

Effects of FSA vs. LCC Competition and Management and Public Policy Implications

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**Tokyo Univ and Univ of British Columbia
And**

Air Transport Research Society

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Outline

- I. Status, Trends and Prospects of LCC vs. FSA Competition***
- II. Impacts of LCC on Economic Welfare, Full Service Airlines, and Airports
- III. How Do Various FSAs Confront LCC ?
- IV. Implications on Regulatory Policy and Airport Management
- V. Concluding Remarks

I. Status, Trends and Prospects of LCC-FSA Competition

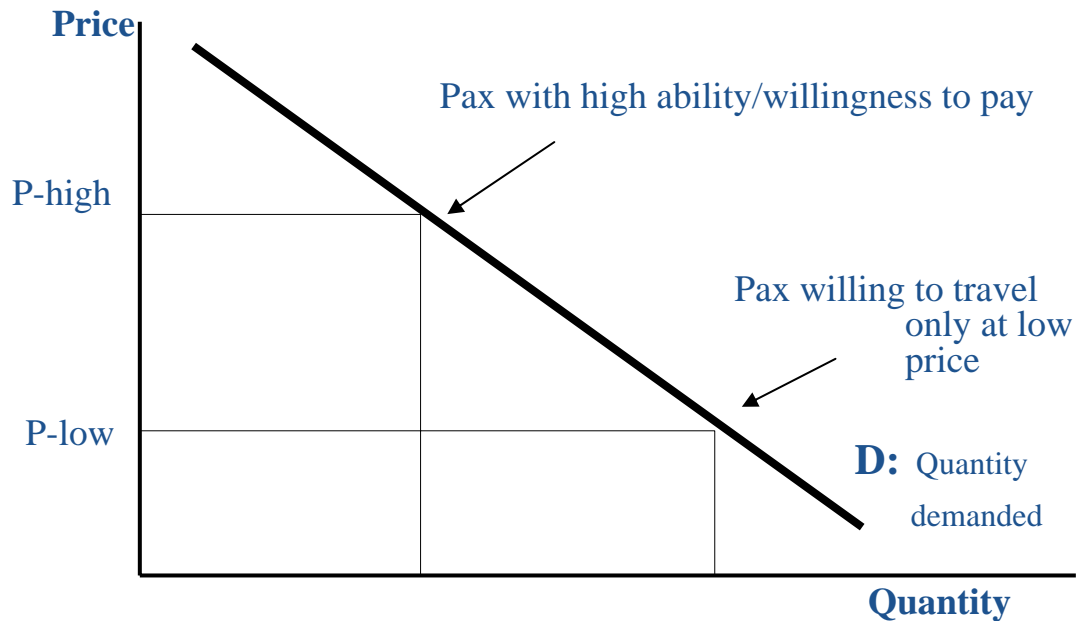
- **Key Challenges to Network Carriers (Full Service Airlines, FSA)**
- **Current status and trends of LCC-FSA competition**
- **Welfare gain due to LCCs**
- **Nature of Future LCC-FSA Competition**
- **New Equilibrium in Airline Markets ?**

Key Challenges to Network Carriers (FSAs)

- *Entry and Expansion of LCCs*
- **Growth of Internet for Ticket Sales and Distribution**
- **Unforeseen Events:**
 - 9/11 and war on terrorism
 - Afghan and Iraq wars
 - SARS
 - Fuel price
- **Dot.com collapse and global recession since 2000** (steep decline in business travel)

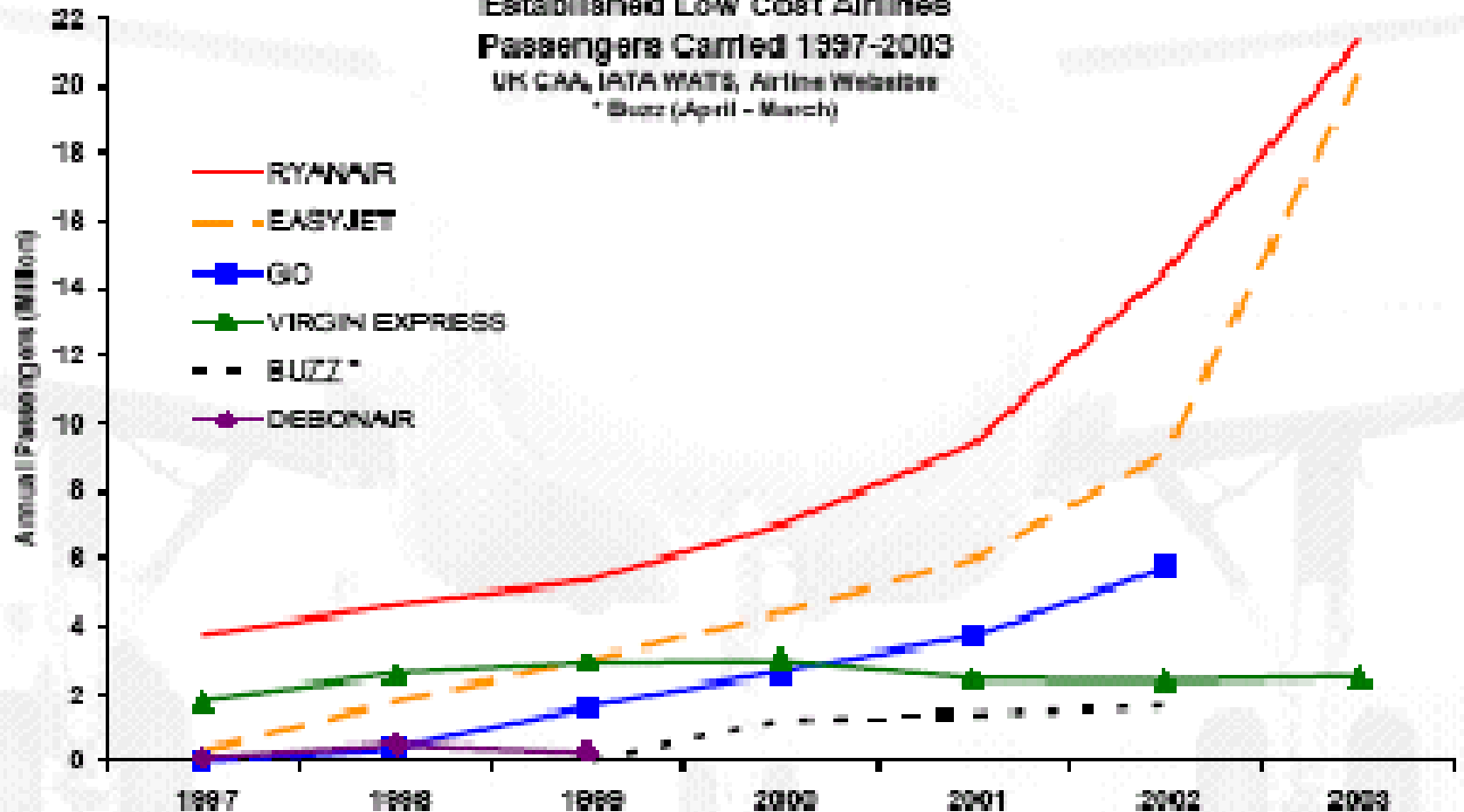
Traditional LCC Model

- Past 10 years, there has been major expansion of LCCs in the U.S., Canada, Europe, Australia and Asia
- The traditional LCCs target fare sensitive markets by combining
 - simple and highly efficient operation, same aircraft type, no frills product, targeting fare sensitive traffic on high density short/medium distance routes



Growth of Low Cost Airlines in Europe

Established Low Cost Airlines
Passengers Carried 1997-2003
UK CAA, IATA MATS, Airline Websites
* Buzz (April - March)



Note: From 2003, Buzz incorporated into Ryanair figures, GO incorporated into easyJet figures.

European LCC's use of Secondary Airports

source: Nigel Dennis (2004)

Major Airport	Secondary Airport
London Heathrow	London Stansted (Ryanair, easyJet)
Rome Fiumicino	Rome Ciampino (Ryanair, easyJet)
Glasgow	Prestwick (Ryanair)
Berlin Tegel	Berlin Schonefeld (Ryanair, easyJet)
Toulouse	Carcassone (Ryanair)
Frankfurt	Hahn (Ryanair)
Milan Malpensa	Bergamo (Ryanair, Jet 2, bmibaby)
Brussels	Charleroi (Ryanair)
Manchester	Liverpool (easyJet)

Geographical pax composition on Ryan Air Service from Charleroi Airport (S. Belgium)

Region	Proportion of traffic
Brussels Area	25%
Northern Belgium (Flanders)	19%
Southern Belgium (Wallonia)	18%
The Netherlands	17%
Luxembourg	8%
France	7%
Germany	6%

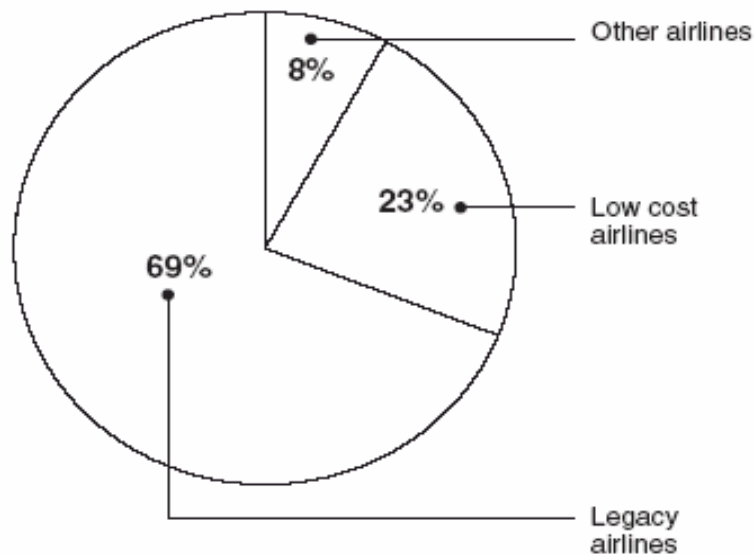
Growth in Traffic in Secondary Airports Served by LCC

Airport	1995 scheduled pax (million)	2002 scheduled pax (million)	Growth (%)
Stansted	2.9	14.8	405
Luton	0.6	5.4	873
Liverpool	0.4	2.4	551
Prestwick	0.2	1.3	508
Other UK airports	92.6	126.6	37

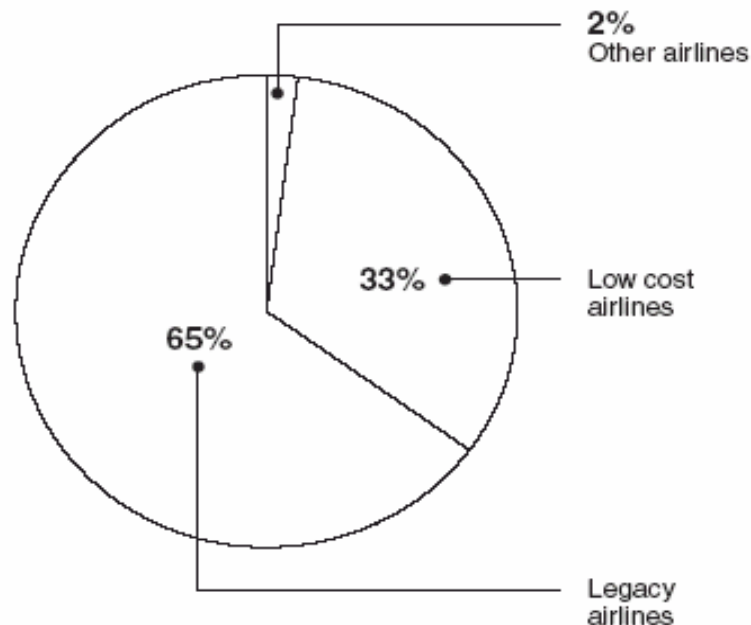
Source: CAA Airport Statistics

USA: LCCs Gained Passenger Shares from Charter and FSAs

1998



2003



Source: GAO analysis of DOT data.

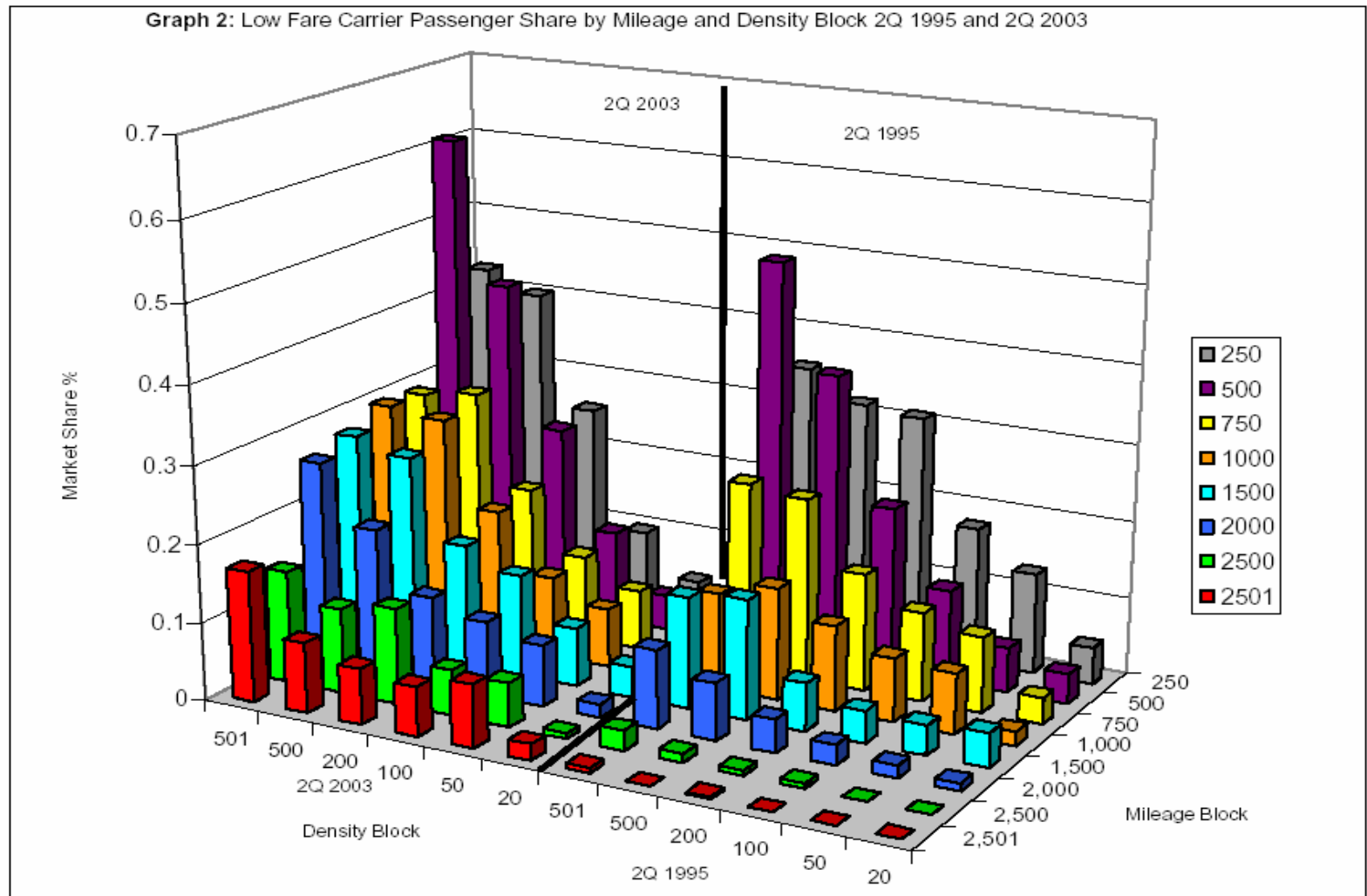
Note: "Other" carriers are those that did not fit our definitions of legacy and low cost airlines. Current carriers in this category are Hawaiian and Midwest. In 1998, this category also included Midway and National, which have since ceased operations.

Source: US General Account Office, Report GAO-04-836, P. 45

LCC's Distance-Density Block

(<2000km; >400,000 pax/year– US DOT)

Graph 2: Low Fare Carrier Passenger Share by Mileage and Density Block 2Q 1995 and 2Q 2003



LCCs in Asia

Australia: Virgin Blue has 30% of domestic market

Malaysia:

- AirAsia carried 6 million pax in 2004; expects to reach 7.5 mm in 2005
- Considering to create a LCC hub, by either expanding the KLU or remodeling the old Subang airport

Singapore:

- Valuair: Singapore's first private airline
- Govt develop LCC terminal at Changi; to open in 2006 to handle 2.6 mm pax per year

Indonesia: Lion Air – Indonesia's 2nd largest airline

Thailand:

- Thai AirAsia, 45% owned by AirAsia, carried 1 million pax in 2004; expects to reach 2.5 mm in 2005
- One-Two-Go: a wholly owned subsidiary of Orient Thai, accounts for 53% of the LCC market in Thailand, followed by the 35 per cent of Thai AirAsia and Nok Air's 12%

LCCs accounts for 16% of the 916 aircraft on order from Asia, India and the Middle East

LCCs 2003: A Global Phenomenon



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LCC Growth – Worldwide

source: OAG

Low Cost	10-16 March 2003		8-14 March 2004		Variance			
PASSENGER	Frequency	Seats	Frequency	Seats	Frequency	%	Seats	%
Low Cost To/From UK	4,401	629,126	5,181	801,071	780	18%	171,945	27%
Low Cost Within UK	1,410	193,016	1,550	224,288	140	10%	31,270	16%
Low Cost To/From Europe	0	0	2	262	2		262	
Low Cost Within Europe	8,430	1,180,043	13,123	1,972,568	4,693	56%	792,525	67%
Low Cost To/From US	216	32,176	362	54,936	146	68%	22,760	71%
Low Cost Within US	25,479	3,365,234	27,799	3,731,794	2,320	9%	366,560	11%
Low Cost To/From Canada	36	5,280	98	14,960	60	167%	9,680	183%
Low Cost Within Canada	2,035	265,252	2,303	300,653	268	13%	35,401	13%
Low Cost To/From Asia	0	0	0	0	0		0	
Low Cost Within Asia	554	80,518	1,452	201,112	898	162%	120,594	150%
Low Cost To/From Pacific/Australasia	0	0	0	0	0		0	
Low Cost Within Pacific/Australasia	1,187	162,352	3,570	513,880	2,383	201%	331,528	182%
Low Cost To/From Latin America	180	26,896	266	39,676	86	48%	13,080	49%
Low Cost Within Latin America	1,795	253,272	1,962	294,132	187	10%	40,860	16%
Low Cost To/From Africa	0	0	0	0	0		0	
Low Cost Within Africa	134	4,648	162	23,590	28	21%	18,944	408%
Low Cost To/From Middle East	0	0	2	262	2		262	
Low Cost Within Middle East	0	0	30	4,500	30		4,500	

Summary: Status of LCC-FSA Competition in US

- As of Dec. 2003, LCCs served 2,304 of the top 5000 routes in US, and had presence in markets with 84.6% of all passengers (GAO, 2004); Achieved 33% domestic passenger share and 20% revenue share
- Over 2000-2003 period, total airline revenues decrease from \$97 billion (2000) to \$77 billion (2003), 20% reduction; FSA revenue decreased by 28% while LCC revenue increased by 12%.
- In constant 2003 dollar terms, airline yield per RPM decreased from 14 cents in 2000 to 11.4 cents in 2003, a 19% decrease;
- On average, LCCs have about 35% lower unit cost per ASM compared to FSAs even after adjusting for the effects of flight stage length differentials (Li, Dresner and Windle, 2005)

*** Growth in domestic markets in U.S., UK, Canada and Australia is moderating as LCCs achieved 30% or more passenger shares; LCCs' traditional markets appear to be saturating in these markets.

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Economic Effects of LCC Expansion

- Large airfare reduction ; Hof-Drenser-Windle (2004, ATRS), Morrison-Winston (2003), Kim and Singal (1993), Borenstein (1990, 1992), etc:
E.g., Dresner finds: Network carriers reduced average airfares by 35-40% on short-medium haul routes after Southwest entered BWI airport in 1993;
Similar results for Jet Blue vs. United Competition on Washington Dulles-SFO/OAK routes, and Delta-Value Jet competition at Delta's Atlanta Hub
- Large stimulated demand expansion as well as passengers attracted from adjacent airports, and thus, dramatic increase in travelers via that airport
- European Study (Alderighi et al, 2004, ATRS) show that LH, BA, Alitalia and KLM reduce fares for all classes nearly proportionally after LCC entry
- Network carriers' hub premiums are lowered significantly when one or more LCCs are present at the hub.

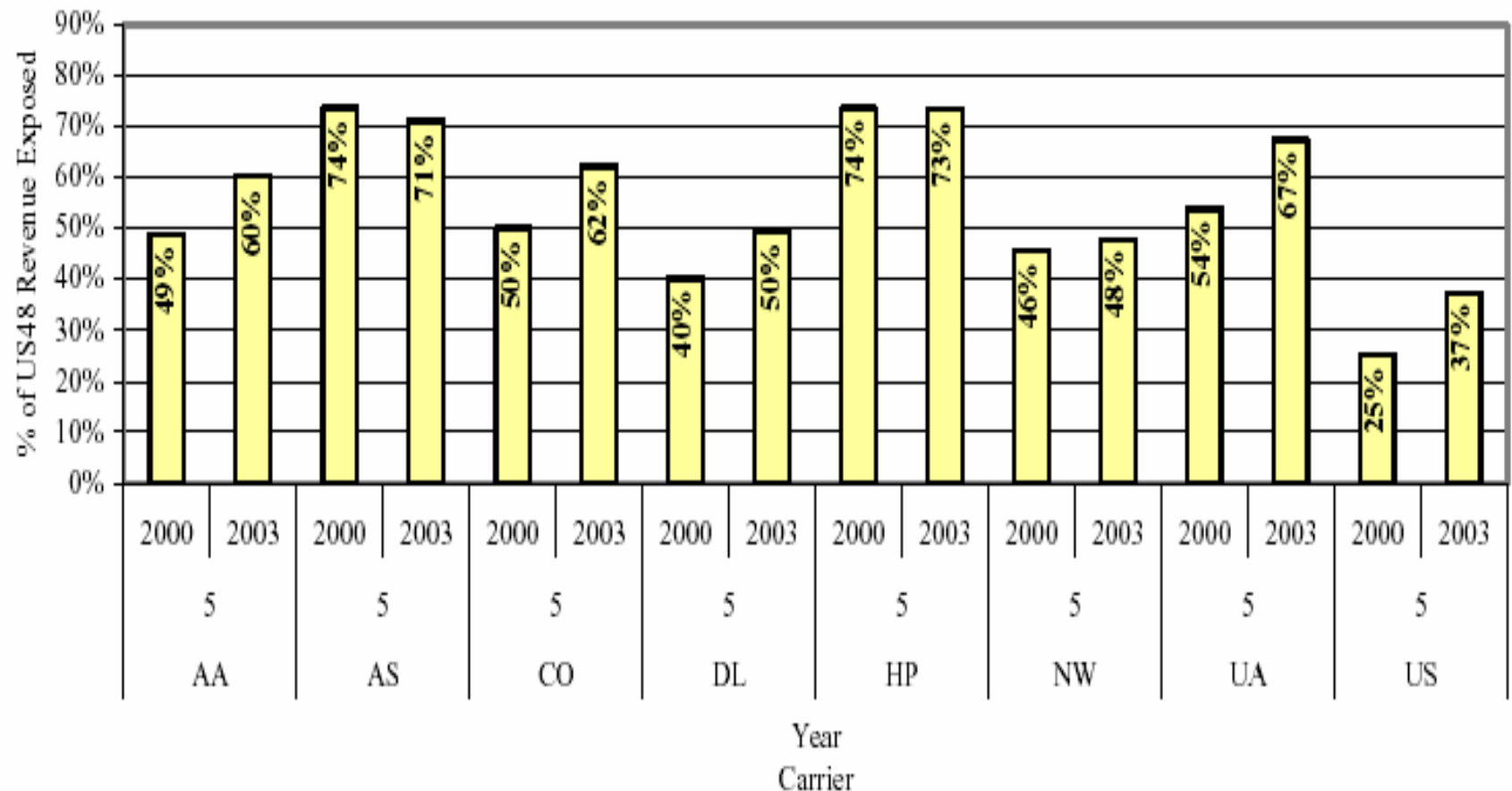
In sum, LCCs are a main source of welfare gain in the deregulated domestic airline markets

S. Morrison (2001, JTEP) shows that more than 50% of the welfare gains achieved by the U.S. deregulation is attributable to entry and expansion of Southwest.

Creating environment for LCC's success is important for wider economic interest of the nation.

% of FSA's Revenue Base Facing LCC Competition 2000 and 2003

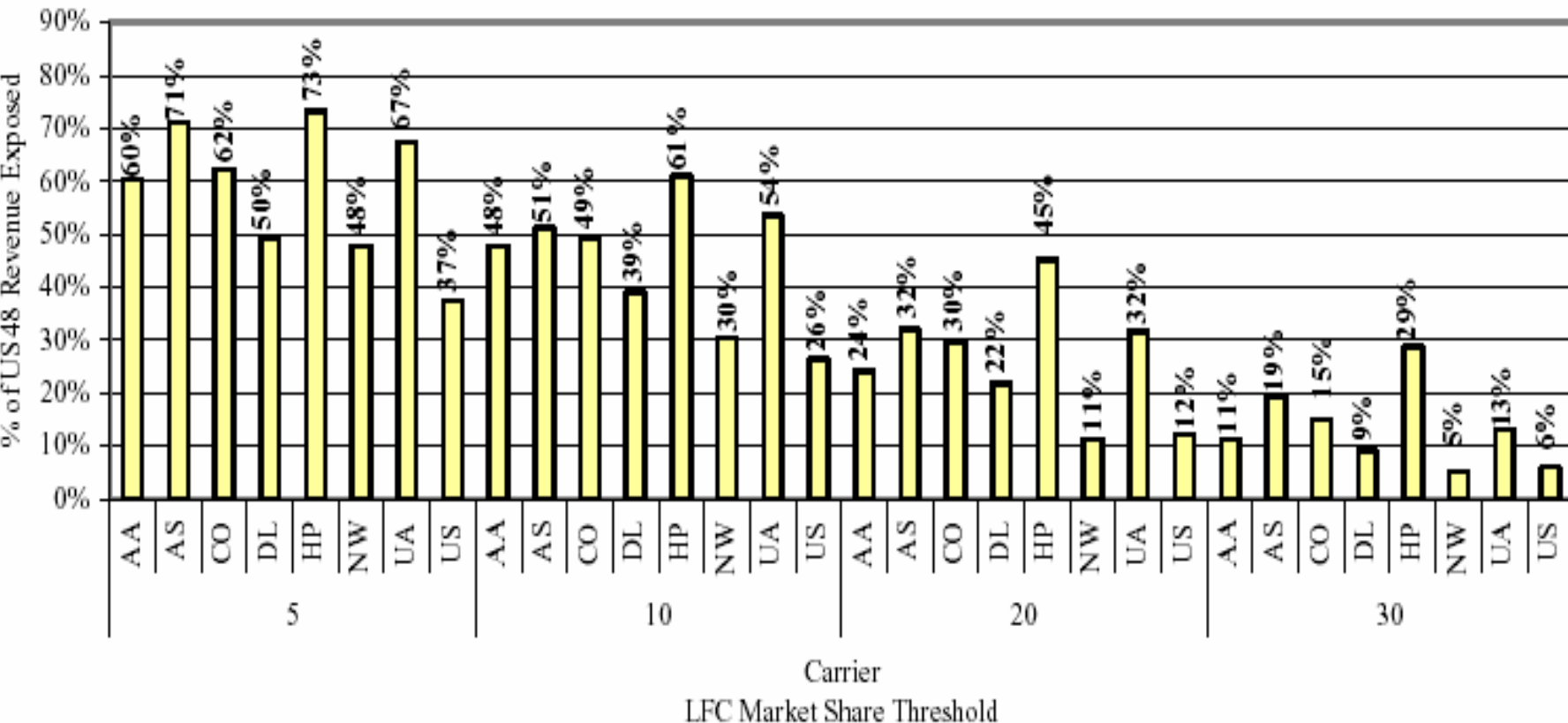
Graph 1: Percent of Total Revenue Generated in City-Pair
Markets Where at Least One Low-Fare Carrier (LFC) has
a 5 Percent Market Share - By Carrier, 4Q03 vs. 4Q00



% of FSA's Revenue Base Facing LCC Competition

Q4 2003: LCC Share at 5%, 10%, 20%, 30%

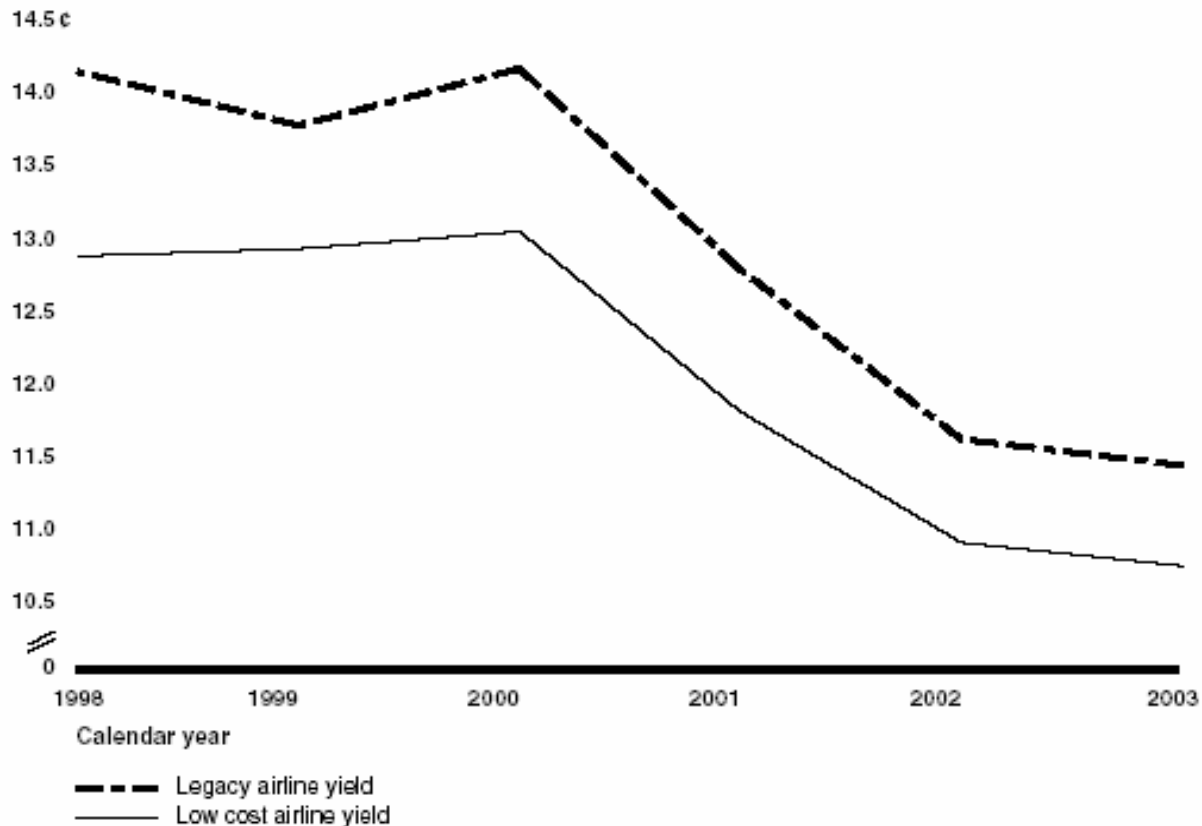
**Graph 3: Percent of Total Revenue Generated in US48 City-Pair
Markets at Low-Fare Carrier (LFC) Market Share Exposure
Levels of 5, 10, 20, and 30 Percent in 4Q03**



Dramatic Yield Reduction since 2000

(FSA yield 14.4 cents in 2000 to 11.5 cents in 2003)

Figure 17: Revenue Collected Per RPM (Yield), 1998 through 2003, by Airline Group
Yield in 2003 dollars



Source: GAO analysis of DOT data.

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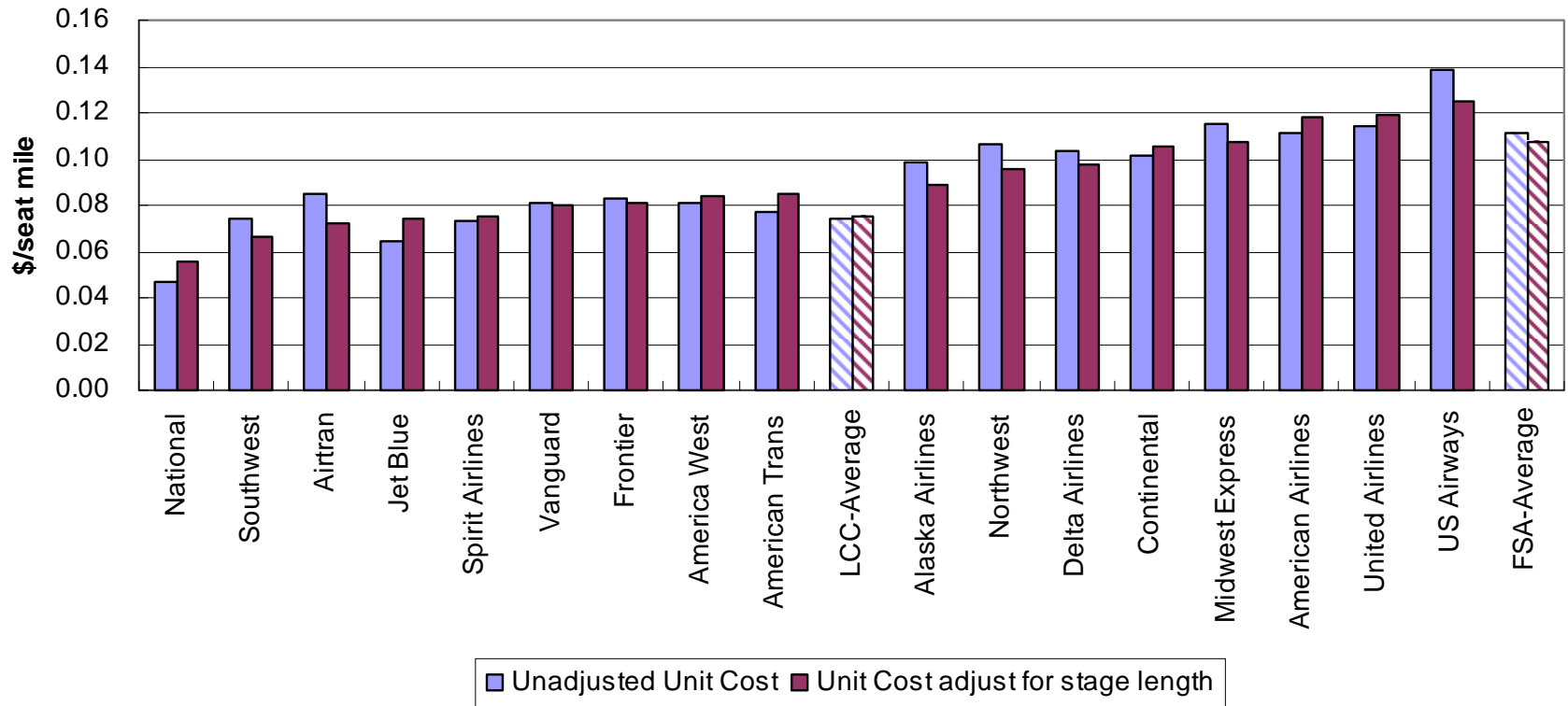
FSA Responses to LCC Competition

- Cost Reduction:
 - Input (labor) price reduction
 - Productivity improvement
- Create own LCC (no-frills) offshoot; like 'fighting brands'
- Network and service restructuring
- Simplifying pricing
- Efforts to keep business travelers

Cost Advantage of LCCs:

LCCs' cost/ASM is 35% lower than FSAs'

Unit Cost Comparison



Source: Compiled from Li, Dresner and Windle (2004, ATRS)

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Unit Cost Comparison: Southwest vs. USAir

<i>US cents</i>	<i>Southwest</i>	<i>US Airways</i>	<i>SW advantage</i>
Staff costs/RPK	2.7	5.1	- 46.0%
Fuel cost/ASK	0.7	0.9	- 20.3%
Maintenance/ASK	0.4	0.4	- 21.2%
Sales commissions /pax	86.7	271.4	- 68.1%
Landing/rents per ASK	0.3	0.5	- 34.3%
Aircraft rent/depreciation/ASK	0.5	0.9	- 45.8%
Other/ASK	0.9	2.4	- 61.3%
Total operating costs/ASK	4.6	8.8	- 47.6%

Peter Morrell (2004, ATRS) based on 2002 data

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FSAs' Cost Reduction Efforts

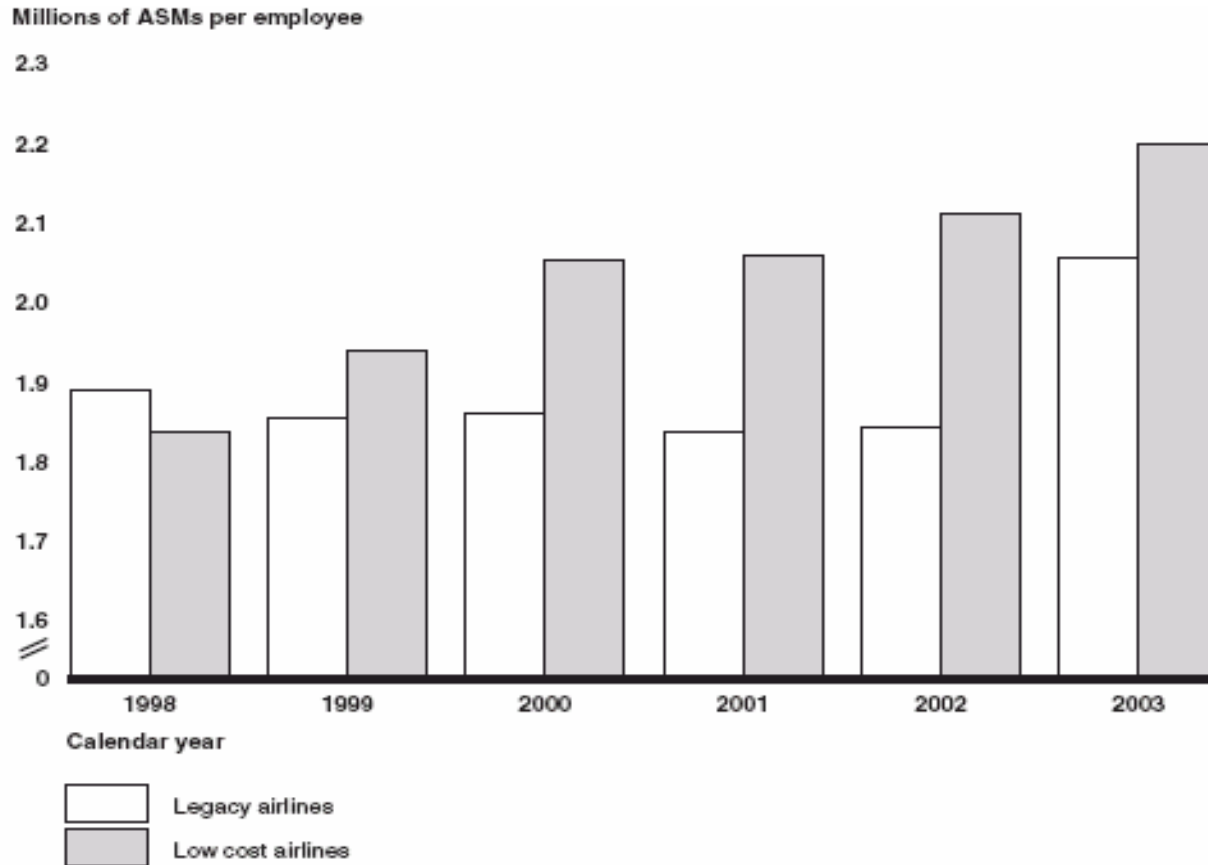
(Oct 2001 – End 2003)

- FSAs (Legacy airlines) collectively achieved \$12.7 billion cost savings, 14.5% of their operating expenses
- More than 40% of these savings achieved by reducing labor costs
- Significant productivity improvement
- Rationalization of route network – use of LCC offshoots or shifting regional routes to regional carriers

*Source: US GAO (2004)

FSAs Continue Restructuring – con't

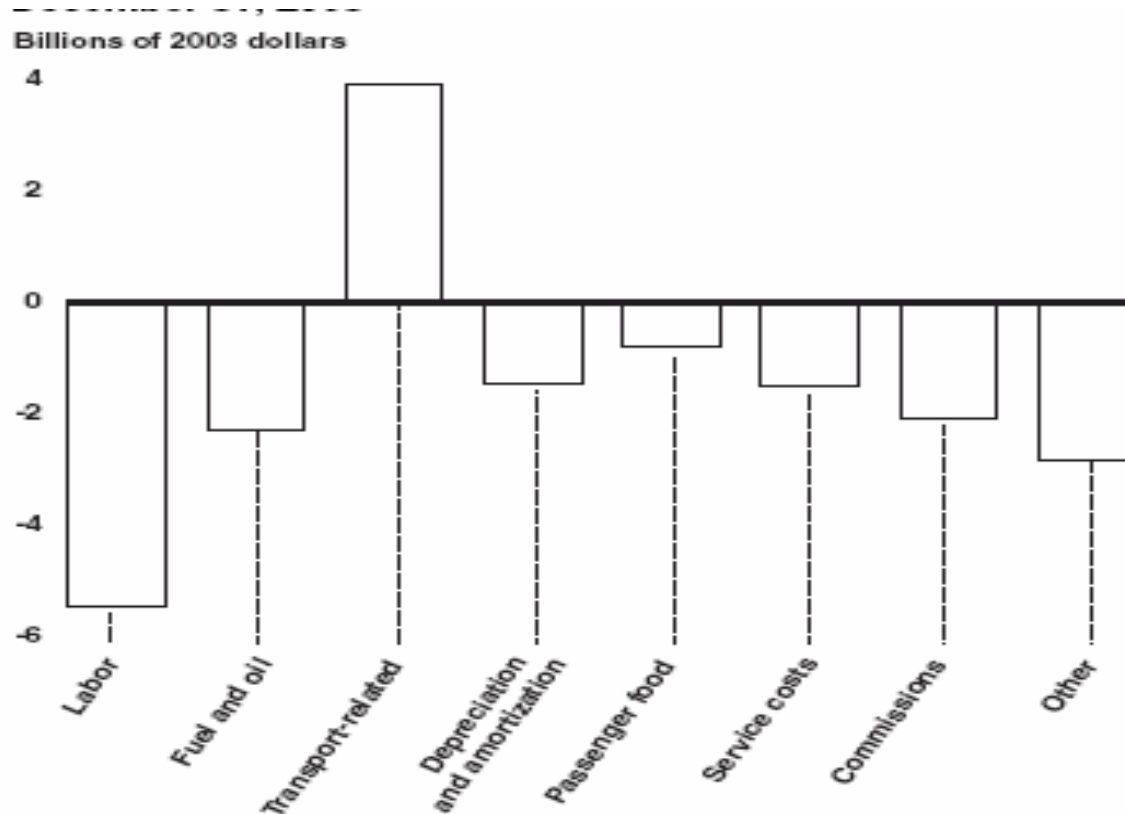
Eg.: Labor Productivity - FSAs vs. LCCs ; in 2003, FSAs narrowed labor productivity gap with LCCs.



Source: GAO analysis of DOT data.

FSAs' Continue Restructuring – con't

'Transport related cost' includes fees paid to regional airlines for outsourced regional services



Source: GAO analysis of DOT data.

US Network Airlines' LCC Offshoots:

(source: Morrell, 2004 ATRS)

	Song	Ted	CALite	Shuttle	Delta Express	Metrojet US
Airline 'parent'	Delta	United	Continental	United	Delta	Airways
Start of operations	2003	2004	1993	1994	1996	1998
End of operations			1995	2002	2003	2002
Aircraft type	B757-200	A320	DC9/ B737-300	500/300	B737-200	B737-200
No. dedicated aircraft	36	n/a	n/a	45	25	54
Seat pitch (inches)	33	31/36	32/36*	32/36	32	32
Number of seat classes	1	2	2	2	1	1
Estimated aircraft utilisation/day	12.1	n/a	higher	12	12.2	12
Percent parent frequencies/hours	11.1	7.8	38.0	10.2	5.8	19.0
Mean range (kms)	1,929	1,194	n/a	n/a	n/a	n/a

How Do LCC offshoots of FSAs Perform?

Failed and/or Closed:

Air Canada Zip, KLM Buzz, BA's GO, CA Lite, Shuttle by UA, Delta Express, USAir's Metro Jet;

Too early to tell:

Delta's Song (good start, but tough competition with JetBlue), United Ted (good start, but tough competition with Frontier and AW)

Qantas' Jetstar, ANZ's Freedom Air, Singapore's Tiger Airways (46% owned by SIA, 11% by Temasek, and others by private investors), Thai's Nok Air (39% owned by Thai Airways), Citilink (Garuda's subsidiary)

All tended to copy SW's fare structure, and reduce costs via:

- Reduction of in-flight catering;
- Single aircraft type; lower maintenance and training costs;
- Higher aircraft and crew utilization
- Reduce sales (distribution) costs
- Reduce salaries in some cases

How Do LCC offshoots of FSAs Perform? - con't

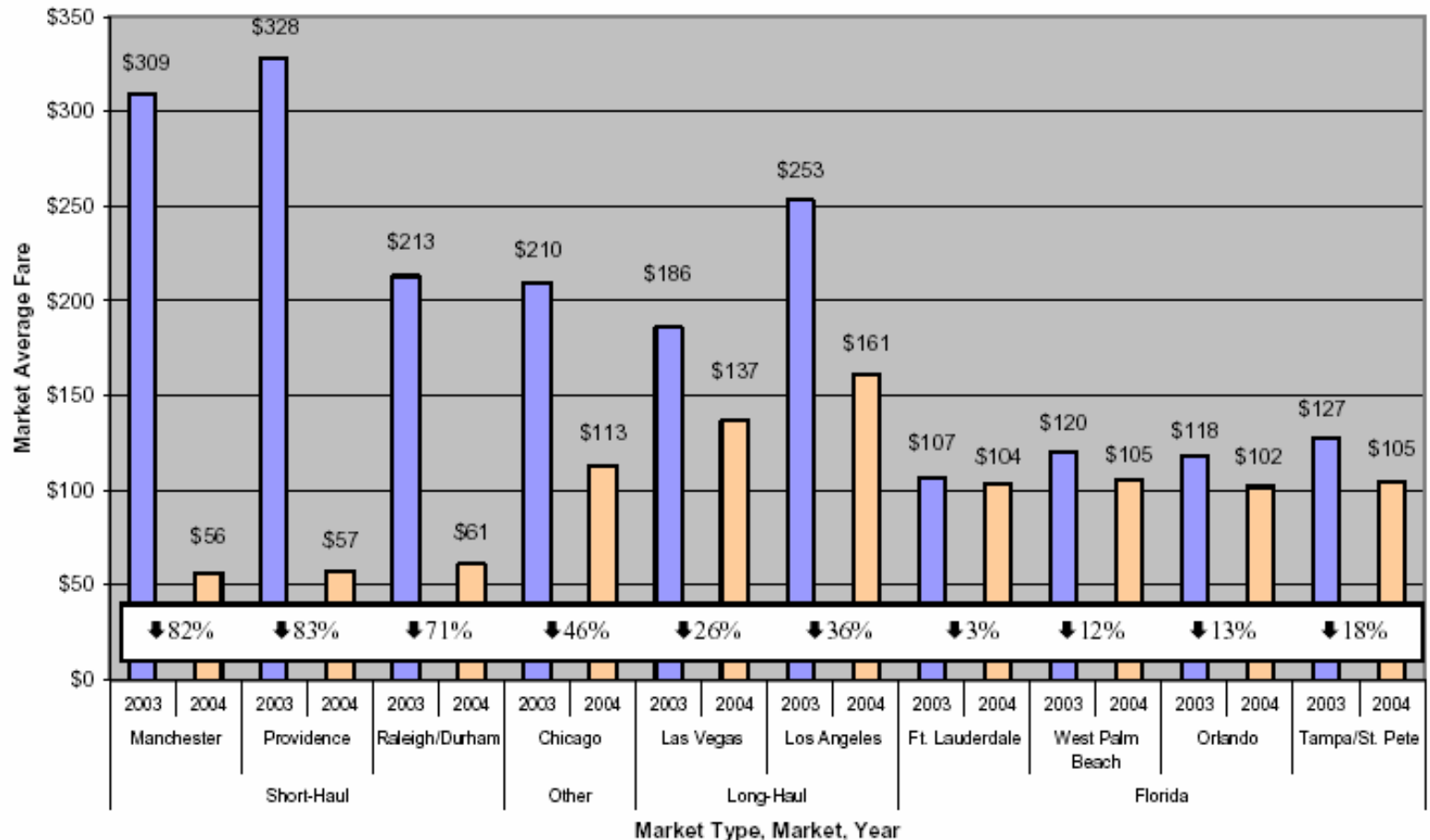
However, most LCC offshoots failed to reduce unit costs substantially because:

- Union restrictions
- Legacy systems and management thinking slows pace of changes required to win;
- Difficult to link pay levels to productivity gains or to implement necessary pay cuts in “airlines within airlines”

BA, AC have decided to restructure their networks (removing marginal and leisure-oriented routes, and focusing on more business oriented routes)

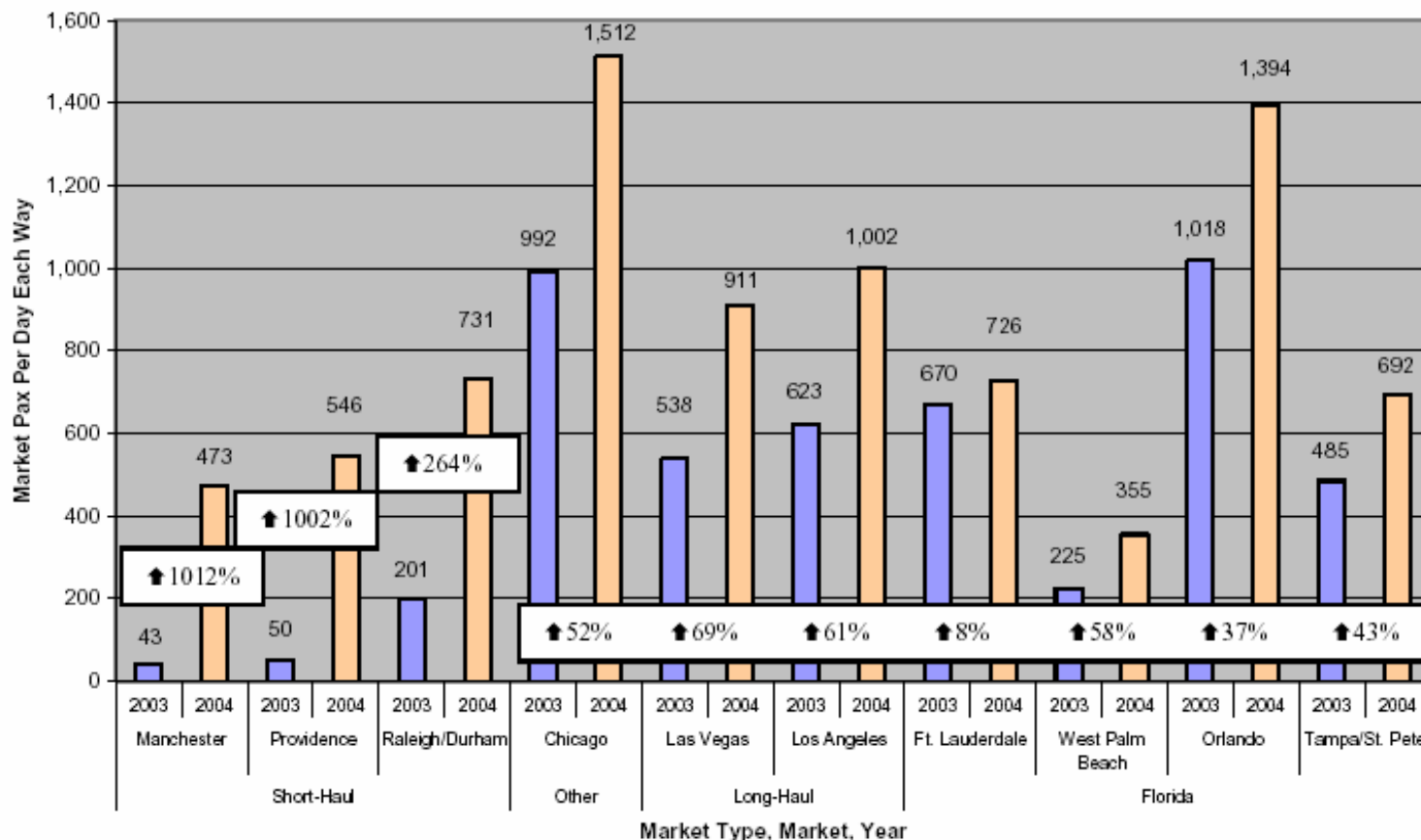
Impact on Fares in Top 10 Philadelphia Mkts: Before and After SW Entry in May 2004

Graph 1: Average Market Fare in Southwest's Top 10 Philadelphia Markets By Volume
Pre-Southwest Entry (3Q03) vs. With Southwest (3Q04)



Passenger Volumes in Top 10 Philadelphia Mkts: Before and After SW Entry in May 2004

Graph 2: Average Market Passengers Per Day Each Way in Southwest's Top 10 Philadelphia Markets By Volume
Pre-Southwest Entry (3Q03) vs. With Southwest (3Q04)



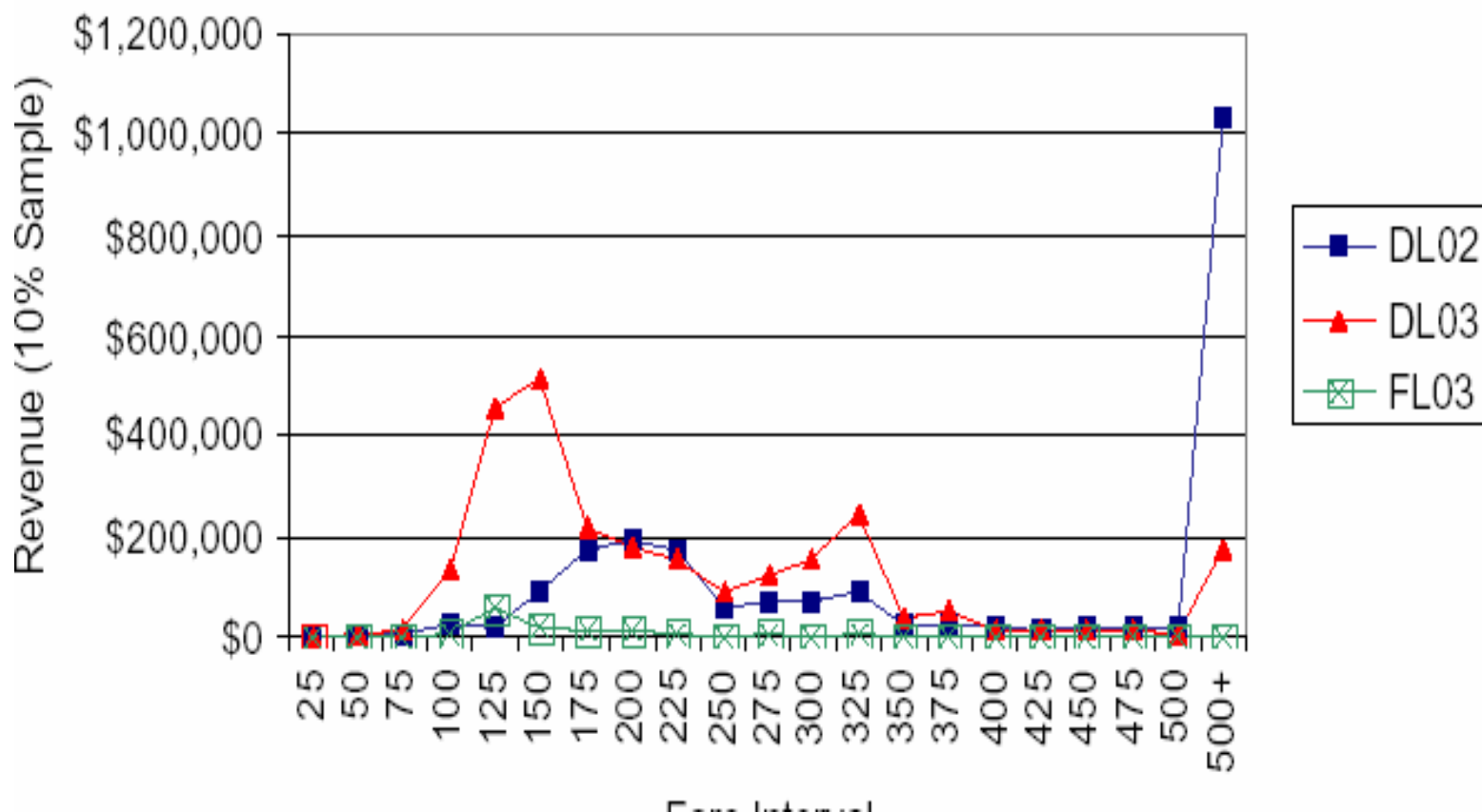
Fares and Volume Summary in Top 10 Phila Market: Before and After SW Entry to Philadelphia

Table 1: Average Market Fares and Passengers Per Day Each Way (PDEW) in Southwest's Top 10 Philadelphia City-Pair Markets By Volume 3Q03 (Pre-Southwest Entry) vs. 3Q04 (with Southwest)						
Market	3Q03 Average Fare	3Q04 Average Fare	% Change in Average Fare	3Q03 PDEW	3Q04 PDEW	% Change in PDEW
Providence	\$328	\$57	-83%	50	546	1002%
Manchester	\$309	\$56	-82%	43	473	1012%
Raleigh/Durham	\$213	\$61	-71%	201	731	264%
Chicago	\$210	\$113	-46%	992	1,512	52%
Los Angeles	\$253	\$161	-36%	623	1,002	61%
Las Vegas	\$186	\$137	-26%	538	911	69%
Tampa/St. Petersburg	\$127	\$105	-18%	485	692	43%
Orlando	\$118	\$102	-13%	1,018	1,394	37%
West Palm Beach	\$120	\$105	-12%	225	355	58%
Ft. Lauderdale	\$107	\$104	-3%	670	726	8%

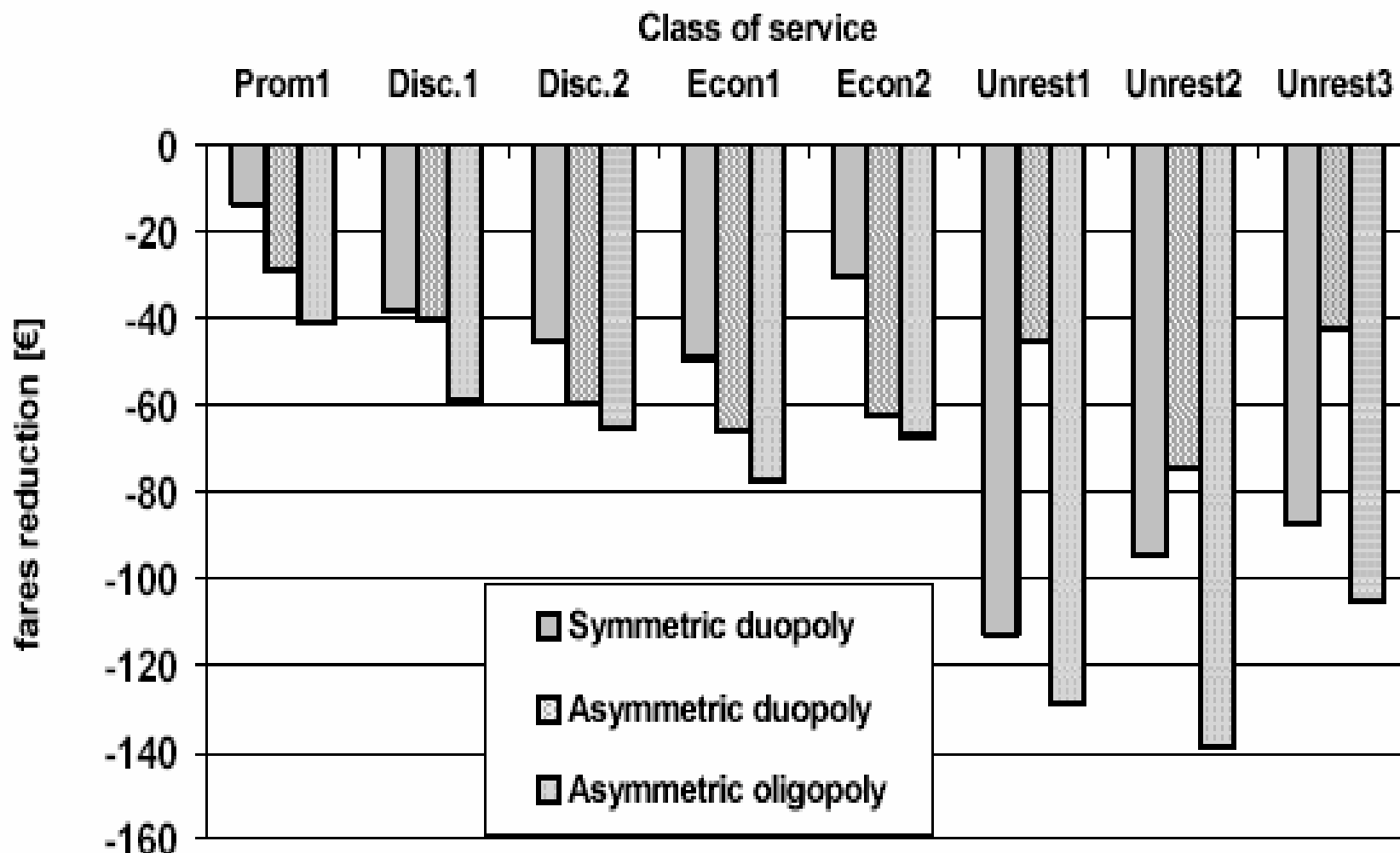
LCC Impact on Fare Distribution

Delta's Response to LCC entry, ATL-LA Market

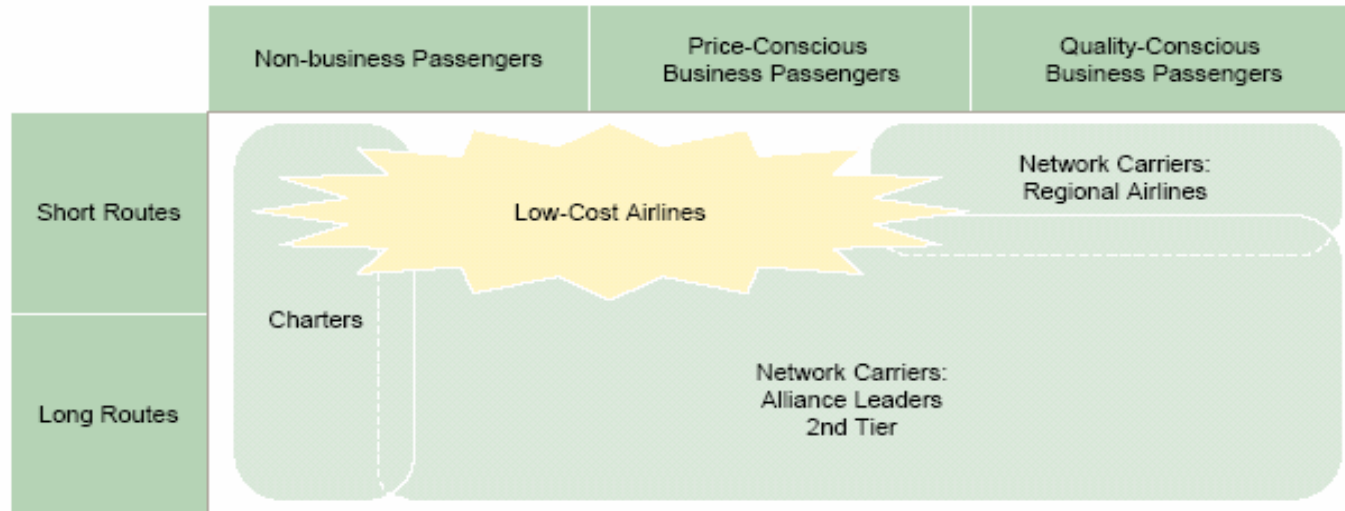
Graph 2: Atlanta-Los Angeles (LAX) Revenue by Fare Interval
Delta (DL) and AirTran (FL) - 3Q03 vs. 3Q02



Europe: Average Fare Reduction (€) by Class and Competition Conditions, April 2001-July 2003 (source: Alderighi et al, 2004, ATRS)



Future Direction of Competition: **LCC Expands Market Segments**



Now, some LCCs are becoming ‘Hybrid’ carriers by expanding *into long-haul and business mkts*

(e.g., Virgin Blue, West Jet, Jet Blue)

Source: Mercer (2002)

Now, LCCs expand into Long-Haul and Business Markets

Expansion into Long-Haul markets:

Virtually all North American LCCs – Jet Blue, Southwest, Air Tran, West Jet, etc.

Virgin Blue in Australia;

Expansion into Int'l Markets;

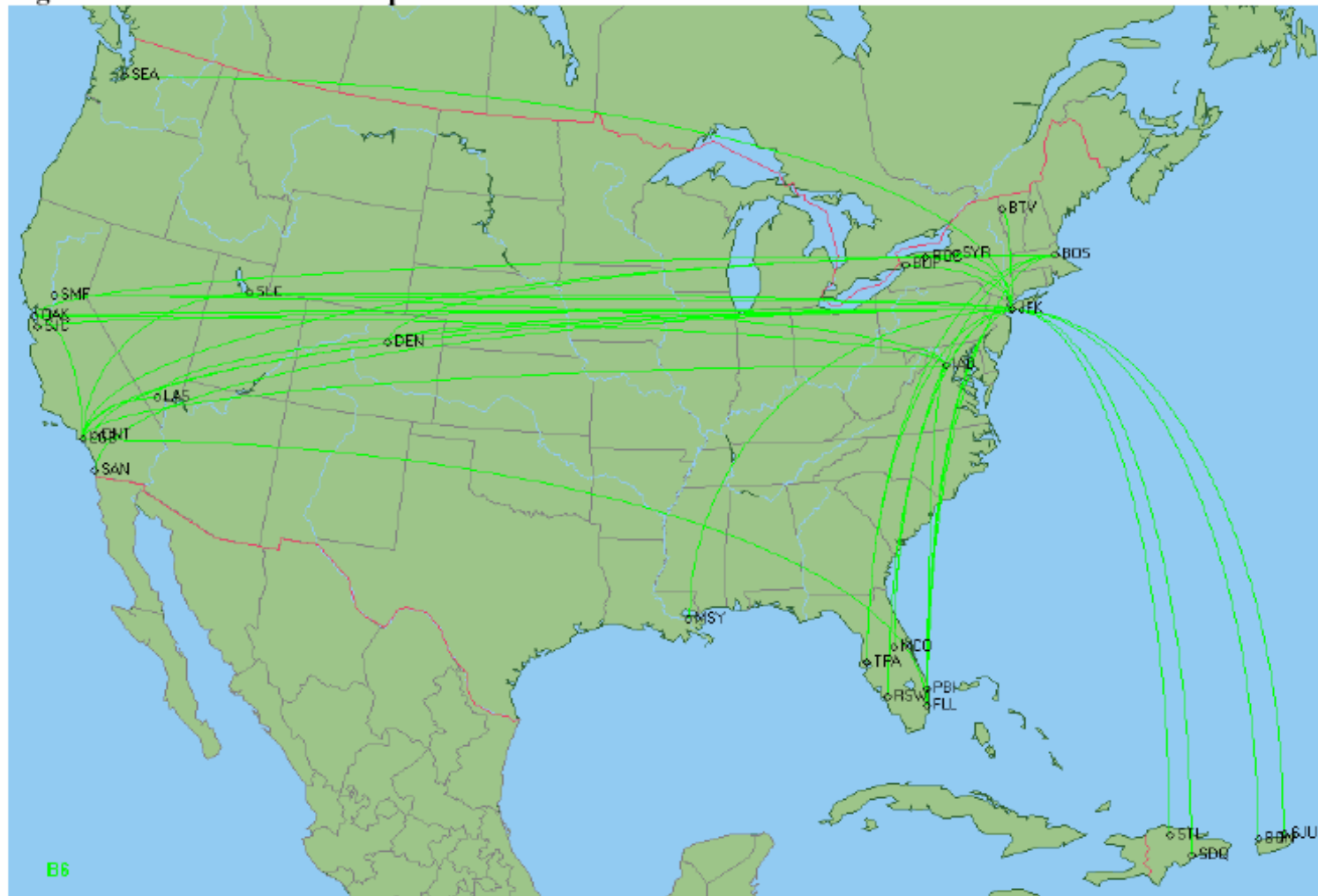
Jet Blue, West Jet, Virgin Blue

Expansion into Business Markets (FFP, Lounges, etc.):

West Jet, Virgin Blue (Valet Parking !)

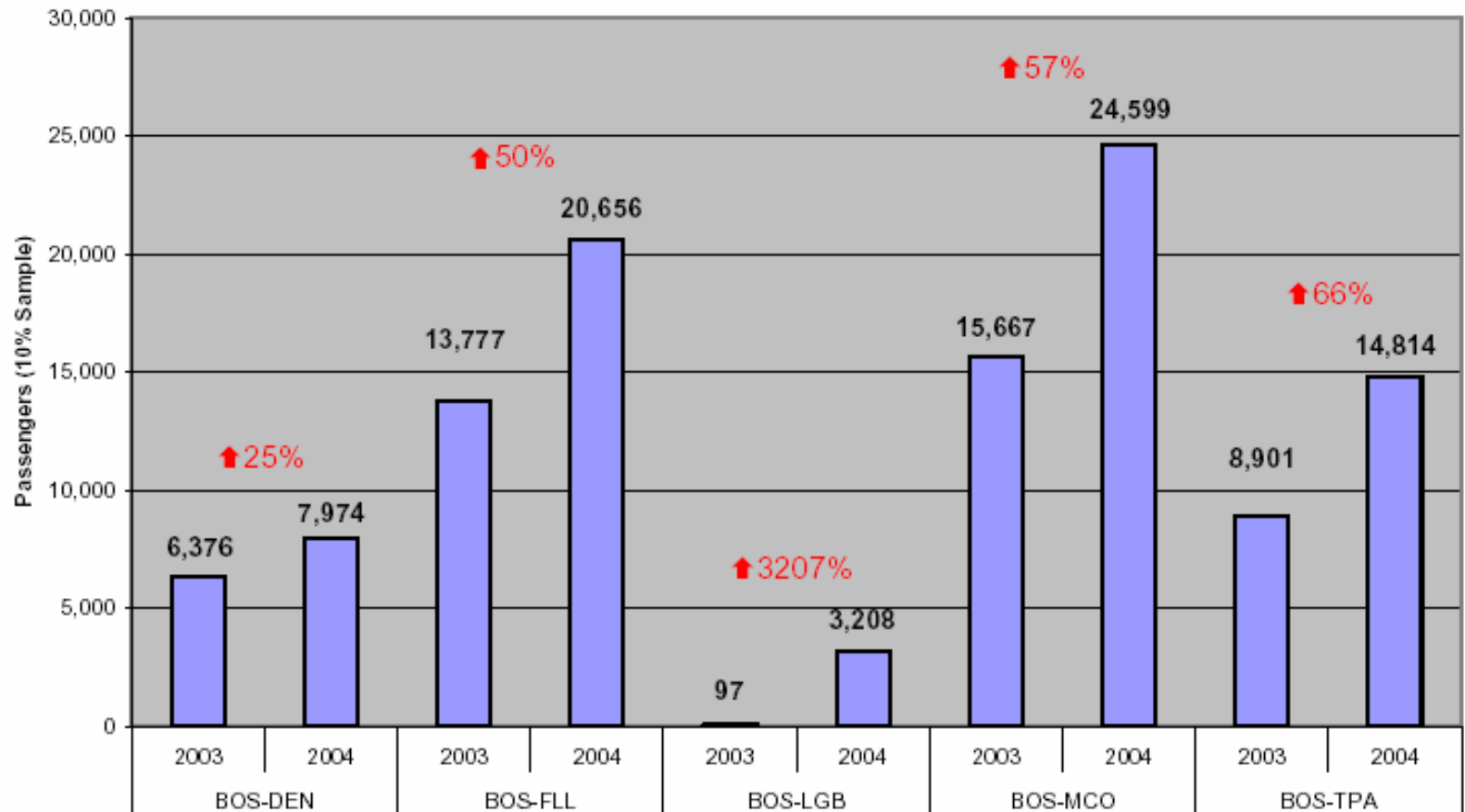
Eg., Jet Blue serves long-haul markets & Int'l markets

Figure 1 – JetBlue Route Map as of June 2004



Market Expansion after Jet Blue's Entry

Graph 2: Fared Passengers in Boston Airport Pair Markets Entered by JetBlue with Nonstop Service
1st Quarter of 2003 vs. 1st Quarter of 2004



Can LCCs maintain cost advantages ?

Short-run Cost Push Aspects:

- LCCs were able to use surplus pilots and second hand aircraft left from FSA cutbacks; As this situation gets reversed, LCC costs are bound to go up; As many of LCCs purchase new aircraft, capital costs will rise (Dennis, ATRS 2004)
- As Contracting-out services and supplies (e.g. ground handling, fuel or catering) may have been cheap as some of these suppliers were desperate to win extra business from new entrants. As LCCs become a major part of market, then cost-push is likely to occur (Stewart and Micheals, 2003);
- EC's decision on Belgium Chaleroi airport case indicates that there will be closer scrutiny not to allow local airport or community to cross-subsidize LCCs:
e.g., When Ryan Air carries 1 million pax, Chaleroi would subsidize 3.4 million Euro to Ryan Air: (Although the Airport charge 2 million Euro, it agreed to pay Ryan Air 5.4 million Euro in incentives, marketing support and rebates, Dennis (2004)).

Still, the traditional LCC model gives higher productivity and lower costs

Can LCCs maintain cost advantages ? – con'd

Medium/Long-Term Cost Push Factors:

- Many LCCs are breaking traditional LCC business models, and entering major airports (not secondary airports), long-haul markets, international markets, started to buy more than one aircraft type;
⇒⇒⇒ LCC becoming 'Hybrid' carrier
- This is happening more in LCC-saturating domestic markets in U.S., Canada, Australia, markets to/from UK and Ireland. In these markets, LCCs account for more than 30% of passengers, and the traditional LCC model alone is not capable of sustaining double-digit LCC growth in those markets.
- Some LCCs are now actively courting business passengers (e.g., Virgin Blue, West Jet, etc.)
- LCC management is likely to face high indirect and system costs, union problems, etc. similarly as FSAs

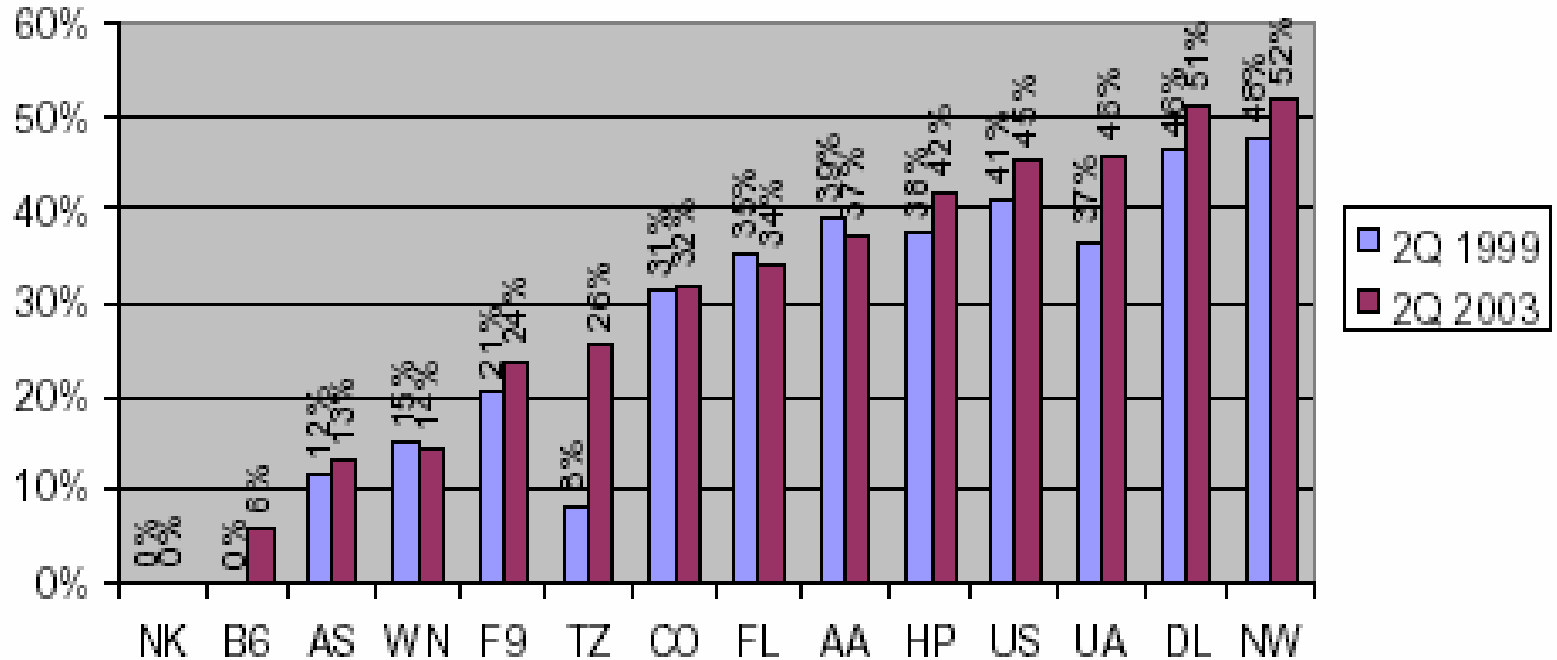
These will likely reduce unit cost advantages of LCCs over FSAs

FSA Strategies ?

- FSAs need to fix their business models continuously by ***rationalizing their route network*** and ***redefining its relationships with labor unions, suppliers, etc.*** in order to compete with low cost carriers (LCCs);
- Network carriers has advantage in handling connecting and long-haul passengers; Some regional routes may be franchised out to regional partners (recent U.S. phenomenon)
- FSAs need to focus on what they are good at. Retreat from leisure routes, focus on business routes; On business routes, Marginal Cost of serving discount fare passengers are quite low (perhaps lower than LCCs), and FSAs can compete
- The idea of charging very high unrestricted fares using strict fences on discount tickets is outdated; do everything to retain business customers; need more micro-manage pricing and yield management system taking into account of competitors' responses

Share of FSA's Connecting Traffic Increasing over Time

Graph 1: Multiple Coupon (Connecting) Traffic as a Percentage of
Carrier's Total Traffic Within US48
2Q 2003 vs. 2Q 1999



FSA Strategies ? – con't

- More efficient use of empty business class seats; bribing business customers with frequent flyer upgrades can be powerful attraction to business travelers;
- Value of FF Programs have not been fully appreciated by Asian carriers or consumers; some FFP business has more market capitalization than the airline itself;
- **FSA shouldn't try to act like an LCC. FSAs can still charge higher price to the extent that consumers value their service quality differentials; FSAs need to study markets carefully (especially price-elasticities)**

New Equilibrium – FSA vs. LCC ?

- FSAs need *restructuring as a continuous process* in order to reduce unit costs while improving quality of services, if they wish to retain the majority of business passengers while competing with LCCs on price-sensitive markets.
- As LCCs try to compete in higher end of low fare markets, long-haul and international markets, their unit costs including system costs and customer service costs will rise.
- New (dynamic) equilibrium markets may be reached with a new higher level of efficiency
- This will be good for every one at that point especially for consumers and wider economic interest of the nation.

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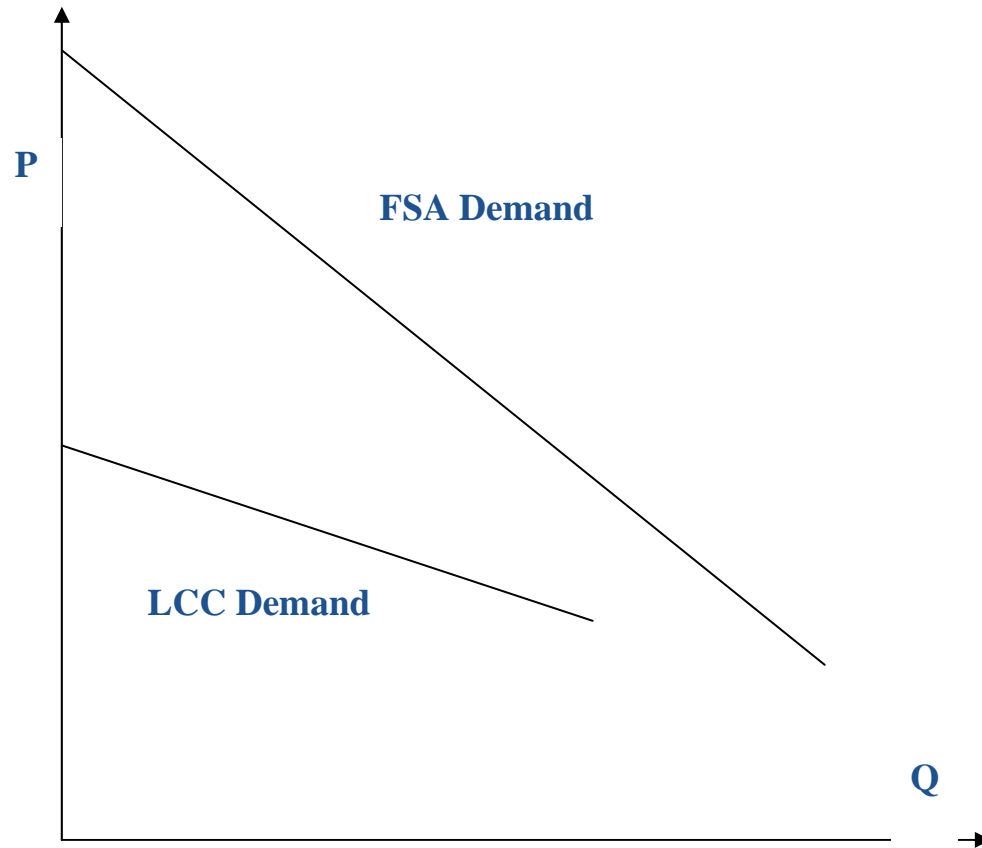
LCC Implications on Airports and Regions

- Wherever Southwest or Ryan Air gets in, the surrounding region and community gets major economic benefits; like constructing a subway or railway line to an outlying area of a city.
- Like the case of :London Luton, Stansted, Chaleroi, LCC entry attracts passengers from much longer distance than the traditional catchment area of a normal airport;
- No secret that airports and communities want to attract LCCs

Then, is it socially rational for an airport to give a better deal to the LCCs than FSAs?

Your homework !

Hint: Price Elasticities of Demand for LCC vs. FSA



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Public Policy Implications of LCC

Even in a deregulated airline market, there are a large number of entry barriers. Without LCC competition, even in the US the benefit of deregulation would have been much smaller than what we experience now. The same holds in Western Europe, Ireland, Canada and Australia.

In fact, some argue that more than 50% of the benefits (price reduction and travel volume increase) is attributable to the expansion of Southwest Airlines. Now, European economists claim the welfare effect of Ryan Air and Easy Jet are huge **(note: Ryan Air would have collapsed at the weight of Aer Lingus if Transport Minister Brannan of Irish Government did not step in at the last minute)**

Therefore, air transport policy makers including bilateral air treaty negotiators should make every effort create markets where LCCs thrive. No doubt in mind that LCC benefit to the economy significantly greater than the cost.

Airport pricing and regulation issue

When FSA and LCC compete, an identical cost increase will likely to harm LCC more as LCC is likely to lose proportionally more outputs and profits;

It is socially optimal for airports to do differential pricing of its airside service charges on LCCs and FSAs.;

In marginal routes, LCC's exit would change airline market structure dramatically. This would bring substantial welfare loss given that LCC entries and presence have brought huge benefits to consumers and society;

Furthermore, it is important to consider the effects of unregulated privatized airports on competition in the downstream airline markets when making decisions on whether or not privatized airports should be regulated.

Concluding Remarks

- LCC expansion especially in the post-2000 has posed major difficulties to Full Service Airlines (primarily because they were inefficient and high costs beyond consumers are willing to pay for their services)
- Presence of LCCs makes FSAs to be efficient and charge airfares the markets will bear, including the fare premiums for providing higher quality and network services
- Entry of LCC to an airport benefits the airport and whole regions surrounding it by enlarging the airport catchment area far beyond an FSA can bring. The effects on tourism and commerce in the region are enormous
- In the long-run, FSA benefits most - consumers, airports, regions, wider economic interest of the nation as well as keeping FSAs in shape for competition with other FSAs

Therefore, air policy makers including bilateral treaty negotiators should make every effort create markets where LCCs thrive.

Thank you