

Untying the Knot:

The Competitive Impact of Undoing the Northeast Alliance

Nicholas G. Rupp* Kerry M. Tan[†]

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Abstract

This paper analyzes the Northeast Alliance (NEA) — a joint venture between American Airlines and JetBlue Airways at four New York and Boston airports between 2021 and 2023. Under this codesharing agreement, the two airlines jointly scheduled flights and shared revenue. We show that American and JetBlue were significantly more likely to offer codesharing in markets currently served by Delta and United. These findings are a stark contrast to Goetz and Shapiro (2012) who find that codesharing agreements between 1998 and 2010 were a competitive response by legacy carriers to actual and potential competition from low-cost carriers. Using an event study approach, we also document significantly higher prices in NEA markets both during the NEA and after the NEA ended. Our findings lend support for the Department of Justice’s decision to challenge this joint venture between American and JetBlue and justification for the District Court’s ruling that the NEA was anti-competitive.

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*Department of Economics, East Carolina University, Greenville, NC, 27858; E-mail: rupp@ecu.edu.

[†]Department of Economics, Loyola University Maryland, Baltimore, MD, 21210; E-mail: kmtan@loyola.edu.

1 Introduction

“This (Northeast Alliance) is not at all like a merger with American — we have two different business models and are not working together on pricing...I want to reassure you that the DOJ’s action will not affect our plans to continue implementing the NEA.”

-Robin Hayes, JetBlue Airways CEO¹

Joint ventures are quite common across the transportation industry. For example, Airbus was formed as a consortium of European aerospace companies in 1970. The New United Motor Manufacturing, Inc. (NUMMI) joint venture between General Motors and Toyota produced automobiles between 1984 and 2010. More recently, Sony and Honda have formed Afeela 1 to make an all-electric sedan beginning in 2026, while StarPlus Energy is a joint venture of Stellantis and Samsung and will make electrical vehicle batteries in 2027. In the international airline industry, global alliances like **oneworld**, SkyTeam, and Star Alliance increase brand loyalty by expanding the number of possible destinations and providing customer perks like airport lounges.

This paper analyzes the Northeast Alliance (NEA) — a joint venture between American Airlines and JetBlue Airways that began in 2021 and focused on four airports in the northeastern part of the United States: Boston Logan (BOS), Newark Liberty (EWR), New York John F. Kennedy (JFK), and New York LaGuardia (LGA). The airlines argued that passengers would benefit from an increased number of nonstop destinations and a more seamless experience for travelers with connecting flights.² On the other hand, antitrust authorities are naturally skeptical of rival firms cooperating on prices and quantity. In contrast to the statement made by Robin Hayes in our quotation lead, the U.S. Department of Justice claimed that American and JetBlue “have committed to coordinate ‘on all aspects’ of network planning, including which routes to fly, when to fly them, who will fly them and what size planes to use for each flight. The two airlines will also share

¹JetBlue Airways press release, 21 Sep. 2021 - <https://news.jetblue.com/latest-news/press-release-details/2021/JetBlue-CEO-Robin-Hayes-Provides-an-Update-on-the-Northeast-Alliance-and-Action-by-the-U.S.-Department-of-Justice-DOJ-09-21-2021/default.aspx>

²American Airlines press release, 21 Apr 2021 - <https://news.aa.com/news/news-details/2021/American-Airlines-Uses-Partnerships-to-Grow-Its-Network-Offer-Customers-More-Choice-and-Provide-a-Premier-Travel-Experience-in-the-Northeast-NET-ALP-04/default.aspx>

revenues earned at these airports, eliminating their incentives to compete with one another.”³ In light of the possible pro-consumer and anti-competitive effects, we conduct an event study to answer the following questions. First, which markets were chosen to be served in the NEA? And second, how did the NEA impact the prices paid by consumers?

On July 22, 2020, American and JetBlue submitted NEA agreements for the Department of Transportation (DOT) to review to comply with the joint venture statute 49 U.S.C. §41720. On January 12, 2021, the DOT agreed to terminate its review in exchange for American Airlines divesting some airport slots at both JFK and Ronald Reagan Washington National (DCA) and refrain from coordinating schedules and prices in “city pair markets where they are substantial competitors to each other and there is little service from other airlines.”⁴

The NEA began the following month as American and JetBlue started codesharing on February 18, 2021. These codesharing agreements covered nearly 80 routes and jointly initiated service on 33 new routes.⁵ Just seven months later, on September 21, 2021, the U.S. Department of Justice (DOJ) announced that it determined that the NEA violated antitrust laws and suppressed competition. About twenty months later, on May 19, 2023, Federal Judge Leo Sorokin sided with the DOJ and ruled that the NEA “substantially diminishes competition in the domestic market for air travel. It does so by combining the New York and Boston operations of two airlines that are among the most significant competitors in that region” (Slotnick, 2023). This ruling forced JetBlue and American to end their codesharing arrangement effective July 20, 2023.

Our empirical analysis first seeks to identify the determinants for which New York and Boston routes were codeshared by American and JetBlue. We find that routes with competition from rival legacy carriers were more likely to have codeshare agreements. Second, we study the NEA

³U.S. Department of Justice press release, 21 Sep. 2021 - <https://www.justice.gov/archives/opa/pr/justice-department-sues-block-unprecedented-domestic-alliance-between-american-airlines-and>

⁴American Airlines press release, 12 Jan 2021 - <https://news.aa.com/news/news-details/2021/JetBlue-and-American-Airlines-Advance-Strategic-Alliance-Following-Regulatory-Review-NET-ALP-01/default.aspx>

⁵JetBlue Airways press release, 18 Feb 2021 - <https://ir.jetblue.com/news/news-details/2021/JetBlue-Launches-First-Phase-of-Codeshare-with-American-Airlines-Adding-New-Routes-and-Destinations-02-18-2021/default.aspx>

effect on prices. The regression results suggest that not only did airfares rise after the NEA was established but these higher prices persisted even after the joint venture ended. Therefore, we concur with the DOJ and the federal court that the NEA was anti-competitive.

The contribution of our paper is that we blend two strands of literature. First, we build on the literature which began with the seminal work by Ito and Lee (2007) on virtual codesharing. Gayle (2007) uses a structural model to examine the codeshare agreement between Northwest Airlines, Delta Air Lines, and Continental Airlines to determine that consumers benefited from lower prices post-alliance. Goetz and Shapiro (2012) find that legacy carriers use codesharing as a competitive response to the threat of entry by low-cost carriers. We also contribute to the literature on the NEA agreement which began with Zou et al. (2023) who use data from 2019 to 2021 (before the NEA was dissolved) and find that the NEA led to higher fares at three of the four airports: BOS, LGA, and JFK. More recently, Agrawal and Ni (2025) use data from 2019 to 2023 and find that the NEA resulted in an increase in price dispersion due to softened competition.

2 Empirical Analysis

2.1 Data Source

Our sole source of data is the Airline Origin and Destination Survey (DB1B), which is published quarterly by the Bureau of Transportation Statistics within the U.S. Department of Transportation. The raw data consists of a 10% sample of domestic airline tickets and provides information on the origin and destination airports, airfare, as well as the operating carrier and ticketing carrier. We identify routes with codeshare flights in the NEA where American (JetBlue) is the operating carrier and JetBlue (American) is the ticketing carrier.

The following steps are used in the data cleaning process. First, we merge data from the DB1B's Coupon, Market, and Ticket datasets based on the Itinerary ID and Market ID variables. Next, we drop observations in which either the ticketing carrier or operating carrier is unidentified. Following Goetz and Shapiro (2012), we drop observations for especially thin markets if the tick-

eting carrier - operating carrier combination services less than 100 passengers in a quarter or less than 1,000 passengers throughout the entire sample time period (2019:Q3 - 2024:Q4).

The remaining data cleaning steps are specific to the research question of interest — whether we are studying the determinants of the NEA or the NEA price effect. These steps are discussed in more detail in the respective subsections below.

2.2 Determinants of the Northeast Alliance

In order to determine which factors are associated with the decision by American and JetBlue to codeshare on a given route, we continue the data cleaning process by constructing an NEA dummy variable that indicates when American (JetBlue) sells a ticket to a passenger for a nonstop flight operated by JetBlue (American). To be sure, $NEA = 0$ if American or JetBlue operates all nonstop flights on a route that the airline sold itself. We then aggregate the data to be at the route-year-quarter level.

Since the NEA focused on the three largest airports in the New York City catchment area (EWR, JFK, and LGA) and the largest airport in the Boston catchment area (BOS), we define a market as a uni-directional airport-pair in which an endpoint is one of these four NEA airports and the other endpoint is any airport within the contiguous United States.

We adapt the main regression specification in Goetz and Shapiro (2012) using NEA as the dependent variable in our regression expressed as Equation (1):

$$NEA_{it} = \alpha + \beta_1 OtherLEGthreat_{it} + \beta_2 OtherLEGpresence_{it} + \beta_3 OtherLCCthreat_{it} + \beta_4 OtherLCCpresence_{it} + \gamma X_{it} + \delta_i + \delta_t + \varepsilon_{it}, \quad (1)$$

where the main variables of interest are $OtherLEGthreat_{it}$, $OtherLEGpresence_{it}$, $OtherLCCthreat_{it}$, and $OtherLCCpresence_{it}$ for route i in year-quarter t . The threat variables are dummy variables that indicate whether a legacy carrier other than American (i.e. Delta or United) or a low-cost carrier other than JetBlue (i.e. Allegiant, Frontier, Southwest, or Spirit) service both endpoint air-

ports for route i , but does not offer nonstop service between the two endpoints in time period t . The presence variables are dummy variables that indicate whether a rival legacy carrier or a rival low-cost carrier actually competes head-to-head with American or JetBlue on route i in time period t . As such, the threat variables identify potential competition between American or JetBlue and their rivals, while the presence variables identify actual competition. X_{it} contains two other control variables also used in Goetz and Shapiro (2012): the logged number of passengers at the origin airport ($\ln OriginPax_{it}$) and the logged number of passengers at the destination airport ($\ln DestPax_{it}$). Finally, we include a route fixed effect (γ_i) and a year-quarter fixed effect (γ_t), as well as cluster standard errors by route to account for heteroskedasticity and serial correlation. Summary statistics for our variables are presented in Table 1.

Table 1: Summary Statistics (Determinants of the NEA)

Variable	Definition	Mean (Std. Dev.)
NEA_{it}	Dummy variable indicating whether American or JetBlue codeshare on route i in time period t	0.2431 (0.4290)
$OtherLEGthreat_{it}$	Dummy variable indicating whether a legacy carrier other than American potentially competes on route i in time period t	0.5949 (0.4910)
$OtherLEGpresence_{it}$	Dummy variable indicating whether a legacy carrier other than American actually competes on route i in time period t	0.7659 (0.4235)
$OtherLCCthreat_{it}$	Dummy variable indicating whether a low-cost carrier other than JetBlue potentially competes on route i in time period t	0.1534 (0.3604)
$OtherLCCpresence_{it}$	Dummy variable indicating whether a low-cost carrier other than JetBlue actually competes on route i in time period t	0.2128 (0.4093)
$OriginPax_{jt}$	Number of passengers at origin airport of route i in time period t Note: $\ln OriginPax = \ln(OriginPax)$	1,114,843 (1,091,275)
$DestPax_{jt}$	Number of passengers at destination airport of route i in time period t Note: $\ln DestPax = \ln(DestPax)$	1,119,214 (1,096,173)
Routes	Number of routes in the sample	482
N	Number of observations	7,459

Table 2 reports the regression results for the determinants of the NEA. As in Goetz and Shapiro (2012), we estimate Equation (1) using a linear probability model (LPM) in Column (1) since many of our explanatory variables are binary. However, we also provide the estimated coefficients when using a logit model in Column (2). The results in Columns (1) and (2) suggest that American and JetBlue are more likely to codeshare on routes currently served by rival legacy carriers like Delta or United. Unlike in Goetz and Shapiro (2012), our results indicate that the threat of low-

cost carrier competition has no impact on NEA codesharing, while the presence of low-cost carrier competition is marginally less likely to have an NEA codeshare agreement.

Goetz and Shapiro (2012) examine codesharing between 1998-2010, a time when codeshare arrangements were more common among a wide variety of airlines, the industry was not as consolidated, and low-cost carriers (especially Southwest) were rapidly expanding. As such, our findings are in stark contrast to Goetz and Shapiro (2012) as they show that codesharing by legacy carriers is a competitive response to actual and potential low-cost carrier competition. Moreover, Ito and Lee (2007) document eight codeshare agreements in 2003:Q3. Twenty-two years later in 2025, many of the previous codeshare partners have merged and only one of the eight codeshare agreements remains (Alaska-American). Hence, codeshare agreements have evolved over time as the NEA markets chosen by American and JetBlue are now a competitive tool to better compete against rival legacy carriers rather than low-cost carriers.

Table 2: Regression Results (Determinants of the NEA)

	LPM (1)	Logit (2)
<i>OtherLEGthreat</i>	-0.0320** (0.0154)	-0.3806** (0.1573)
<i>OtherLEGpresence</i>	0.0685*** (0.0208)	0.8928*** (0.2952)
<i>OtherLCCthreat</i>	-0.0176 (0.0267)	-0.0720 (0.2420)
<i>OtherLCCpresence</i>	-0.0506* (0.0262)	-0.4901** (0.2437)
<i>lnOriginPax</i>	0.0751*** (0.0065)	0.8127*** (0.0916)
<i>lnDestPax</i>	0.0843*** (0.0066)	0.9397*** (0.1003)
N	7,459	4,380

Note: The table reports regression results for Equation (1). Route fixed effects and year-quarter fixed effects suppressed. Standard errors are clustered by route and reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

To be sure, the number of observations is less in Column (2) compared to Column (1) since there is no variation in *NEA* for a few routes in a few year-quarters so these observations are

omitted in order for the logit regression to be estimated by maximum likelihood. More generally, our results are qualitatively similar whether we use LPM or logit in our estimation of Equation (1).

2.3 Price Effect of the Northeast Alliance

In order to assess the effect that the NEA had on airfares, we include both nonstop and one-stop itineraries⁶ from the raw data discussed in Section 2.1 since the NEA not only catered to passengers in New York or Boston, but also expanded the route network for passengers connecting through either BOS, EWR, JFK, or LGA. In comparison, Section 2.2 examined the determinants of NEA markets and hence only included data from nonstop itineraries.

We now more broadly define a market to be a uni-directional route in which one of the NEA airports (BOS, EWR, JFK, or LGA) is either an endpoint airport or the connecting airport. For example, nonstop service between Raleigh-Durham International (RDU) and JFK is one route in the dataset just like in Section 2.2. However, we now include the case in which a passenger could fly from RDU with a stop at JFK before continuing to Chicago O’Hare International (ORD). Finally, we also allow for itineraries in which passengers from RDU stop at ORD en route to JFK. Therefore, RDU-JFK, RDU-JFK-ORD, and RDU-ORD-JFK are three separate markets that would be included in the data used in our pricing regressions.

We adapt one of the empirical models in Zou et al. (2023) to construct our variables. Instead of using market yield, we calculate the average one-way airfare⁷ (*Price*) across all airlines servicing route i in year-quarter t . As in Section 2.2, we create two dummy variables that identify actual competition with other legacy carriers (*OtherLEGpresence_{it}*) and other low-cost carriers (*OtherLCCpresence_{it}*). Additionally, *PremiumPax_{it}* is the proportion of route-level passengers flying in a premium cabin (i.e. first class or business class), while *OneStopPax_{it}* is the proportion of route-level passengers flying a one-stop itinerary. Finally, the route-level Herfindahl-Hirschman

⁶Nonstop itineraries are identified in the DB1B data as one coupon itineraries for one-way travel or two coupon itineraries for round-trip tickets, whereas one-stop itineraries consist of two coupon itineraries for one-way travel or four coupons for round-trip tickets.

⁷We divide the ticket price for round-trip itineraries by 2 to determine the one-way fare.

Index ($HHI_{route_{i,t-1}}$) is lagged by one quarter to minimize endogeneity issues. Following Model I in Zou et al. (2023), we similarly aggregate our data to be at the route-year-quarter level and report summary statistics in Table 3.

Our sample time period (2019:Q3 - 2024:Q4) consists of twenty two year-quarters, which we separate into three distinct time dummy variables based on the timeline for the NEA. Our baseline time period ($NEA_{baseline_t}$) consists of the four quarters prior to the announcement of the joint venture in July 2020 (2019:Q3 - 2020:Q2). Next, a treatment period ($NEA_{alliance_t}$) spans the three years in which the NEA arrangement was in effect (2020:Q3 - 2023:Q2). Finally, a post-NEA time period (NEA_{ends_t}) includes the six quarters after the NEA was dissolved in May 2023 (2023:Q3 - 2024:Q4).

Table 3: Summary Statistics (Price Effect of the NEA)

Variable	Definition	Mean (Std. Dev.)
$Price_{it}$	Average one-way airfare for route i in time period t Note: $\ln Price = \ln(Price)$	280.1056 (110.1743)
$OtherLEG_{presence_{it}}$	Dummy variable indicating whether a legacy carrier other than American actually competes on route i in time period t	0.5649 (0.4958)
$OtherLCC_{presence_{it}}$	Dummy variable indicating whether a low-cost carrier other than JetBlue actually competes on route i in time period t	0.2209 (0.4149)
$PremiumPax_{it}$	Proportion of passengers flying in a premium cabin (first class or business class) on route i in time period t	0.0174 (0.0326)
$OneStopPax_{it}$	Proportion of passengers flying a one-stop itinerary on route i in time period t	0.8589 (0.3106)
$HHI_{route_{it}}$	Herfindahl-Hirschman Index for route i in time period t Note: $HHI_{route} = 1$ for monopolized route	0.8942 (0.1990)
Routes	Number of routes in the sample	3,887
N	Number of observations	64,475

We adapt the regression specification for Model I in Zou et al. (2023) using $\ln Price_{it}$, the logged average one-way airfare for route i in year-quarter t , as the dependent variable in our regression expressed as Equation (2):

$$\ln Price_{it} = \alpha + \beta_1 NEA_{alliance_t} + \beta_2 NEA_{ends_t} + \gamma X_{it} + \delta_i + \delta_t + \varepsilon_{it}. \quad (2)$$

Following Zou et al. (2003), X_{it} includes dummy variables for the presence of legacy carriers other than American ($OtherLEG_{presence_{it}}$) or the presence of low-cost carriers other than JetBlue

(*OtherLCCpresence_{it}*), the proportion of passengers flying in a premium cabin (*PremiumPax_{it}*) or with a one-stop itinerary (*OneStopPax_{it}*), and the route-level Herfindahl-Hirschman Index lagged by one time period (*HHIroute_{i,t-1}*). As in Equation (1), we include a route fixed effect (γ_i) and a year-quarter fixed effect (γ_t), as well as cluster standard errors by route to account for heteroskedasticity and serial correlation.

The main variables of interest in Equation (2) are *NEAalliance_t* and *NEAends_t*, which provide the price changes relative to the omitted baseline time period (*NEAbaseline_t*). If the estimated coefficient for β_1 or β_2 are positive and statistically significant, then airfares were higher while the NEA was active or after the NEA dissolved, respectively, compared to before the NEA was announced. Hence, positive β_1 or β_2 coefficients would suggest that the NEA was anti-competitive.

Table 4: Regression Results (Price Effect of the NEA)

	(1)	(2)
<i>NEAalliance</i>	0.1467*** (0.0037)	0.1343*** (0.0035)
<i>NEAends</i>	0.1334*** (0.0037)	0.1223*** (0.0034)
<i>OtherLEGpresence</i>	0.1010*** (0.0137)	0.0916*** (0.0125)
<i>OtherLCCpresence</i>	-0.1721*** (0.0101)	-0.1480*** (0.0090)
<i>PremiumPax</i>	1.6343*** (0.0516)	1.6813*** (0.0610)
<i>OneStopPax</i>	0.2371*** (0.0350)	0.2743*** (0.0365)
<i>HHIroute_{t-1}</i>		0.0974*** (0.0118)
N	65,475	56,159

Note: Columns (1) and (2) report regression results for Equation (2). Route fixed effects and year-quarter fixed effects suppressed. Standard errors are clustered by route and reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4 reports the regression results for our airfare analysis. For both columns, airfares are positively correlated with actual competition with other legacy carriers, the proportion of passengers flying in a premium cabin, and the proportion of passengers flying on a one-stop itinerary. On the other hand, prices are lower when a low-cost carrier services the market. Column (2) includes

a one-quarter lag of the route-level Herfindahl-Hirschman Index, which is positive and statistically significant – suggesting higher prices occur in more concentrated markets. To be sure, the number of observations in Column (2) of Table 4 is less than the number of observations in Columns (1) since lagged HHI variable removes one of our twenty two time periods from our analysis.

Columns (1) and (2) in Table 4 suggest that airfares were not only higher while the NEA was active (*NEAalliance*) compared to the baseline time period, but that these higher prices persisted even after the NEA ended (*NEAends*). An F-test reveals that the *NEAalliance* and *NEAends* coefficients in Column (1) are significantly different: F-stat = 16.11; p-value = 0.0001. Similar results are found for these two coefficients in Column (2) since the F-stat = 14.12 with a p-value of 0.0002. Our results suggest that the airfares in NEA markets were slightly lower after the NEA ended compared to when the NEA was active. Nevertheless, the fact remains that higher fares persisted in NEA markets after the NEA ended suggests that the NEA had an anti-competitive effect. These findings lend credence to the NEA concerns brought forth by a DOJ lawsuit and decision of U.S. District Judge Leo Sorokin that the NEA between American and JetBlue violated antitrust law.

3 Conclusion

Neil Sedaka wrote the hit song “Breaking Up Is Hard to Do” in 1962. More than 60 years later, American Airlines and JetBlue are showing that business break-ups are also hard. American Airlines is asking the U.S. Supreme Court to reverse the District Court ruling on the NEA, while also suing JetBlue for more than \$1 million to “recover money owed to American following the unwinding of the Northeast Alliance.”⁸ The purpose of this paper is not to opine on the likelihood of a Supreme Court reversal or to estimate the financial damages incurred by American Airlines from the NEA break-up, but instead we focus on gaining a better understanding of which routes American Airlines and JetBlue chose to serve in the NEA.

⁸American Airlines press release, 28 April 2025 - <https://news.aa.com/news/news-details/2025/Response-to-reports-about-discussions-with-JetBlue-NET-ALP-04/default.aspx>

We find that the NEA appeared to be a competitive tool to respond to competition from rival legacy carriers like Delta and United. More specifically, we find that American and JetBlue were significantly more likely to offer codesharing in markets currently served by Delta and United. Our NEA results for American and JetBlue are a stark contrast to previous work by Goetz and Shapiro (2012) who find that codesharing agreements between 1998-2010 were a competitive response by legacy carriers to actual and potential competition from low-cost carriers.

We also examine the pricing impact of the NEA. Using an event study approach, we document significantly higher prices in NEA markets when the NEA was active. Moreover, we find that higher prices persisted in these NEA markets even after the NEA ended compared to the period before the NEA was announced. Our results lend support for the DOJ's decision to challenge the NEA joint venture between American and JetBlue and justification for the District Court's ruling that the NEA was anti-competitive.

These findings also have an impact on future codesharing alliances in the United States. Airlines may be less inclined to enter codesharing agreements given this recent ruling. In fact, when JetBlue recently announced that they were linking loyalty programs with United Airlines, their press release explicitly states that their relationship with United Airlines is "an interline agreement, not a codeshare."⁹ JetBlue has learned that untying the knot is quite messy; hence, they are proceeding with caution in their relationship with United Airlines.

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