



**COLLUSIVE DUOPOLY: THE ECONOMIC EFFECTS
OF ALOHA AND HAWAIIAN AIRLINES'
AGREEMENT TO REDUCE CAPACITY**

BY

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Collusive Duopoly: The Economic Effects of the Aloha and Hawaiian Airlines'
Agreement to Reduce Capacity

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I. Introduction

In the aftermath of the terrorist attacks on September 11, 2001 (9/11), Congress passed the Aviation and Transportation Security Act (ATSA)¹. Section

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116, *Air Transportation Arrangements in Certain States*, which was inserted into the Act by Senator Daniel K. Inouye from Hawaii, seemed innocuous enough:

...air carriers providing air transportation on flights which both originate and terminate at points within the same State may file an agreement, request, modification, or cancellation of an agreement within the scope of that section with the Secretary of Transportation upon a declaration by the Governor of the State that such an agreement, request, modification, or cancellation is necessary to ensure the continuing availability of such air transportation within that State.²

This language is hardly transparent, but it provided a foundation for Aloha Airlines and Hawaiian Airlines to obtain temporary antitrust immunity for their agreement to coordinate a reduction in passenger seat capacity on routes between Hawaii's five major interisland airports. While the provision did not apply only to Hawaii, it applied only to intrastate flights, and only Hawaiian and Aloha Airlines, among U.S. airlines, took advantage of this statute to jointly

Department of Economics at the University of Hawaii where this research was conducted.

¹ Public Law 107-71, 115 Stat. 597 (codified as amended in scattered sections of 49 U.S.C.) (Nov.19, 2001).

² Section 116(a).

reduce passenger capacity in the wake of sharply declining demand for air travel after 9/11.³

The limited antitrust exemption provides a rare opportunity to examine the economic effects of collusively reducing capacity in a duopolistic market. We begin our analysis by providing some background information in section II regarding Hawaii's interisland market for scheduled passenger air service and the Aloha-Hawaiian agreement that was authorized by the Secretary of Transportation under Section 116. According to Aloha and Hawaiian, unilateral reductions in capacity were not feasible, (although both had made unilateral reductions already), and their cooperative capacity reductions would reduce their costs and improve their efficiency with no impact on fares.

Contrary to these assertions, economic theory predicts that a reduction in capacity would tend to raise fares, even though cooperation on fares and schedules was not permitted. We present an economic analysis of the agreement in section III, and advance the testable hypothesis that capacity reduction will result in fare increases. In section IV, we demonstrate empirically that reductions in passenger capacity under the agreement did contribute to sharply rising airfares in Hawaii's interisland air travel market. Indeed, our analysis suggests that explicit agreement is more effective in reducing competition than tacit collusion in a tight oligopoly. Moreover, our empirical

³ See Frank Cho, Aloha, Hawaiian Defend Route-Sharing Proposal, Honolulu Advertiser.com, Sept. 10, 2002, <http://the.honoluluadvertiser.com/article/2002/Sep/10/bz/bz01a.html>.

findings indicate that, following the expiration of the agreement, tacit collusion may have been sufficient to enable the parties to continue their supra-competitive pricing.

Successful collusion raises prices and profits, however, which induces entry. Our penultimate section documents the entry of a third interisland carrier following the increase in interisland fares, and the price war that followed. Finally, our empirical results provide an economic foundation for the policy implications that we advance in our concluding section.

II. Background

Aloha Airlines and Hawaiian Airlines have provided interisland air service for over 50 years in the State of Hawaii. In recent years, they have accounted for some 95 to 96 percent of the interisland service for the five major airports – Honolulu on Oahu, Kona and Hilo on the island of Hawaii, Lihue on Kauai, and Kahului on Maui.⁴ Oahu is the most populous island, and main destination from mainland airports; the much less populated islands of Hawaii, Kauai, and Maui are collectively referred to as the “Neighbor Islands

Both airlines began experiencing financial losses on total operations in 1999, as shown in Table 1.

⁴ Aloha and Hawaiian also provide overseas service to the western region of the United States mainland in direct competition with some of the largest U.S. trunk air carriers including United, American, and Northwest, but that service was not subject to the agreement examined here.

Table 1. Aloha and Hawaiian Airlines

Operating Profits and Losses (in millions): 1997-2003

Year	Aloha	Hawaiian
1997	\$6	\$2
1998	8	17
1999	(4)	(40)
2000	(6)	(14)
2001	(24)	(15)
2002	(23)	5
2003	(8)	60

Note: Financial results are for the entire company's operations, not just for the interisland business. The values in parentheses represent losses.

Source: Air Transportation Association, Annual Economic Reports, 1998-2004.

The growing financial difficulties of Aloha and Hawaiian were blamed in part on the decrease in demand for interisland air travel attributable to several factors, including improved health care and retail shopping options on the Neighbor Islands and increased direct flights to the Neighbor Islands from the U.S. mainland and Japan.⁵ Nonetheless, Table 2 shows that there was no discernible downward trend in interisland enplanements before 2001. After September 11, the sharp drop in overall demand for interisland air travel deepened the financial losses for Aloha and Hawaiian.⁶

⁵ Dan Nakaso, *Interisland Travel Dwindling*, HONOLULU ADVERTISER, Mar. 27, 2005, at 1F, available at <http://the.honoluluadvertiser.com/article/2005/Mar/27/bz/bz02a.html>.

⁶ See Table 2. This was true for nearly all U.S. airlines. See Daniel M. Kasper, *Coffee, Tea or Chapter 11?* The Milken Institute Review, 27 (2005) and Air Transportation Association of America, Inc., Statement for the Record of the Subcommittee on Aviation,

Table 2. Interisland Air Passenger Enplanements: 1995-2003

Year	State	Five Major Airports
1995	10,388,281	10,085,566
1996	10,581,825	10,281,797
1997	10,448,099	10,134,457
1998	10,075,448	9,779,656
1999	10,173,069	9,874,251
2000	10,378,775	10,099,685
2001	9,169,182	8,936,488
2002	8,587,568	8,366,546
2003	7,820,545	7,606,143

Source: State of Hawaii, Department of Transportation (DOT) *Airport Activity Statistics, 2003* and DOT records.

Plagued by financial losses and excess capacity on their interisland routes, Aloha Airlines and Hawaiian Airlines began negotiations in December 2001 to merge their operations under a single holding company. On January 11, 2002, they filed an application seeking merger approval from the U.S. Department of Transportation.⁷ The merger talks broke down in March 2002.⁸

Transportation and Infrastructure Committee, U.S. House of Representatives, *Concerning The Financial Condition of the U.S. Airline Industry*, June 3, 2004.

⁷ USA Today.com. January 11, 2002. This was not the first attempt at merger between the two airlines. For a chronology of that history, see *The Honolulu Advertiser*, March 17, 2002.

⁸ *The Washington Times*, March 17, 2002; also, U.S. Department of Transportation, Order Dismissing Application, Docket OST-02-11315, July 19, 2002. It cannot be said that the merger talks broke down due to the DOJ objections. There appears to have been conflict between the two airlines and each blamed the other for the break. Susan Hooper, "Power Grab killed air deal, Aloha says," *Honolulu Advertiser*, March 18, 2002,

Unable to merge, the airlines turned their attention to reaching an agreement to reduce competition between them.⁹ Section 1 of the Sherman Act, however, forbids such agreements among competitors,¹⁰ and exposes violators to severe criminal and civil sanctions¹¹ including private treble damage suits.¹² Indeed, a horizontal output agreement such as the one contemplated by Aloha Airlines and Hawaiian Airlines is illegal per se, automatically subject to civil liability and potentially subject to criminal sanctions as well.¹³ Antitrust immunity for the contemplated agreement was therefore essential.

pp. A1 and A2; and also Susan Hooper, "Air Merger Off, Hawaiian Says," *The Honolulu Advertiser*, March 17, 2002, pp. A1 and A14.

⁹ Jayne O'Donnell & Barbara De Lollis, *Aloha, Hawaiian Airlines Could Share Operations*, USA TODAY, Jan. 11, 2002, at 2B.

¹⁰ 15 U.S.C. §1 provides in relevant part that "[e]very contract, combination ..., or conspiracy, in restraint of trade... is hereby declared to be illegal."

¹¹ Corporations can be fined up to \$100 million; individuals can be fined up to \$1.0 million and/or imprisoned for up to 10 years. CITE

¹² 15 U.S.C. § 15 (authorizing successful plaintiffs to recover treble damages and reasonable attorney's fees.)

¹³ *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150 (1940): "Under the Sherman Act, a combination formed for the purpose and with the effect of raising, depressing, fixing, pegging, or stabilizing the price of a commodity... is illegal per se." Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and Its Practice* 144-190 (1999), provides a survey of per se violations. Of course, firms may violate Section 1 despite potential penalties, if they believe that they will not be caught, but it would be

Section 116 of the newly-enacted Aviation and Transportation Security Act came to the rescue, offering a mechanism through which the parties could obtain immunity from antitrust liability for an agreement to eliminate competition. To qualify, the parties first had to obtain a declaration from the Governor of Hawaii that the agreement was necessary to ensure the continuing availability of air service in the State.¹⁴ Armed with such a declaration, the carriers could then request approval from the Secretary of Transportation.¹⁵ Upon a finding by the Secretary (1) that the State to which the proposed agreement applied had extraordinary air transportation needs¹⁶ and (2) that approval of the proposed agreement was in the public interest,¹⁷ the Secretary had the authority to approve the proposed agreement. If approved, the agreement would normally terminate no later than October 1, 2002, but the carriers could request a one-year extension to October 1, 2003.¹⁸

very difficult for the two Hawaii airlines to collude in the manner outlined in the Cooperation Agreement without getting caught.

¹⁴ Section 116(a).

¹⁵ Section 116(b).

¹⁶ Section 116(c) (1).

¹⁷ Section 116(c) (2).

¹⁸ Section 116(d) and (e).

The Aloha-Hawaiian Proposed Agreement

The Aloha-Hawaiian Cooperation Agreement dealt with most of the problems that all cartels face.¹⁹ Aside from the considerable difficulties associated with their illegality, which immunity erased, a cartel must solve two main problems. First, the agreement must not unravel due to divergent interests among the participants. This is important because each cartel member has an incentive to garner as much of the collusive profits as it can. In competing for a bigger share of the profits, cartel members might dissipate some or all of the profits through increases in quality, service, advertising expenditures, and other nonprice variables.²⁰ Ideally, the solution would include price and nonprice restrictions as well as some way of dealing with asymmetries among the

¹⁹ For an economic analysis of cartels, see George J. Stigler, *A Theory of Oligopoly*, 72 *Journal of Political Economy* 44 (1964); Roger D. Blair & David L. Kaserman, *Antitrust Economics* 132-163 (1985); Keith N. Hylton, *Antitrust Law: Economic Theory and Common Law Evolution* 64-89 (2003); Richard A. Posner, *Antitrust Law* (2d ed. 2001); and Herbert Hovenkamp, *The Antitrust Enterprise: Principle and Execution* 112-134 (2005).

²⁰ See George J. Stigler, *Price and Nonprice Competition*, 76 *Journal of Political Economy* 149 (1968), for an accessible explanation. See also David Genesove & Wallace P. Mullin, *Rules, Communication, and Collusion: Narrative Evidence from the Sugar Institute Case*, 91 *American Economic Review* 379 (2001).

participants.²¹ Second, once a complete agreement has been struck, the cartel members must find a way to deter cheating on the agreement.²² This involves monitoring to detect cheating and meting out punishment to make cheating unprofitable.

Under the proposed Cooperation Agreement between the two airlines, they jointly set total seat capacity each month – measured in total *available seat miles* (ASMs) – and divided that capacity equally between them.²³ The ASMs were calculated as the product of the total number of seats on the plane and the distance traveled:²⁴

$$\text{ASM} = \text{total seats} \times \text{distance traveled}^{25}$$

²¹ For example, unequal costs will lead to differences regarding the optimal price. A way to resolve this is to pool profits and share them. Alternatively, the market could be divided along geographic or customer class lines.

²² See Roger D. Blair & David L. Kaserman, *supra* note 15 at 141-145, for an analysis of the incentive to cheat. Keith N. Hylton, *supra* note 15, also emphasizes the need to prevent cheating if a cartel is to be stable.

²³ Cooperation Agreement, *supra* note 4, art. 2.1.2.

²⁴ One can think of the total ASMs as a measure of *output* because it measures the air transportation service produced by the airlines. To the extent that some seats are empty, not all of the output is sold. Obviously, ASMs are extremely perishable as they cannot be stored for future sale.

²⁵ For example, if Aloha flew a 100-seat plane between Honolulu and Hilo- a distance of 216 miles – that flight would generate 21,600 ASMs. To aggregate the ASMs

Each airline was free to use its allocated ASMs on any or all of the interisland routes.²⁶ To curb the impulse to cheat, Aloha and Hawaiian monitored each others' compliance – each certified the ASMs supplied each month to the other, with verification using officially reported data.²⁷

Even with joint capacity reductions, generally load factors were substantially below 100 percent, i.e., there was excess capacity (or unsold output) on each flight.²⁸ Since the marginal cost of putting an additional passenger in an otherwise empty seat is extremely low, each carrier would have a powerful profit incentive to add incremental business, by competing on a price and/or nonprice basis. As noted above, such competition would lead to the dissipation of profits or even the collapse of the agreement.²⁹ The agreement did not permit the

on all Aloha flights for that month, one would simply add the ASMs for all flights offered during that month.

²⁶ The only constraint was that no route could be abandoned by both carriers. All existing routes had to be served by at least one carrier. Cooperation Agreement, Sec. __.

²⁷ Cooperation Agreement, Sec. 2.2. If Aloha and Hawaiian found the official reports insufficiently reliable for verification, they agreed to develop satisfactory audit procedures.

²⁸ Load factors will always be below 100 percent due to variations in demand. In this case, however, the load factors were well below 100 percent and normal demand could be accommodated with fewer flights and/or smaller planes.

²⁹ The Cooperation Agreement could be cancelled by either party on written notice. Cooperation Agreement, *supra* note 4, art. 8.4.

parties to prevent such competition by colluding on fares or schedules.³⁰ Instead, the agreement addressed this problem, by providing for “revenue balancing,” i.e., revenue transfers when one airline got more than its “fair share” of the passenger traffic.³¹

The revenue balancing provision of the agreement was an imperfect means of sharing actual revenues, but it did provide some disincentive to compete for sales exceeding one’s share of allocated capacity.³² Revenue transfers were based upon imbalances in *revenue passenger miles* (RPMs), calculated as the product of the number of paying passengers on a flight and the number of miles flown:

RPM = number of passengers x distance traveled for all flight in a month.³³

³⁰ The two carriers wanted to allocate routes and coordinate their schedules but this plan was not part of the proposal submitted to DOT for approval. *The Honolulu Advertiser*, November 29, 2001 and *Pacific Business News*, September 19, 2001.

³¹ Cooperation Agreement, *supra* note 4, art. 2.2

³² It also provided a disincentive to behave strategically by operating well below the allocated ASMs. If an airline offered less than 98 percent of its allocated ASMs, it received no revenue transfer irrespective of any imbalance in its share of the total business. Cooperation Agreement, *supra* note 4, art 2.2.

³³ For example, if Aloha carried 80 passengers on its flight from Honolulu to Hilo, that flight would generate 17,280 RPMs (= 80 x 216 miles). Aloha’s total RPMs for a month would be the sum of the RPMs generated on all of its flights during that month.

The agreement provided for revenue transfers for deviations between actual ASM share from the allocated (50%) share between the airlines in each month. The RPM transfer rate (penalty) was a sliding scale function of the ASM share variance, ranging from \$.10 per RPM to \$.40 per RPM depending on the size of the deviation in actual ASM share from the allocated (50%) share.³⁴

To illustrate the revenue balancing provision, assume that Aloha and Hawaiian agreed to offer a total of 120 million ASMs (60 million ASMs each) in a particular month,³⁵ and that each carrier actually provided that amount of capacity. If Aloha had 45 million RPMs (average load factor 75 percent) and Hawaiian had 51 million RPMs (average load factor 85 percent), there would be 96 million RPMs during the month.³⁶ If the RPMs had been divided in proportion to the ASMs allocated, each carrier would have had half of the total or 48 million RPMs, which means Hawaiian had an excess (and Aloha a shortfall) of 3.0 million RPMs. Under the revenue balancing provision would have required, Hawaiian to pay \$0.10 per excess RPM to Aloha, or \$300,000.

Moreover, the agreement provided for a larger penalty when there was a variance in the capacity (ASMs) offered by each airline, according to the

³⁴ Cooperation Agreement, *supra* note 4, art 2.2.

³⁵ Several illustrations were included as Exhibit 1 to the Cooperation Agreement.

³⁶ The relationship between an airline's ASMs and RPMs is straightforward:

$$\text{RPM} = \text{LF} \times \text{ASM}$$

where LF is the airline's load factor, which is defined as the number of paying passengers divided by the total member of available seats x 100.

schedule set forth in Table 3.^{37,38} For example, suppose, in the above illustration, that Aloha offered 60 million ASMs while Hawaiian “cheated” by offering 63 million ASMs, so that the their respective shares of capacity were 51.2 percent and 48.8 percent -- a gap of 2.4 percent. According to the agreement, the transfer rate would rise from \$0.10 per RPM to \$0.30 due to the ASM variance.³⁹ Accordingly, the revenue transfer from Hawaiian to Aloha would triple to \$900,000.

Table 3. Revenue Transfer Payment Schedule

ASM Share Variance	RPM Transfer Price
0-1.0 percentage points	\$0.10 per RPM
1.1-2.0	0.20
2.1-3.0	0.30
3.1 or more	0.40

To put these penalties in perspective, suppose that the RPM transfer rate was \$0.30. One additional passenger on a flight from Honolulu to Hilo—a distance of 216 miles—would have led to a transfer of \$64.80 from one carrier to the other. The maximum fare was \$119.00 during 2003, and the lowest one-way fare was \$69.00.⁴⁰ Thus, the revenue transfer would have been more than half of the

³⁷ See Cooperation Agreement, Article 2.2. no. 1.

³⁸ Cooperation Agreement, Article 2.2, no. 1 defines the ASM variance.

³⁹ See *id.*

⁴⁰ See STATE OF HAWAII, DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM, 2003 STATE OF HAWAII DATA BOOK, Table 18.42 (2004), *available at* <http://www.hawaii.gov/dbedt/info/economic/databook/db2003/>.

maximum revenue received by the carrier providing the service, and nearly 94 percent of the actual revenue received. Because the penalty became increasingly harsh when one airline exceeded its allocated ASM share, the revenue transfer payment schedule provided a strong incentive to avoid scheduling flights with anticipated low load factors.

DOT's Consideration of the Application for Immunity

As required by Section 116, Aloha and Hawaiian obtained a declaration from Governor Benjamin J. Cayetano that the proposed Cooperation Agreement was “necessary to ensure the continuing availability of air transportation which both originate and terminate within the State of Hawaii,”⁴¹ emphasizing that air transportation is the only feasible way to move people and time sensitive cargo between the islands.⁴² DOT then considered whether Hawaii had extraordinary

⁴¹ Declaration of Benjamin J. Cayetano, Governor of the State of Hawaii, July 22, 2002, p. 6.

⁴² *Id.* at pp. 1-2. In remarks made following the submission of his declaration, Governor Cayetano explained that “Interisland air transportation is of critical importance to the people of Hawaii and if we can help maintain that service, then that is what we should do. The proposed cooperation agreement is necessary to ensure the continuing availability of air transportation which both originates and terminates at points within the State of Hawaii. If, after reviewing their plans, we find that implementing the agreement produces undue restriction on the availability of interisland travel or is otherwise not in

air transportation needs⁴³ and particularly whether approval of the proposed agreement was in the public interest.

The Department of Justice strongly opposed the proposed Cooperation Agreement as not in the public interest.⁴⁴ Specifically, DOJ argued that the requested antitrust immunity would surely reduce consumer welfare as a result of increased fares and reduced availability of service.⁴⁵ The Department of Justice opined that the “system will create a powerful disincentive for the carriers to reduce fares or improve service in order to attract additional passengers.”⁴⁶ In addition, DOJ pointed out that the intent of the legislation was to ensure the continued availability of some air transportation service; it was not supposed to ensure the survival of two or more carriers on each route.⁴⁷ DOJ was not persuaded that there was any evidence that *both* Aloha and Hawaiian would exit the interisland market absent approval of the proposed agreement.⁴⁸

the State’s best interest, I have the right to withdraw my declaration.” *Pacific Business News*, July 23, 2002.

⁴³ Section 116(c) (1).

⁴⁴ See Public Comments of the Department of Justice, August 30, 2002.

⁴⁵ *Id.* at 2.

⁴⁶ Department of Justice, Public Comments, August 30, 2002, at 8.

⁴⁷ *Id.* at 8. The *DOJ* did not opine as to whether consumers would be better off if one of the airlines were to fail and exit the market in the absence of the antitrust immunity, so that a monopoly resulted rather than a collusive duopoly.

⁴⁸ *Id.* at 8. Indeed, when Hawaiian Airlines filed for Chapter 11 bankruptcy protection on March 22, 2003, Aloha’s CEO offered that if Hawaiian were to reduce flights, “Aloha

Furthermore, DOJ pointed out that the effects of the agreement would likely extend well beyond the expiration of the antitrust immunity as a result of tacit collusion.⁴⁹ DOJ's conclusion was categorical:

*The proposed inter-island Cooperation Agreement is manifestly not in the public interest. Allowing the only two carriers serving these routes to coordinate capacity will result in serious harm to consumers traveling in the inter-island city pairs. There is no evidence whatsoever to support the claim that immunity is necessary to preserve service on these routes. Accordingly, DOJ strongly urges that the Secretary deny the application.*⁵⁰

Interestingly, two other airlines opposed the agreement as well. American Airlines objected to the proposed Agreement because it feared that potential customers might have difficulty booking connecting flights to the Neighbor

could likely pick up a substantial amount of the slack in the interisland market.” *The Honolulu Advertiser*, April 19, 2003.

⁴⁹ Public Comments, *supra* note 44, at 9–10. *Tacit* collusion does not involve an explicit, albeit covert, agreement. The term refers to situations where explicit agreement is unnecessary because the parties know how they should act to avoid competing. Tacit collusion does not involve *agreement* as that term has meaning in antitrust law and, therefore, does not violate Section 1 of the Sherman Act. [Suggest revising last sentence and providing cite.]

⁵⁰ *Id.* at 9.

Islands resulting in fewer tourists visiting Hawaii.⁵¹ Pacific Wings, a Maui-based commuter airline, also objected, even though the agreement could be expected to benefit it, by raising prices and reducing competitors' capacities. The President of Pacific Wings explained that while he was aware of this theoretical argument, he feared that his airline could be harmed if Aloha and Hawaiian coordinated their actions against Pacific Wings.⁵²

Aloha and Hawaiian consistently emphasized that a coordinated reduction in capacity would improve their efficiency and thereby reduce their costs, which would increase the profitability of interisland service.⁵³ In their response to DOJ's objections, Aloha and Hawaiian asserted emphatically that "[t]he Cooperation Agreement will not increase costs or fares..."⁵⁴ because of the "discretionary nature" of interisland travel⁵⁵ and because the Governor could rescind his declaration of support for the agreement if Hawaii residents were adversely affected to a significant degree. They further noted "that entry barriers affecting

⁵¹ Motion for Leave to File Late and Comments of American Airlines, Inc. at 2–3, Joint Application of Aloha Airlines, Inc., and Hawaiian Airlines, Inc., Docket OST-2002-13002 (Dep't of Transp. Sept. 2, 2002), *available at* <http://dmses.dot.gov/docimages/p73/186386.pdf>.

⁵² Personal telephone conversation with one of the coauthors (Mak, June 7, 2006),

⁵³ Cite their filings

⁵⁴ See Reply Comments at 6; emphasis in original.

⁵⁵ This claim is entirely inconsistent with the views expressed by Governor Cayetano and Hawaii's Congressional Delegation, who pointed out the critical nature of interisland air transportation. Absent the critical importance of interisland air transportation, there would be no basis for granting antitrust immunity under Section 116.

prospective interisland carriers are low, thereby allowing the potential entry of competition to discipline the cooperative agreement between Aloha and Hawaiian.”⁵⁶

Aloha and Hawaiian argued that preserving the availability of interisland air service is in the public interest, citing support from Governor Cayetano and the Hawaiian congressional delegation. They pointed out that Governor Cayetano followed up his declaration with a letter to Secretary Mineta reiterating his support for the proposed agreement,⁵⁷ and pointing to the experience following the September 11 terrorist attacks as evidence that interisland air service is essential.⁵⁸ In addition, the airlines cited a joint letter from Hawaii’s Congressional delegation,⁵⁹ which urged Secretary Mineta to grant the request for antitrust immunity, emphasizing Hawaii’s unique dependence upon air transportation service in the daily economic and social life of the state.⁶⁰

⁵⁶ Joint Application, p.12.

⁵⁷ See the Reply Comments of Aloha Airlines, Inc., and Hawaiian Airlines, Inc., and Motion for Leave to File an Unauthorized Document, Docket OST- 2002-13002, Exhibit 1.

⁵⁸ Cayetano letter; *supra* note _____. Both Governor Cayetano and Hawaii DOT Director, Brian Minaai, emphasized the State’s compelling interest in preserving *both* carriers.

⁵⁹ *Id.*, Exhibit 2.

⁶⁰ “Hawaii’s unique status as an island state makes it heavily dependent on air transportation as a basic component of its economic and social life. There is simply no other practical way for the people of Hawaii to travel among the islands for business,

It is undeniable that ensuring the continuing availability of interisland air service is in the public interest. The real question, however, is whether antitrust immunity for Aloha and Hawaiian's collusive plan to reduce service availability was necessary to ensure the continuing availability of *some* service. The carriers insisted that it was, but acknowledged that they had unilaterally reduced capacity since September 11;⁶¹ indeed, they had each cut capacity by some 20 percent of their routes and laid off nearly 700 employees.⁶²

In their joint reply to the DOJ's objections, Aloha and Hawaiian argued that cooperation was necessary to further reduce capacity and that unilateral reductions in capacity to conform capacity to actual demand were not feasible "because of the fear of conceding passengers to the other carrier."⁶³ Interestingly,

family, and recreation; for businesses to distribute time-sensitive products such as newspapers, medicines, and food among the islands; for mail and express to reach their destinations quickly; or for tourists to enjoy fully the pleasures of our multifaceted island communities." *Id.*

⁶¹ Joint Reply at 3.

⁶² *HonoluluAdvertiser.com*, December 19, 2001 and December 20, 2001. Greg Kahlstorf, Pacific Wings President, pointed out that "[Aloha and Hawaiian] are still ignoring the fundamental question of why they can't cut capacity without government intervention."

⁶³ Section III of the Joint Reply. The logic goes something like this: Each airline may fear that its capacity reduction will not be matched absent an enforceable agreement to do so. If capacity reductions are not matched, the now smaller airline may get its fair share of the customers based on a percent of the industry capacity. The result will be increased load factors and more profits for the now relatively larger airline. The airline

after the agreement expired on October 1, 2003, the president and CEO of Hawaiian Airlines opined in an interview with the *Honolulu Star Bulletin* that "Even if the exemption never existed, both carriers would have been forced to reduce flights because of the changing market conditions...The law enacted by Congress provided an orderly way for this flight reduction."⁶⁴

In essence, the two airlines acknowledged that reductions in capacity to conform to actual demand would be greater with an agreement than without an agreement. While the reduction in capacity and the ensuing increase in load factors might be good for the airlines, the airlines presented no evidence that this would be in the public's interest—i.e. be socially efficient.⁶⁵

On September 30, 2002, Norman Mineta, Secretary of Transportation, approved the Aloha-Hawaiian Cooperation Agreement through October 1, 2003.⁶⁶ In essence, the DOT accepted the arguments put forward by the carriers

that reduced capacity will have lower costs, but may not necessarily be more profitable. As a result, an enforceable agreement is necessary to achieve the optimal capacity reduction.

⁶⁴ Starbulletin.com, October 2, 2003.

⁶⁵ By "socially efficient", we mean that the sum of the consumer and producer surpluses is maximized.

⁶⁶ Since the original application was so close to the statutory deadline, the carriers asked for the extension to October 1, 2003 in their initial application. The two carriers actually sought a further extension (by one year) of the statutory deadline, but were unable to obtain Senator Inouye's support. *Starbulletin.com*, March 15, 2003.

and acquiesced to the requests of Hawaii's political leaders.⁶⁷ Nonetheless, DOT had reservations. It issued a cautionary reminder of its authority to modify or revoke its decision,⁶⁸ It also included a requirement that the airlines submit monthly reports on schedules and fares in the five markets,⁶⁹ explaining that "We are adopting this requirement because of our concern with the potential impact of this agreement on consumers and we intend to monitor closely the schedules and fares being offered by each of the carriers in those markets."⁷⁰ As we shall see, there was good reason for DOT to be concerned about the impact on fares.

III. Economic Analysis of Cooperation Agreement

For a variety of reasons, Aloha and Hawaiian found themselves with excess capacity in their interisland business. As one would expect, excess

⁶⁷ The DOT order states, in part, "We find that approval of the proposed Aloha/Hawaiian agreement, subject to our conditions, meets the standards of the statute, and that approval of the agreement for the short-term period... will facilitate the recovery of inter-island services in the aftermath of September 11 and promote the viability of an effective inter-island network in Hawaii."

⁶⁸ "We remind the carriers that the department at any time has the discretion to amend, modify, or revoke its approval of all, or any portion of the agreement if we determine that the carriers have acted in a manner that no longer is in the public interest." DOT Order at 10-11.

⁶⁹ DOT Order at 11-12.

⁷⁰ *Pacific Business News*, September 30, 2002.

capacity along with price and nonprice competition would result in losses for the two carriers.⁷¹ The solution is to reduce capacity, which will lead to reduced costs and increased prices until losses are eliminated.⁷² Each airline, however, maintained that it could not unilaterally reduce capacity. In fact, capacity could have been reduced unilaterally, but coordinated reductions would be more profitable.

For example,⁷³ suppose both carriers offered a flight from Honolulu to Hilo at 6:00 A.M. Further, suppose that each carrier had a 50 percent load factor. If

⁷¹ The carriers claimed that their interisland business was unprofitable. Although we do not have empirical evidence to support their claim, we accept it as accurate for purposes of our analysis.

⁷² David Kreps & Jose Scheinkman, *Quantity Precommitment and Bertrand Competition Yield Cournot Outcomes*, 14 *Bell Journal of Economics* 326 (1983) demonstrated, using a two-stage oligopoly game, that if two duopolists jointly observe each other's capacity choices, subsequent Bertrand price competition leads to a Cournot outcome in which prices will be higher than the competitive price but below the monopoly price. In the Aloha-Hawaiian Cooperation Agreement, subsequent price competition following collusive capacity reduction was discouraged by the revenue balancing provision.

⁷³ This example is meant to illustrate the profitability of cooperation over unilateral conduct. The actual Cooperation Agreement did not permit the type of cooperation incorporated in the example. The reduction in ASMs caused by the agreement, however, necessarily resulted in the cancellation of some flights even though specific cancellations could not be coordinated.

Hawaiian unilaterally eliminated that service, most (if not all) of the passengers would switch to Aloha, which would then have enjoyed a sold out flight. Hawaiian would have been somewhat better off as it eliminated an unprofitable flight and Aloha presumably would have been better off with a full plane at 6:00 A.M. If Aloha had also cancelled its 6:00 A.M. flight, Hawaiian would have been even better off. These early passengers would be pushed back to later flights. To the extent that the 7:00 A.M. flights could accommodate them, the load factors would rise for both airlines. Some might delay their departure until 8:00 A.M. or even later. Since there are no substitutes for air service, the 6:00 A.M. passengers would necessarily be redistributed to later flights thereby improving load factors and profitability.⁷⁴ The advantages of collusion are apparent. Absent joint cancellation of the 6:00 A.M. service, Hawaiian reduces costs and loses revenues. With a collusive reduction in service, both carriers would reduce costs, but neither carrier would lose revenue.⁷⁵ Alternatively, Hawaiian might have been happy to cancel its 6:00 A.M. service if Aloha had cancelled service at 7:00 A. M. or some other time when both carriers had a substantial number of empty seats. The financial results would be similar—both would reduce costs without any sacrifice in revenue. The fact that cooperation is more profitable than

⁷⁴ Of course, some consumers may choose not to travel due to the added costs of reserving scarce seats.

⁷⁵ Again, assuming no increase in price, some revenue would be lost if a few consumers choose not to travel.

competition comes as no surprise. Moreover, it does not establish that unilateral capacity reduction is infeasible.

The carriers claimed emphatically that fares would not increase as a result of cooperative capacity reductions.⁷⁶ This claim is scarcely credible. To see this, consider the costs associated with a flight from, say, Honolulu to Kona. Once a carrier is committed to the flight, it incurs large fixed costs, which include a variety of charges that do not change with the number of passengers on board: salaries of pilots and flight attendants, lease cost of the plane, jet fuel, landing fees, and so on. Having committed to the trip, the marginal cost of additional passengers is quite low until all the seats are sold at which point the marginal cost is prohibitive. Thus, in Figure 1, we depict marginal cost as MC, which is constant until all the seats are sold, then it is vertical. The average cost (AC) includes both fixed costs and variable costs. It is extremely high when few passengers are on board and declines with increases in the number of passengers. As shown, AC necessarily lies above the flat portion of marginal cost (MC). Suppose that the other carrier faces the same cost conditions. Assuming that both carriers are equally attractive to passengers, each will expect to get half of the business. Let the proportional demand for seats on that flight be depicted by D in Figure 1. Again, assuming price competition between the two carriers, price is driven to marginal cost, which is below average cost, AC.

⁷⁶ Joint Reply at 18.

Consistent with the claims of the two carriers, the service is unprofitable – per unit cost exceeds per unit revenue. The loss will equal $(AC_1 - P_1) Q_1$.⁷⁷

Figure 1 Here

Reductions in capacity cause the vertical portion of the marginal cost to shift to the left – fewer seats are offered.⁷⁸ Reductions in capacity will eliminate losses only if they continue until proportional demand, average cost, and marginal cost are all equal. Since AC is always above MC in the flat portion of the MC curve, price will necessarily have to rise as a result of the capacity reduction. The resulting price may be “reasonable” in the sense that it is the lowest price that avoids losses for both carriers. As is plain to see, however, that price is necessarily above the price that prevailed before the capacity reduction.

Cooperative Capacity Reduction

In a simple world, the carriers would cooperatively reduce capacity to maximize their total profits, as depicted in Figure 2. Note that the quantity selected occurs where marginal revenue (MR) equals marginal cost (MC). At

⁷⁷ Hylton, *supra* note 15 at 94-98, employs a similar model to analyze the age-old claim that collusion is necessary to set “reasonable” prices and thereby avoid “ruinous” competition.

⁷⁸ Fixed costs for the airline are reduced if the number of flights are reduced and aircraft are eliminated. In this illustration, we simply want to show that capacity reduction will lead to higher prices if losses are eliminated.

that quantity (Q_2), price is P_2 , which exceeds average cost (AC_2). Thus, instead of experiencing losses, each carrier earns profits of $(P_2 - AC_2)Q_2$. Obviously, the reduction in capacity has resulted in a price increase from P_1 to P_2 , which is inconsistent with the claims of Aloha and Hawaiian, but perfectly consistent with DOJ's predictions. The real world facing Aloha and Hawaiian is far more complicated than the simple model that we employed above. If the two carriers were to maximize joint profits, they would have to deal with several complicating factors: quality variation across carriers, peak load problems, random changes in demand, differences in cost structures across carriers, multiple markets (routes), and network effects. As a result, a real world agreement is bound to be an approximation of an ideal joint profit maximizing agreement. In addition, a pervasive cartel problem involves dampening the incentive to cheat. As discussed above, the Aloha-Hawaiian Cooperation Agreement contained several mechanisms to reduce these incentives, and, as we shall see, solved enough of these problems to boost prices and presumably profits.

Figure 2 Here

IV. Empirical Evidence

When the Cooperation Agreement between the two airlines finally ended on October 1, 2003, Hawaii's largest daily newspaper observed that the "...one year exemption led to fewer flights, higher prices, and much grouching among the

flying public.”⁷⁹ In this section, we present empirical evidence on the increase in fares and other costs to consumers that substantially resulted from the Cooperation Agreement. Our evidence is based upon the Air Travel Price Index (ATPI), which is published by the U.S. Department of Transportation, Bureau of Transportation Statistics. Although permission was granted to the two carriers to begin capacity coordination on September 30, 2002, they did not meet until late October, and hoped to achieve an agreement by December.⁸⁰ As a result, we expect to see the effects of the agreement at the earliest in December 2002 but more likely in early 2003. Not surprisingly, we find substantial fare increases following the implementation of the Agreement. In addition, we find that consumers had to incur higher costs of interisland travel in other ways besides paying higher airfares.

Price increases

The ATPI is a quarterly price index for scheduled passenger flights operated by domestic carriers originating from each of the top 85 U.S. cities.⁸¹ The ATPI for a particular airport measures changes in airfares (plus taxes and

⁷⁹ *HonoluluAdvertiser.com*, September 28, 2003. Nonetheless, there was no attempt on the part of State or Federal officials to revoke the exemption.

⁸⁰ *Pacific Business News*, October 26, 2002.

⁸¹ Thus, charter flights are excluded. See Bureau of Transportation Statistics, Air Travel Price Index, available at www.bts.gov for a detailed description of the methodology used to construct the index.

fees) at that airport beginning with the first quarter of 1995. It is based on a 10-percent sample of the airline tickets *used* (not *sold*) during a given quarter. Because the index is based on actual fares paid (including bulk fares and special discount fares), it is a better measure of fare changes than published airfares. For price comparison purposes, itineraries in each quarter are matched with similar itineraries flown in previous quarters, to eliminate spurious changes due to comparing apples and oranges.⁸² There are two considerations, however, that make it likely that these data *understate* the increase in interisland fares that, we hypothesize, was caused by the Cooperation Agreement.

First, the ATPI is not an ideal price index to monitor *interisland* air fare changes for flights originating in Hawaii because the 10-percent sample of fares collected at each airport includes fares to overseas destinations as well as interisland fares. The Cooperation Agreement between Aloha and Hawaiian only applied to interisland passenger service and not to overseas service where competition still prevailed. Moreover, the mix of overseas versus interisland passenger volumes varied by airport. The passenger enplanement data in Table 4 show the distribution of overseas versus interisland travel at Hawaii's five major airports for 2003.

⁸² This is analogous to the standard market basket that is used when calculating the Consumer Price Index.

Table 4. 2003 Hawaii Airport Enplanements

Enplanements	Honolulu	Kahului	Kona	Hilo	Lihue
Interisland	3,458,852	1,382,470	942,921	597,615	1,001,725
Overseas	3,666,787	1,222,652	320,382	0	243,062
Total	7,125,639	2,605,122	1,263,303	597,615	1,244,787
Interisland as % of Total	48.5%	53.1%	74.6%	100%	80.5%

Source: Hawaii State Department of Transportation, records (passenger volumes exclude air taxi passengers).

It is likely that the proportions of interisland fares in the ticket samples drawn from the Kona and Lihue originating passengers are much larger relative to overseas fares than those drawn from Honolulu and Kahului.⁸³ Therefore, while the ATPI probably underestimates fare increases on interisland flights originating at all of the Hawaii airports, the underestimation should be smallest at Lihue and Kona and largest at Honolulu. Unfortunately, the U.S. Department of Transportation has not computed an ATPI for Hilo, which has no direct scheduled overseas air passenger service.

⁸³ According to the Bureau of Transportation Statistics (Response to private inquiry BTSL #351-433 dated June 28, 2005), in calculating the ATPI, round-trip tickets are assigned to the city of origin. To the extent that most of the outbound travelers from Hawaii are tourists returning to their origin cities (for example, the number of Hawaii residents returning from overseas trips in 2003 totaled 1,019,316 while the total number of overseas deplaning passengers totaled 7,492,272), their return tickets would not be included in the Hawaii ATPIs. The 2003 data for overseas and interisland enplanements from the individual Hawaii airports should thus be interpreted as likely rank order of the ratios for outbound travel originating from Hawaii's major airports.

Second, if the Cooperation Agreement caused fares to suddenly spike upward, the ATPI would not fully capture the extent of the price increases because the ATPI for any given quarter is based on when tickets were actually *used* rather than when they were *purchased*. For purpose of ascertaining the price effects of the Cooperation Agreement, fares based on when tickets were sold would provide a better measure of price changes during the Cooperation Agreement since travelers may have purchased tickets at much lower prices months in advance of their travel dates. This matter is not trivial given the large volume of unused (and unexpired) discount air coupons held by the public.

In sum, changes in the ATPI provide biased estimates of the percentage increases in interisland airfares following the implementation of the Aloha-Hawaiian Cooperation Agreement. But the bias is toward a finding of no increase. Nonetheless, contrary to the assertions of the two airlines, we will demonstrate that airfares did rise sharply during the Cooperation Agreement.

Table 5 shows the year-to-year percentage changes in the ATPI for three time intervals: 2001 Q4 to 2002 Q4, 2002 Q4 to 2003 Q4, and 2003 Q4 to 2004 Q4. The second interval—2002 Q4 to 2003 Q4—encompasses the period when the Cooperation Agreement was in effect. We have included the four Hawaii cities – Honolulu, Kona, Kahului, and Lihue – for which ATPIs are available. To control for factors not specific to the Cooperation Agreement, we compare airfare changes originating at the four Hawaii airports with changes in the composite (i.e. combined) U.S. ATPI. We also included separate ATPIs for several cities identified by the Department of Transportation as “Vacation Spots...where the

number of visitors flying into these cities typically exceeds the number of local residents making trips from the cities.”⁸⁴

As Table 5 reveals, the percentage changes in the ATPI for Hawaii’s airports are substantially different from those of the other cities displayed in the Table. The upward spike in airfares at Hawaii’s airports during the period of the Cooperation Agreement is striking. The changes for Hawaii’s cities between the 4th quarter of 2002 and the 4th quarter of 2003 ranged from a low of 10.1 percent for Honolulu to a high of 26.4 percent for Kona; Lihue came in second at 22.8 percent and Kahului was slightly lower at 20.9 percent. By comparison, San Juan and Reno rose by less than 1 percent and the U.S. average increased by 1.7 percent. The ATPIs for Colorado Springs, Fort Lauderdale, Orlando, and Las Vegas all *declined*. This disparity is all the more remarkable because it occurred when interisland enplanements at Hawaii’s five major airports fell by more than 9 percent.⁸⁵

⁸⁴ At www.bts.gov, ATPI, Technical Appendix. We included Las Vegas in our comparison cities even though it is not listed by the Bureau of Transportation Statistics as a “vacation spot.”

⁸⁵ See Table 5. Of course, some of the decrease in enplanements was undoubtedly due to the dramatic fare increases (Table 2). The annual SMS Hawaii Market Study, based on approximately 2,500 responses to a random survey of Hawaii residents, found that resident interisland travel declined by 18% (nearly 90,000 trips) due in part to higher interisland airfares. In contrast, the number of residents traveling to the U.S. mainland increased marginally. *The Honolulu Advertiser*, September 11, 2004.

It is also interesting to note that fare increases continued at the Hawaii airports following the expiration of the Cooperation Agreement, though they were far more modest. In contrast, during the 2003 Q4 to 2004 Q4 period, the U.S. average *declined* by 4.1 percent. The other comparison cities declined by an average of nearly 3 percent. In contrast, the ATPI *rose* between 4.1 percent (Honolulu) and 6.4 percent (Lihue), which suggests some lingering effects of the agreement., which is precisely what DOJ predicted.

Table 5. Percent Change in ATPI 2001 Q4 to 2004 Q4

City	2001Q4 - 2002Q4	2002Q4 - 2003Q4	2003Q4 - 2004Q4
United States	1.80%	1.70 %	-4.10 %
Orlando	8.89	-3.27	-3.41
San Juan	-3.33	0.85	-3.00
Colorado Springs	0.83	-0.42	-1.39
Fort Lauderdale	6.26	-1.40	-5.66
Reno	4.49	0.93	1.56
Las Vegas	6.54	-0.42	2.64
Honolulu	4.01	10.06	4.06
Kahului	1.50	20.90	2.00
Kona	3.50	26.40	4.80
Lihue	-0.10	22.80	6.40

Source: Calculated by authors from data compiled by the U.S. Department of Transportation, Bureau of Transportation Statistics.

The impact of the Cooperation Agreement in raising interisland fares during and after the period it was in effect is clearly illustrated in Figure 3 where the percentage fare changes for all the quarters for the Hawaii airports and the U.S. are displayed. It is difficult to reject the conclusion that the much higher (percentage) fare increases at the Hawaii airports during the term of the Cooperation Agreement were not due to the effects of the collusive agreement between Aloha and Hawaiian. Prior to the Cooperation Agreement, the pattern of changes was somewhat mixed. During the Cooperation Agreement, the ATPI

for the U.S. is pretty flat. For the Hawaii airports, however, the changes are dramatic. Notice that the ATPI for the U.S. declines steadily during the post-agreement period while the changes at Hawaii's airports are still positive.

Figure 3 Here

A comparison of Hawaii's ATPIs with those of the "vacation destination" cities included in Table 5 is striking.⁸⁶ Once again, it is hard to avoid the conclusion that something is different in Hawaii. The percentage changes for the Hawaii airports are all well above those at other vacation destination airports. What was different about Hawaii was the presence of an antitrust exemption for the agreement to reduce capacity. Inferring how much of the price increase is solely due to the collusive capacity reduction made possible by the Cooperation Agreement is problematic. There may well have been some reduction absent the Cooperation Agreement, but it is impossible to say how much. Given the duopolistic market structure, there will be a natural reluctance to reduce capacity unilaterally, but that does not mean that there would not have been some reduction. On the basis of what was happening to ATPIs elsewhere in the U.S., we are confident that the Cooperation Agreement is the primary cause of the large fare increases.

⁸⁶ We plotted those data, but there was too much clutter in the resulting figure. That figure is available from the authors upon request.

Elimination of Discounts

Incorporated in the price increases noted above was the elimination of discounts. First, discounts associated with books of coupons were eliminated along with the coupons themselves. The elimination of coupons meant that a single price between any two destinations was replaced by variable fares, based on what the airline industry describes as “yield management”. Economists would describe it as price discrimination. Since local residents were more apt to buy books of coupons than tourists, the elimination of discounts primarily hurt Hawaii residents. But visitors were not spared; on March 9, 2003, Hawaiian announced the end of discounts on bulk sales to tour wholesalers.⁸⁷

Other Cost Increases

Consumers have had to bear higher costs of interisland air travel in other ways besides the substantial fare increases that we have documented. These added costs and inconveniences can be grouped into (1) schedule changes and (2) higher transaction costs.

Schedule Changes

The collusive reduction in total ASMs inevitably resulted in less capacity and fewer flights.⁸⁸ In an independent study of the effects of the Aloha-Hawaiian

⁸⁷ *HonoluluAdvertiser.com*, March 9, 2003.

⁸⁸ Given the drop in demand following 9/11 and the financial distress of Aloha and Hawaiian, some capacity reduction and fare increase probably would have occurred

Airlines' Cooperation Agreement, Kamita found that overall capacity was reduced by approximately 18 percent during the immunity period following earlier reductions.⁸⁹ As Hawaii's political leaders made clear, Hawaii's residents depend upon convenient air transportation service among the islands⁹⁰ that functioned much like inter-city bus service with frequent flights all day long. Due to the reduced ASMs, flights were less frequent and some early and late flights were eliminated entirely. The reduced flight frequency reduced convenience to travelers and thereby reduced consumer welfare. Such costs could be quite large -- for example a business traveler might be forced to stay overnight because the late evening flights had been eliminated, incurring the cost of a hotel room, and, with a reduced flight schedule the next morning, lost productive work hours the next day.⁹¹

Transaction Costs

For over 30 years, Hawaii residents had used coupons, issued at discounted prices, for interisland travel. These could be purchased in bulk (say, a

even without the Cooperation Agreement. It is extremely difficult to say just how much of the change would have occurred anyway. Experimental methods are being employed by Kyle Hampton and Katerina Sherstyuk to obtain some qualitative evidence on this issue.

⁸⁹ Rene Kamita, "Analyzing the Impact of Antitrust Immunity: Price Effects Following the Aloha-Hawaiian Antitrust Immunity Agreement," Discussion Paper, Economic Analysis Group, Antitrust Division, U.S. Department of Justice, EAG 05-9 (October, 2005). This paper is being revised for publication.

⁹⁰ Reference to Governor's finding.

⁹¹ We thank our colleague Denise Konan, for this observation.

book of 5 coupons) from the airlines or from wholesale/retail travel agents. The coupons could also be purchased singly from travel agents. The use of interisland air coupons (which could be used on any flight) was so prevalent that Hawaii's largest bank even sold them individually from its ATMs. The importance of these coupons to resident travel was emphasized by Aloha and Hawaiian in their response to DOJ's objections.⁹² Nonetheless, these coupons were an early casualty under the Cooperation Agreement. In early January 2003, Hawaiian announced that it would no longer sell coupons; a day later Aloha followed suit.⁹³ Thus, a staple of Hawaii's interisland travel came to a sudden end. Before that, passengers could just show up at the airport, and obtain a boarding pass. Seating was on a first-come, first-serve basis, much like it is on inter-city bus service. Consumers now were required to make advance reservations for interisland flights, which they were not previously required to do. Those reservations could be changed, but a \$15 fee would be assessed.⁹⁴

⁹² See Joint Reply at 13.

⁹³ *HonoluluAdvertiser.com*, January 3, 2003.

⁹⁴ *Id.*

V. Entry and Cartel Survival

It is well known that entry poses a serious threat to the continued profitability of cartels.⁹⁵ Successful cartels result in supra-competitive profits that attract entry. If entry is unchecked, capacity in the industry grows, industry costs rise, and profit shrinks even if the entrants join the cartel. In the limit, profits disappear even though price is above the competitive level. Things are even worse if the entrants remain outside the cartel – competition will result in further price decreases. This appears to be what transpired in Hawaii's interisland air transportation market.

We have shown that, contrary to the claims of Aloha and Hawaiian Airlines, coordinated capacity/output reduction between otherwise competing duopolists resulted in higher prices. Independently, Kamita used DOT's data base of sample airfares on these specific routes and reached the same finding. She concluded that "post-immunity prices are, at least to some extent, the result of anti-competitive co-ordination."⁹⁶ In opposing the agreement to allocate capacity, DOJ warned that the effects could extend well beyond the term of the agreement. DOJ's prediction turned out to be correct. Our results and Kamita's

⁹⁵ For a careful examination of cartels and their problems, see Don Patinkin, *Multiple-Plant Firms, Cartels, and Imperfect Competition*, 61 Quarterly Journal of Economics 173 (1947).

⁹⁶ Rene Kamita, *supra* note ___ at 26. Kamita suggests that the rise in airfares after 9/11 was largely the result of the elimination and the expiration of outstanding discount one-way coupons.

results show that fares continued to rise in the year following the expiration of the agreement, though at a moderated pace. The failure of fares to return to pre-agreement levels suggests that the two airlines were able to tacitly collude, at least on fares.⁹⁷ Hampton and Sherstyuk surmise that Hawaii's interisland air passenger market, which is characterized by two airlines with symmetric cost structures, roughly equal market shares, homogeneous products, and repeated interaction over the years, provides an environment conducive to tacit collusion.⁹⁸ The legacy of the Cooperation Agreement has been a fundamental change in the manner of interisland travel. The demise of the popular coupons and the replacement of a common (i.e. single) fare to all island destinations by variable

⁹⁷ That was not true of output. State of Hawaii, Department of Transportation, Airports Division records show that before 9/11 Aloha's market shares at Hawaii's 5 major airports exceeded those of Hawaiian Airlines; not so after 9/11. For the first nine months of 2003, the month-to-month absolute difference from 50% (market share) averaged 1.43 percentage points, or 2.85% when the cooperation agreement was in place. The absolute difference from 50% market share was 3.21 percentage points or 6.43% during the final 3 months when the agreement ended. For the entire year, the average absolute difference from 50% was 1.87 percentage points or 3.75% in 2003. By contrast, for the entire calendar year 2001, the average absolute difference from 50% was 1.92 percentage points or 3.85%. Deviations from the 50% (market share) were greater pre- and post-agreement than during the agreement.

⁹⁸ Kyle Hampton and Katerina Sherstyuk, *An Experimental Evaluation...*, February 8, 2007 at 4.

fares have changed the way Hawaii's residents plan and schedule travel among its islands.⁹⁹

Higher interisland airfares during and following the temporary antitrust immunity attracted interest among investors in entering the interisland market. In 2005, the low-cost, Phoenix-based Mesa Air Group Inc., one of the nation's largest regional carriers with over 180 jets, \$1 billion in annual revenues, and 5,000 employees, announced its intention to enter the Hawaii interisland market by selling seats at about half the price charged by Aloha and Hawaiian.¹⁰⁰

⁹⁹ One might wonder why the popular coupons did not return after the expiration of the agreement, except as a promotional anniversary celebration fare by Aloha Airlines. One possible explanation is that the introduction of discount coupons long ago enabled the two airlines to price discriminate between locals and tourists using a two-tier price system. With the advent of the Internet and high speed computers, the airlines now have the ability to profitably price discriminate against all customers, not just locals versus tourists. Indeed, the more interesting question is why Aloha and Hawaiian Airlines did not adopt sooner the now common and more sophisticated discriminatory pricing strategy that they employ in virtually all of their overseas markets. It took 9/11 and the collusive agreement for the two airlines to finally phase out the coupons.

¹⁰⁰ *The Honolulu Advertiser*, November 1, 2005, November 4, 2005, March 24, 2006, and June 5, 2006. Another group of potential investors promoting itself as FlyHawaii Airlines withdrew its plan to enter the market after Mesa's announcement. IslandAir, once a commuter airline with limited routes, first announced its intention to expand its interisland air service greatly under new ownership, using 78-seat Bombardier Q400 jet-prop aircraft. *The Honolulu Advertiser*, March 22, 2006. Following the entry of go!, it put

Despite a lawsuit by Hawaiian Airlines to prevent Mesa from launching its service for up to two years,¹⁰¹ Mesa—operating under the brand name *go!*—announced introductory one-way fares of \$39 and a special \$59 round-trip weekday fare. Both Hawaiian and Aloha matched these fares, and also announced enhanced flight schedules¹⁰².¹⁰³ Two days before the June 9, 2006 launch date, *go!* reduced its one-way introductory fare to \$19.¹⁰⁴ Hawaiian Airlines immediately matched *go!*'s fare, but Aloha went one step further the next day by offering 1,000 free interisland round-trip tickets!¹⁰⁵ In response to *go!*'s entry, both incumbent airlines had earlier announced enhanced flight schedules. In

its plan on hold citing the entry of *go!*, the ongoing fare war, and high fuel prices as the principal reasons for its decision. *The Honolulu Advertiser*, September 27, 2006.

¹⁰¹ *The Honolulu Advertiser*, February, 14, 2006.

¹⁰² CITE FOR FARE MATCHINGS AND FOR ENHANCED SCHEDULES. *The Honolulu Advertiser*, March 22, 2006, and April 2, 2006.

¹⁰³ Rick Daysog, *Go! Avoids 1-Year Grounding*, HONOLULU ADVERTISER, Oct. 6, 2006, at 1C; Daysog, *Island Air Makeover Under Way*, *supra* note 100, at 1C; see also Rick Daysog, *Hawaiian Air to Add Flights*, HONOLULU ADVERTISER, Apr. 2, 2006, at 1F. As a warning to Hawaiian and Aloha, Mesa's CEO noted at a news conference in March 2006 that "With these low fares, we can go a long time. Even if we fly empty, we could fly five years on the profits the rest of our company makes in one year." *The Honolulu Advertiser*, June 8, 2006.

¹⁰⁴ Nakaso & Daysog, *supra* note 103, at 1A.

¹⁰⁵ *The Honolulu Advertiser*, June 9, 2006.

April, Hawaiian announced that it would add extra evening Neighbor Island flights beginning on June 9th.¹⁰⁶

Thus, Mesa's entry led to a happy ending for consumers in Hawaii's interisland market. It also serves as a powerful reminder that successful cartels invite entry that undermines their success. Thus cartels that hope to survive must design strategies that can effectively fend off entry, which Hawaiian and Aloha failed to do. Each has attempted to use the courts to prevent or inhibit *go!*'s entry -- Hawaiian by arguing in U.S. Bankruptcy Court that Mesa used confidential information obtained during Hawaiian's bankruptcy proceedings to prepare to launch *go!*,¹⁰⁷ and Aloha filed a similar suit in federal court.¹⁰⁸

VI. Concluding Remarks

The antitrust immunity enjoyed by Aloha and Hawaiian resulted from a provision in ATSA that seems to have been written just for them. Although the language may have seemed innocent enough, it paved the way for an agreement that significantly raised fares on interisland flights in Hawaii. In retrospect at least,

¹⁰⁶ *The Honolulu Advertiser*, March 22, 2006, and April 2, 2006.

¹⁰⁷ Hawaiian is seeking to block Mesa from issuing tickets for one year. The suit is scheduled to go to trial on September 25, 2007. [Check current status]

¹⁰⁸ *The Honolulu Advertiser*, June 29, 2006, *The Honolulu Advertiser*, December 9, 2006, and Rick Daysog, "Suit against Mesa can proceed," *The Honolulu Advertiser*, March 23, 2007. During the hearing on Hawaiian Airlines' injunction against Mesa, Hawaiian Airlines allegedly produced an e-mail by Mesa's chief financial officer in which the CFO discussed giving Aloha Airlines a final push to drive it out of business.

it is clear that the Governor, Hawaii's Congressional delegation, and the Department of Transportation, all failed to protect the interests of Hawaii's consumers. In spite of DOJ's warnings, the Secretary of Transportation approved an agreement that was pretty clearly anticompetitive on its face. Compounding that error was DOT's failure to monitor the agreement even though it indicated that it would do so. One clear policy implication of this experience is that antitrust exemptions should be granted sparingly. Serious thought should be given to requiring DOJ approval of any antitrust exemption because DOJ has the expertise to evaluate the competitive significance of such exemptions.

This raises a policy question. If airlines are facing serious financial difficulties due to a terrorist attack or some other disaster, is there a viable way to provide assistance that does not involve an antitrust exemption? In the days following the terrorist attacks of 9/11, Congress acted quickly to protect the airline industry. On September 22, 2001, Congress passed The Air Transportation Safety and System Stabilization Act,¹⁰⁹ which provided \$5.0 billion in outright grants and \$10.0 billion in loan guarantees to the nation's airlines.¹¹⁰ The advantage of grants over antitrust immunity is clear. Grants provide financial support during a period of distress without the allocative inefficiency that accompanies antitrust immunity enabling cartel behavior. Both Hawaiian and Aloha received grants under the legislation. In addition, Governor Cayetano

¹⁰⁹ Public Law 107-42, September 22, 2001.

¹¹⁰ James Mak, *Tourism and the Economy: Understanding the Economics of Tourism* 193-194 (2004). The law also limited third-party damages to \$100 million per incident.

waived \$12.0 million in landing fees that were due from Hawaiian and Aloha.¹¹¹ If it is in the public interest to keep Hawaii's two major interisland carriers afloat,¹¹² lump-sum transfers are preferable to a grant of temporary antitrust immunity. But this is not what happened.

The moral of this story is clear: competition protects consumers and antitrust immunity tends to protect sellers, often at the expense of the public interest.

¹¹¹ Honolulu Advertiser.com, November 20, 2001.

¹¹² It is not entirely clear that preserving a duopoly by allowing them to collude is better than allowing one of the firms to fail.

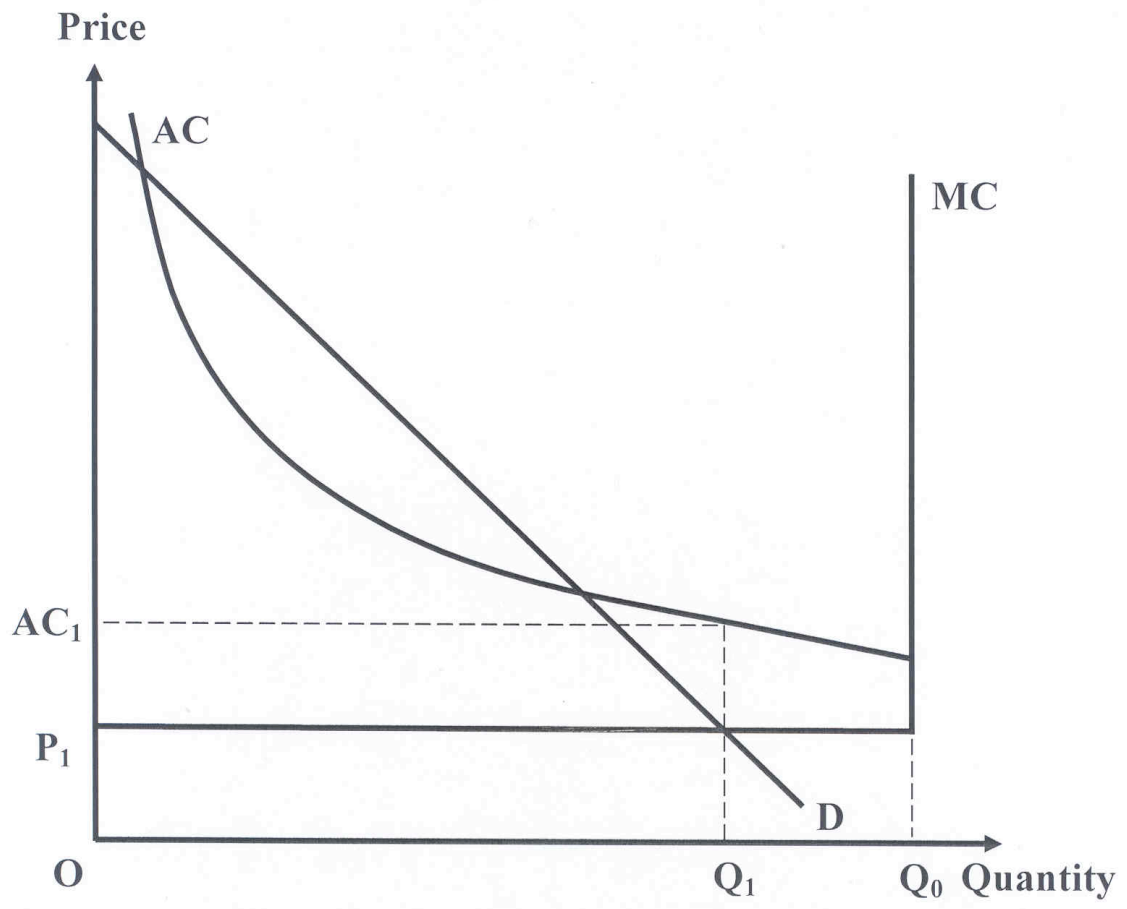


Figure 1

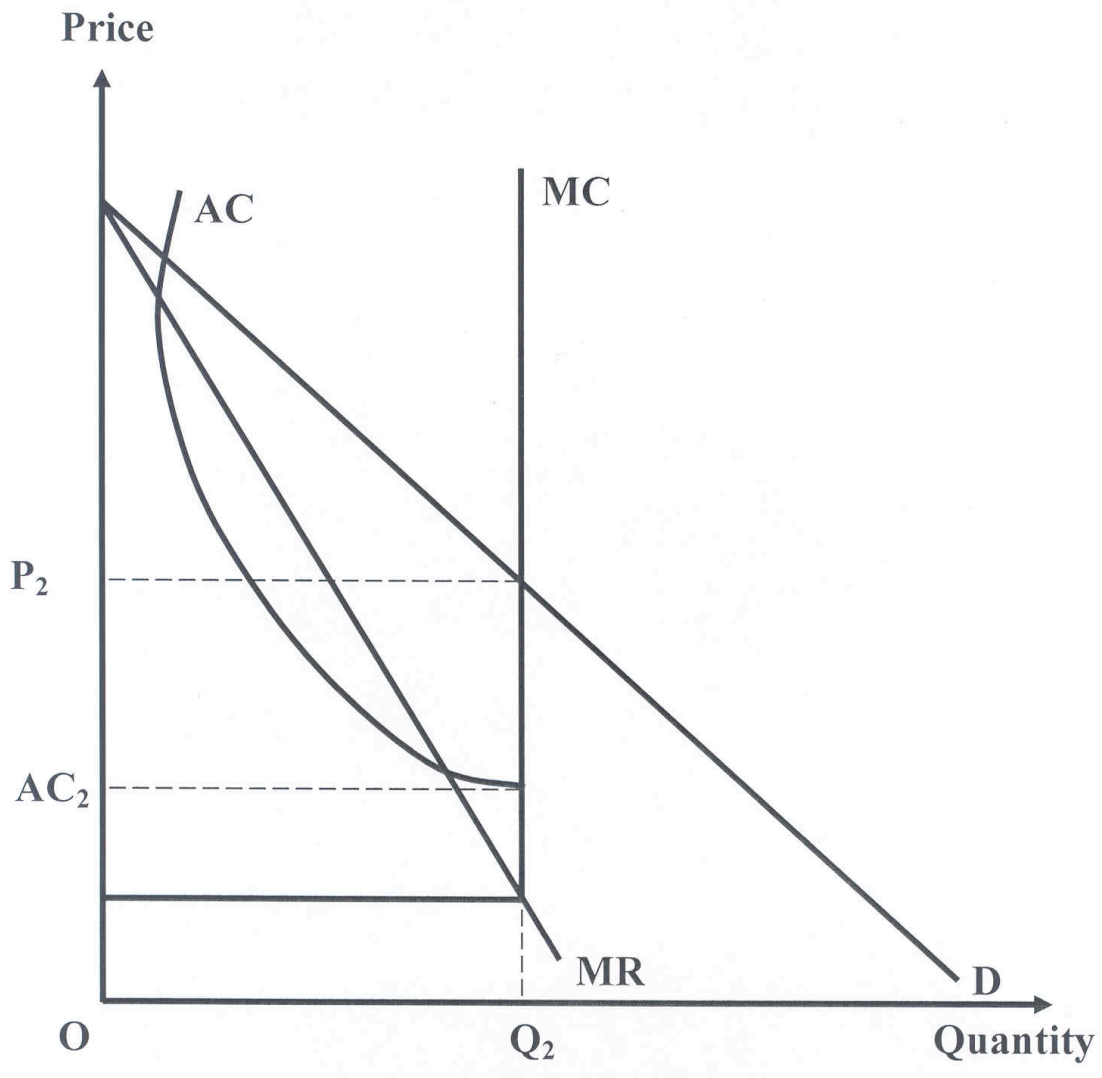


Figure 2