
Conclusions

- Demand for domestic airline service is significantly more price sensitive than is the demand for international service.
  - *As a result, an increase in airport costs can be expected to have a greater impact on domestic demand than on international demand.*
- Moreover, because average international fares are substantially higher than average domestic fares, airport costs constitute a larger proportion of domestic than international fares.
  - *Hence, the impact of airport cost increases is magnified for domestic travel.*
- Overall, the cost increases that would result from adoption of the unequal financing approach can be expected to cause a significant reduction in domestic traffic at SEA compared to an equalized financing approach.

APPENDIX: International Flights Between SEA & Asia Enjoy Substantial Operating Cost Savings vs. Other West Coast Gateways

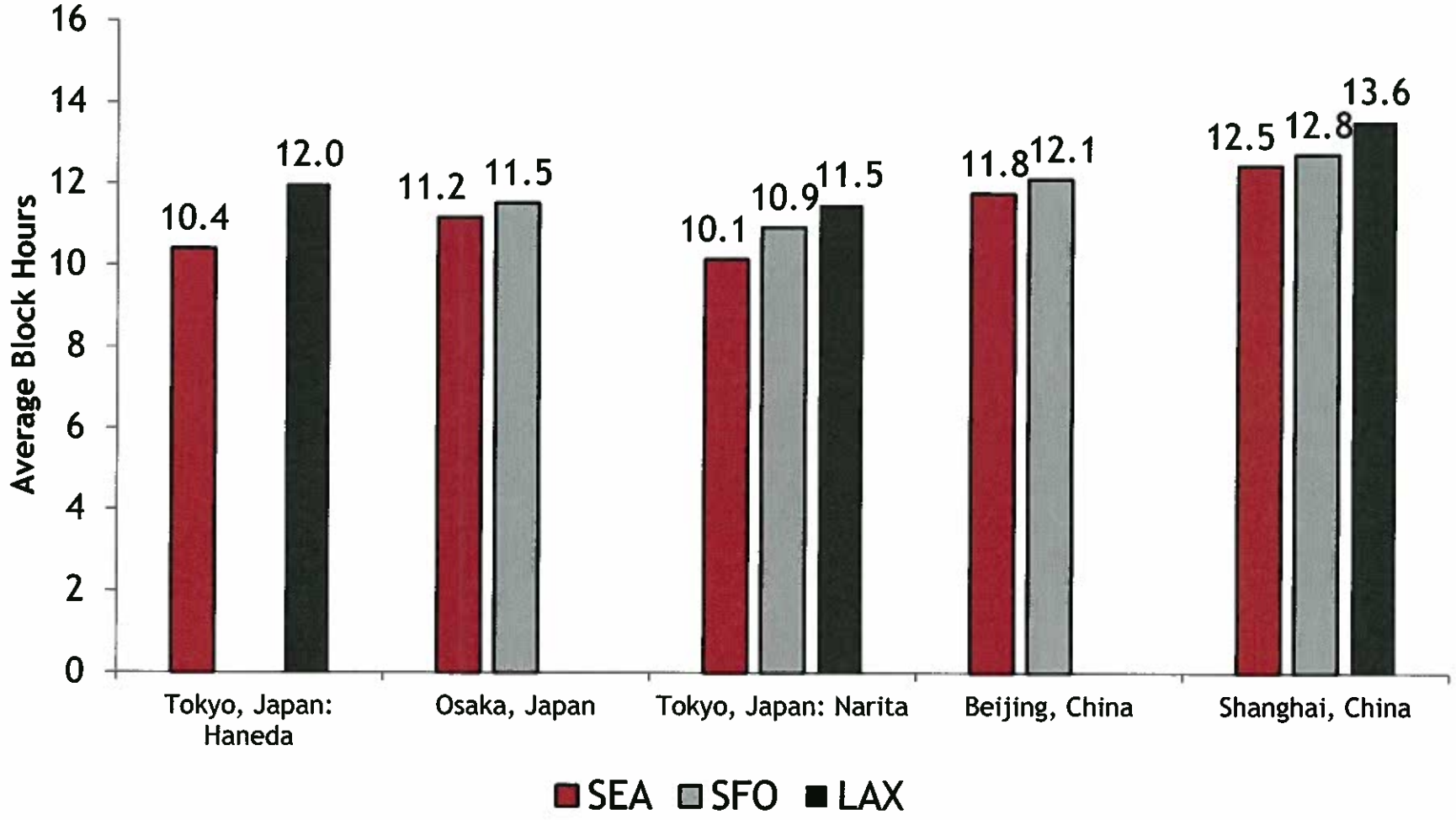
Flights to Asia from SEA Enjoy Substantial Operating Cost Savings vs. Other West Coast Gateways

In some markets, the reduced travel time from SEA enables the carrier to serve the route with only a single aircraft vs. two aircraft required at LAX and SFO, resulting in significant further savings for international carriers.



Source: US DOT T100, Jan-Oct 2013. Map from gcmap.com.
Note: Block hours for destinations served by U.S. carriers to Asia from SEA. U.S. carrier average block hours from the U.S. to Asia.

SEA's Geographic Position Already Offers Significant Time & Cost Savings vs. Other Gateways to Asia



Source: US DOT T100, Jan-Oct 2013.
Note: Block hours for destinations served by U.S. carriers to Asia from SEA. U.S. carrier block hours from the U.S. to Asia.

SEA's Location Already Offers Airlines Operating Cost Savings That Far Exceed Airport Costs

- At typical direct operating costs per block hour of ~ $11,000/hour for a Boeing 777, operating cost savings from SEA amount to between $15,400 and $17,600 per flight to Tokyo compared to other W. Coast gateways.
  - For a daily round-trip service, these annual operating cost savings from using SEA rather than SFO or LAX range from $5.6 million $6.4 million.
  - In short, airlines have strong incentives to use SEA as an international gateway.