

Assessing the Price Effects of Airline Alliances on Parallel Routes

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Introduction

- Airline members of the three major global alliances account for 76% of global RPK
 - Star Alliance 29.1%
 - oneworld Alliance 21.5%
 - Skyteam Alliance 25.7%

Source: staralliance.com, Dec. 2007

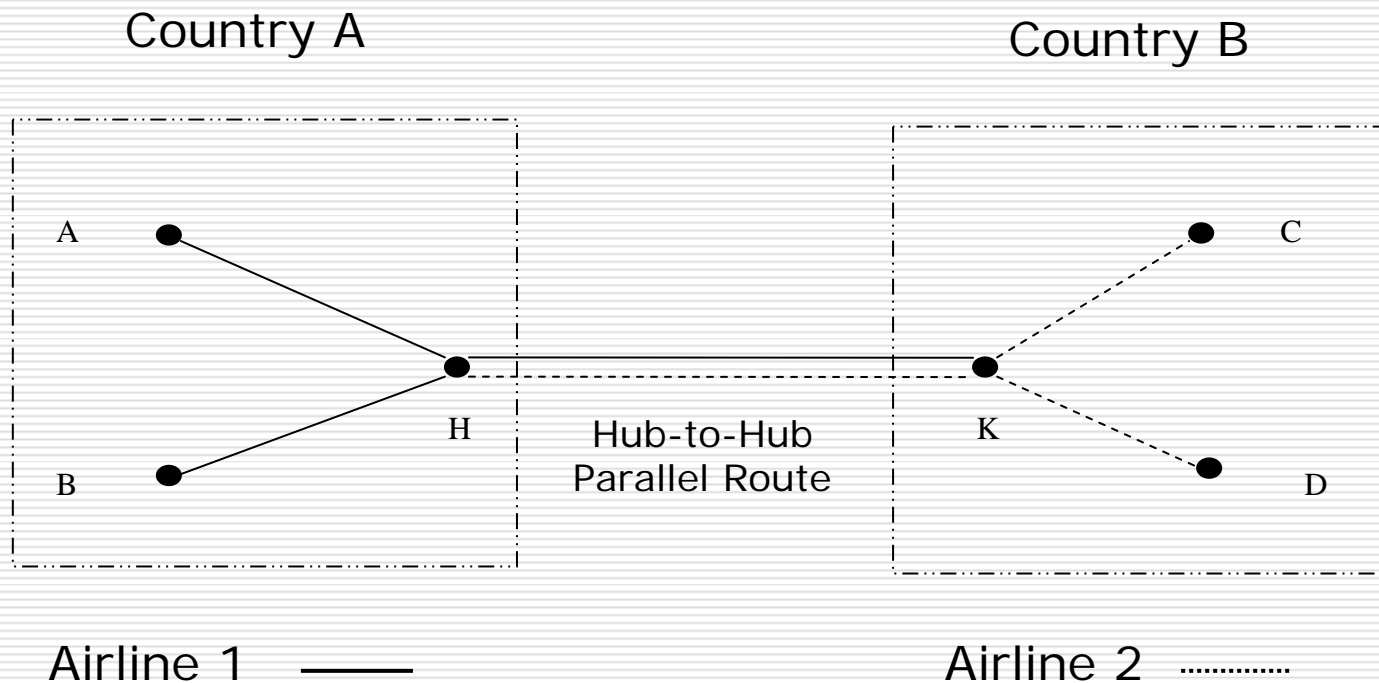
Introduction

- Alliances provide many benefits to passengers
 - Single terminal connections
 - Shorter connection times
 - Lower chance of baggage delay or loss
 - Integrated frequent flyer plans
 - Earn points to more destinations on a single plan
 - Use of more airport lounges

Introductions

- However the impact on prices due to the alliances is not straightforward, especially on *parallel* alliance routes.

Parallel vs. Complementary Alliance Routes



Adapted from Brueckner and Whalen (2000)

Alliance Pricing on Parallel Routes

- Why might prices rise with alliances?
 - Cooperative/joint price-setting rather than competitive price-setting (Park and Zhang, 2000)
- Why might prices actually fall with alliances?
 - Cost synergies (e.g., shared labor at airports) or economies of density if the alliance carries additional passengers over the route.

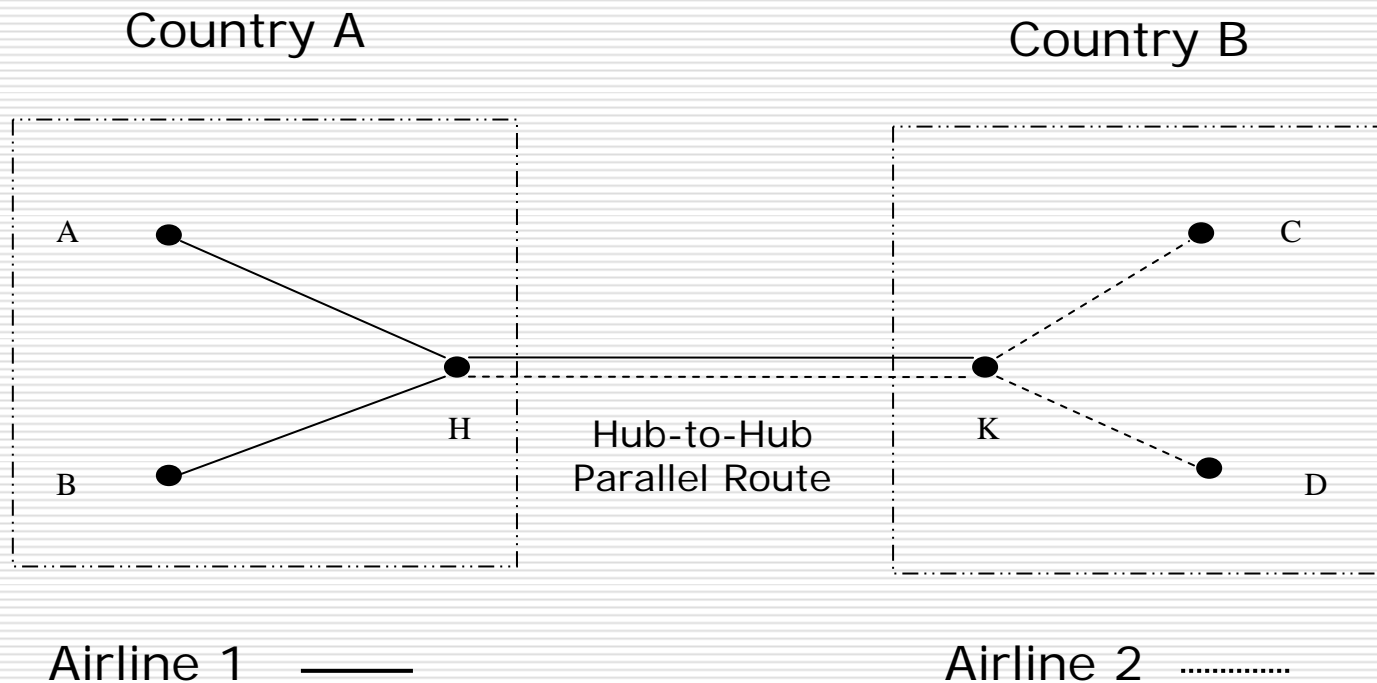
Research Question

- ❑ Do alliances contribute to higher or lower prices on parallel alliances?
- ❑ Note that the impact of alliances on complementary routes is very likely to be positive for passengers (due to coordination benefits).
- ❑ If the impact of alliances on parallel routes is also positive, then this would imply that there are unambiguous consumer benefits from alliances.

Analytical Model

- It is straightforward to show, analytically, that if an alliance attracts passengers due to coordination benefits, then this extra traffic will result in a lower equilibrium price on a parallel route if economies of density are assumed.

Cost Savings Due to Economies of Density on Parallel Route HK



Analytical Model

- It is also straightforward to show that if the airlines in the alliance engage in joint price-setting, then this will result in higher prices on a parallel route.
- The net impact of alliances on prices on parallel routes depends on the relative strength of the two opposing forces.

Empirical Model

- Collected airfares on 113 nonstop transatlantic routes in March 2007 from expedia.com.
 - Lowest available Business and Economy fares on each route
 - One-week round trip fares for flights booked 2 weeks, 4 weeks, and 8 weeks in advance.

Empirical Model

$$\begin{aligned} \log(\text{Airfare}) = & \alpha_0 + \alpha_1 \log(\text{Population}) + \alpha_2 \log(\text{Income}) \\ & + \alpha_3 \log(\text{Distance}) + \alpha_4 \text{ Four Weeks} + \alpha_5 \text{ Eight Weeks} \\ & + \alpha_6 \text{ Business Class} + \alpha_7 \text{ Alternative Routings} \\ & + \alpha_8 \text{ Number of Airlines} + \alpha_9 \text{ Vacation Routes} + \alpha_{10} \text{ Seats} \\ & + \alpha_{11} \text{ Route HHI} + \alpha_{12} \text{ Airport HHI} + \alpha_{13} \text{ Alliance} + \varepsilon \end{aligned}$$

Empirical Model

□ Alliance Variable

- Coded 1 if the U.S. and European endpoints on a route are primary hubs for airlines in the same alliance (e.g., Washington-Frankfurt).
- Coded 0 if the U.S. and European endpoints on a route are not primary hubs for airlines in the same alliance (e.g., Washington-Paris).

Results

	All Data		Economy Tickets		Business Tickets	
Constant	1.55	(1.02)	0.64	(0.33)	4.83	(2.15) *
Log (Average Population)	-0.13	(3.04) ***	-0.05	(0.81)	-0.22	(3.57) ***
Log (Average Income)	0.05	(0.52)	0.14	(1.21)	-0.08	(0.62)
Log (Distance)	0.99	(7.17) ***	0.86	(4.64) ***	1.16	(5.90) ***
Dummy for Booking 4 Weeks in Advance	-0.04	(1.08)	-0.06	(1.28)	-0.02	(0.34)
Dummy for Booking 8 Weeks in Advance	-0.11	(3.23) **	0.01	(0.15)	-0.26	(5.20) ***
Dummy for Business Class Tickets	1.96	(71.51) ***				
Alternative Routings Dummy	-0.00	(0.05)	0.02	(0.44)	-0.03	(0.49)
Vacation Route Dummy	0.07	(2.18) *	0.12	(2.66) **	0.03	(0.64)
Log (Seats)	-0.13	(5.41) ***	-0.16	(4.97) ***	-0.12	(3.30) **
Route HHI	0.00	(0.32)	0.00	(0.25)	-0.00	(0.20)
U.S. Airport HHI	-0.00	(1.14)	-0.00	(1.33)	-0.00	(0.39)
Alliance Dummy	0.05	(1.52)	0.07	(1.69)	0.03	(0.67)
No. of observations	713		361		352	
R ²	0.890		0.314		0.379	

More Results

	All Data		Economy Tickets		Business Tickets	
Intercept	2.53	(1.65)	1.73	(0.86)	5.92	(2.66) **
Log (Average Population)	-0.14	(3.17) **	-0.06	(1.01)	-0.21	(3.44) ***
Log (Average Income)	-0.02	(0.26)	0.07	(0.55)	-0.20	(1.48)
Log (Distance)	1.01	(7.29) ***	0.88	(4.79) ***	1.18	(6.06) ***
Dummy for Booking 4 Weeks in Advance	-0.03	(0.94)	-0.05	(1.20)	-0.01	(0.27)
Dummy for Booking 8 Weeks in Advance	-0.12	(3.30) **	0.00	(0.10)	-0.26	(5.31) ***
Dummy for Business Class Tickets	1.95	(70.31) ***				
Alternative Route Dummy	0.01	(0.18)	0.03	(0.57)	-0.03	(0.57) *
Vacation Route Dummy	0.08	(2.23) *	0.12	(2.47) *	0.04	(0.75)
Log (Seats)	-0.14	(5.75) ***	-0.18	(5.09) ***	-0.13	(3.57) ***
Route HHI	-0.00	(0.74)	-0.00	(0.66)	-0.00	(0.89)
U.S. Airport HHI	-0.00	(0.66)	-0.00	(1.26)	0.00	(0.33)
Dummy for Star Alliance	0.05	(1.37)	0.05	(0.89)	0.06	(1.18)
Dummy for oneworld Alliance	-0.11	(2.07) *	-0.09	(1.44)	-0.30	(2.92) **
Dummy for SkyTeam Alliance	-0.01	(0.87)	0.03	(0.54)	-0.02	(0.40)
No. of observations	713		361		352	
R ²	0.891		0.316		0.395	

Conclusions

- Alliances can exert both upward and downward effects on prices on parallel routes, but the net impact is not clear *a priori*.
- Empirical findings are that, in general, these impacts balance out on transatlantic nonstop routes.
- However, oneworld business fares are lower than fares between non-alliance hubs (perhaps because AA and BA do not have antitrust immunity to coordinate fares).

Implications

- Alliances should be encouraged!
 - Almost certainly benefit passengers on complementary routes.
 - Not detrimental and may be even beneficial to passengers on parallel routes.
 - However, alliances without antitrust immunity may produce greatest consumer benefits.
- Results support the Transatlantic Open Skies agreement which may encourage additional alliance coordination.

Limitations

□ Data Limitations

- Data collected at one point in time
- Data reflected available fares, not purchased fares
- International yield data were not available for analysis of international fares

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Danke!

Thank you!