An Evaluation of the Kansas Affordable Airfares Program

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Executive Summary

The Kansas Department of Commerce commissioned this report in response to a 2012 directive from Kansas Legislature. The Legislature asked for an independent review of the Kansas Affordable Airfares Program (KAAP), which is financed, in part, by the State Affordable Airfare Fund. KAAP is the continuation (and expansion) of a 2002 program initiated by the City of Wichita known as FareFares, which provided a revenue-guarantee contract to AirTran airlines as an inducement for AirTran to enter the Wichita market with its low-cost business model. At the time, average airfares in Wichita had been running about 23 percent higher than the national average.

An organization known as the Regional Economic Area Partnership (REAP), a consortium of city and county governments, has the statutory charge to manage KAAP. Among REAP’s managerial duties is a requirement to annually “evaluate and present a report on the effectiveness of this program.”

In February 2011, the Legislative Division of Post Audit (LPA) published a report detailing its review of REAP’s 2008, 2009, and 2010 annual reports. LPA undertook this project because, in its words, “legislators have expressed an interest in knowing whether these reports can be relied upon to present an accurate assessment of what is being accomplished with the money.”

The LPA’s recommendations and conclusions generated a debate between LPA and REAP regarding data sources and research methods. That debate generated the Legislature’s request to the Department of Commerce to: “conduct an independent review of the financial reports submitted by REAP as well as an analysis of the data used by REAP.”

Findings and Recommendations Related to REAP Annual Reports

- REAP’s reports have accurately captured the general outcomes associated with the KAAP (as a continuation of FareFares). However, the design and structure of the reports do not necessarily capture the full context and continuity of events from one year to the next.

- REAP seems to generally use the data sources recommended by LPA. However, REAP sometimes reports the results of estimations or calculations as more definitive than they can be, given the nature of the data and the research questions involved. Also, REAP does not seem to adjust airfares for the effects of inflation, making many of its across-time comparisons faulty.

- REAP seems to have invited debate about the accuracy of its reports because it unilaterally decided to include so-called economic impact analysis in its assessments of the “effectiveness” of KAAP instead of solely focusing on the statutory objectives of the program: “more air flight options, more competition for air travel and affordable air fares for Kansas . . .”

The mixing and matching of economic impact estimates with objective air-travel data seems to be the central issue that has created confusion and concern. Economic impact analysis is a
procedure used to estimate employment and income changes that result from specified changes in economic activity (like, for example, increased air travel). The “data” that results from such estimation is of a completely different character than the objective air-travel data required to measure the statutory objectives of the KAAP.

The Legislature, or other interested parties, may wish to have an economic impact analysis related to KAAP. However, REAP would be well served to keep such analysis separate and distinct from its reporting on the statutory objectives of the KAAP. The annual reports should focus solely on objectively measurable and verifiable information related to the statutory objectives of the KAAP.

Findings Related to an Independent Evaluation of the “Effectiveness” of the KAAP

- KAAP is effectively a continuation of the events caused by the City of Wichita’s 2002 FareFares program, so an evaluation must focus on that starting point.

- As of 2012, Wichita average airfares have roughly converged to the national average.

- AirTran Airlines entered the Wichita market in May of 2002, induced by a revenue guarantee associated with the FareFares program. The change in the level of average prices corresponding with the entry of AirTran is unambiguous. Decade-long average roundtrip airfares dropped about 33 percent as a result of the low-fare competition provided by AirTran. Among a sample of “peer” airports, Wichita clearly experienced the most dramatic declines in airfares at the time of the FareFares implementation, although many other airports (and the U.S.) experienced declines at that time.

Roundtrip fares on the Wichita-Atlanta route are representative of the airfare change caused by AirTran to a variety of eastern destinations. From 1993 to the 2001 (but before the terrorist attacks), the inflation-adjusted (2011$) airfare was $585. Following AirTran’s entry, the average airfare has been $284. That difference amounted to $301 for the average journey.

A “what-if” experiment identified 57 unique travel destinations serviced by AirTran with Wichita as the trips’ origin. If the post-AirTran fare structure had prevailed for the nearly one million passengers that flew on those 57 origin-destination trips from 1993 to 2001, the aggregate savings would have averaged an estimated $23.8 to $29.75 million per year (in inflation-adjusted dollars). If one assumes that AirTran would have never entered the Wichita market without FareFares or would have immediately left the market without FareFares or KAAP—and all pricing would have immediately reverted to pre-2001 levels, then it is legitimate to say that the range of $23.8 to $29.75 million is a reasonable (lower-bound) approximation of the monetary benefit that accrued to Wichita-originating air travelers in return for the revenue guarantee paid to AirTran.
Even though the entry of AirTran is unambiguously correlated with a steep drop in airfares, general calculations, based on averages, indicate that AirTran has earned per-passenger fares about 10 percent to 17 percent higher than its primary eastern-bound competitor, ExpressJet, when the per-passenger revenue guarantees are added to the sticker-price of AirTran tickets. Decision-makers might wish to study the possibility that ExpressJet—or some other competitor—could be a better steward of the KAAP funds than AirTran (or, now, Southwest, the new owner of AirTran’s assets). An auction for the rights to the revenue guarantee contract offers one approach for exploring this possibility.

- Comparing an identical block of time before and after the entry of AirTran, the passenger traffic moving through the Wichita Mid-Continent Airport increased by about 18 percent. The evidence supports the argument that the lower fares caused by the entry of AirTran helped cause the increase in passenger count. (However, a sample of “peer” airports almost all experienced a sustained increase of passenger growth beginning around 2002, correlating with the strong economic growth following the 2001 recession.)

- With assistance from the KAAP program, Frontier Airlines entered the Wichita market in October of 2007. The entry of Frontier Airlines corresponded with a sharp decline in the average fares for roundtrips to Denver (and selects other western destinations). United Airlines and SkyWest Airlines served most of the Wichita-Denver passengers before the entry of Frontier. From 2002 to 2007, the average United fare was $447. From 2005 to 2007, the average SkyWest fare was $450. Following the entry of Frontier, those average fares, respectively, dropped to $300 and $340. The average Frontier airfare for a Wichita-Denver roundtrip has been $255.

  A “what-if” experiment identified 67 unique travel destinations serviced by Frontier with Wichita as the trips’ origin. If the post-Frontier fare structure had prevailed for the 1.1 million passengers that flew on those 67 origin-destination trips from 2002 to 2007, the aggregate savings would have averaged an estimated $6.95 to $9.75 million per year (in inflation-adjusted dollars). If one assumes that Frontier would have never entered the Wichita market without KAAP—and all pricing would have immediately reverted to 2002-2007 levels, then it is legitimate to say that the $6.95 to $9.75 million is a reasonable approximation of the monetary benefit that accrued to Kansas travelers in return for the revenue guarantee paid to Frontier.

  Combining the estimated aggregate savings for AirTran and Frontier sums to an annual average range of $30.75 to $39.5 million. This estimated range is lower than the REAP estimated aggregate savings of $99.8 million (2008 annual report) and $92 million (2012 annual report). However, if one is willing to assume that the lower range could not have materialized without KAAP’s continued revenue guarantees, the benefits remain many multiples of the approximately $7 million spent annually on the revenue guarantee contracts: 4.39 to 5.64.
Background (and Timeline)

- In 2001, the City of Wichita established the so-called Fair Fares program to help attract low-cost airlines to provide flights to and from the Mid-Continent Airport. AirTran Airlines began service in May of 2002. AirTran received revenue guarantees under the Fare Fares program from 2002 to 2006.

- In 2006, the Kansas Legislature established the State Affordable Airfare Fund (K.S.A. 74-50,150). Beginning in fiscal year 2007, the State Affordable Airfare Fund has been funded by a $5 million transfer from the State Highway Fund (except in FY 2013, when the transfer came from the Economic Development Initiatives Fund). Relative to this report, key elements of the law stipulate (emphasis added):
  
  - “The moneys credited to the state affordable airfare fund shall be disbursed as an annual grant by the secretary of commerce to the regional economic area partnership (REAP) and shall be used for the development and implementation of a program to provide more air flight options, more competition for air travel and affordable air fares for Kansas, including a regional airport in western Kansas. Each annual grant shall be matched by moneys received by the regional economic area partnership (REAP) from local units of government or private entities on the basis of 75% from the state affordable airfare fund to 25% from local units of government or private entities.” [REAP is a consortium of city and county governments in the south central region of the state.]
  
  - “Annually, beginning by January 15, 2008, at the beginning of each regular session of the legislature thereafter, the regional economic area partnership (REAP) shall evaluate and present a report on the effectiveness of this program to the house of representatives committee on appropriations and the senate committee on ways and means.”

- To date, REAP has submitted five annual reports (2008-2012).

- In February 2011, the Legislative Division of Post Audit (LPA), published a report titled: “Affordable Airfares: Reviewing the Benefits Claimed as a Result of State Funding to Lower Airfares.” According to LPA’s scope-of-work statement (p. 18): “Recently, legislators have expressed an interest in knowing whether those reports [from REAP, 2008-2010] can be relied upon to present an accurate assessment of what is being accomplished with the money.”

The LPA report addressed the following question and presented the following conclusion:

Question: “Has the Regional Economic Area Partnership used reasonable methods to evaluate the effectiveness of the Program, and do its reports accurately present what is being accomplished with the State grants?”

Conclusion: “Since 2002, Wichita, Sedgwick County, or the State has sponsored some form of affordable airfare program with the goal of reducing airfares and increasing air travel in Wichita. Overall, air travel indicators have improved significantly since 2002, indicating that the program has achieved those goals. However, as we have
noted in this report, claims regarding the greater economic benefit of the program including creating jobs and generating revenues for the State, have been greatly overstated. Funding for the program is scheduled to end at the end of fiscal year 2011. If the Legislature decides to continue funding the program, it should consider ways to create greater oversight on the part of the State.”

- The 2011 REAP annual report began to incorporate REAP’s reactions to the LPA recommendations and conclusions.

- K.S.A Chapter 175, Section 78 of the 2012 Kansas Session Laws requires the Kansas Secretary of Commerce to “conduct an independent review of the financial reports submitted by REAP as well as an analysis of the data used by REAP.” This report is that independent review.
A Summary of Government Data Sources

A key element of the legislatures request to the Department of Commerce involves “an analysis of the data used by REAP.” The LPA report recommended using data produced by the U.S. Department of Transportation. REAP makes use of several of these sources. REAP also sometimes uses data provided by the Wichita Airport Authority and airfare data published on internet sites. Each of these data sources has legitimacy, depending on the context of the research questions involved. However, this review agrees with the LPA recommendation. For most research questions, the most appropriate (and comparable) data is collected and made public by the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics (BTS).¹ A brief description of the databases used in this report follows:

**T-100 Domestic Market (All Carriers):** This table contains domestic market data reported by both U.S. and foreign air carriers, including carrier, origin, destination, and service class for enplaned passengers, freight and mail when both origin and destination airports are located within the boundaries of the United States and its territories.

**T-100 Domestic Segment (All Carriers):** This table contains domestic non-stop segment data reported by both U.S. and foreign air carriers, including carrier, origin, destination, aircraft type and service class for transported passengers, freight and mail, available capacity, scheduled departures, departures performed, aircraft hours, and load factor when both origin and destination airports are located within the boundaries of the United States and its territories.

**Origin and Destination Survey, DB1B—Market:** This table contains (directional) origin and destination markets from the Origin and Destination Survey (DB1B), which is a 10% sample of airline tickets from reporting carriers. It includes such items as passengers, fares, and distances for each directional market, as well as information about whether the market was domestic or international. The file also reports operating and ticketing carrier information for flight segments within the directional market. This table is related to both the O&D Segment and Ticket files by the unique Market ID on each record.

**Origin and Destination Survey, DB1B—Ticket:** This table contains summary ticket-level data from the Origin and Destination Survey (DB1B), which is a 10% sample of airline tickets from reporting carriers. It includes such items as the reporting carrier, number of passengers, ticket fare, and total miles flown for each itinerary, as well as information about whether the itinerary was domestic or round-trip. This table is related to both the O&D Segment and Market files by the unique Itinerary ID on each record.

**Small Air Carriers—Schedule T-1:** This table contains historical information, from the third quarter of 1969, pertaining only to flights performed in scheduled service (nonscheduled and charter service data are not collected). This data reflects the origin-destination of the passenger traffic itineraries on the reporting carrier’s route system, for the quarter. This data does not reflect traffic by flight segments or stages, and does not reflect traffic by individual flight number, but does reflect the total origin-destination passenger traffic on the reporting carrier’s route system.

A General Evaluation of the REAP Annual Reports (in Light of the LPA Audit)

The Center for Applied Economics at the University of Kansas School of Business (CAE) has the benefit of conducting this independent review after much work and debate has taken place, over the span of several years. CAE undertook this review by first conducting its own analysis related to the economic dynamics of air travel related to the Mid-Content Airport (and a select set of other airports)—discovering for itself the nature of the data sources available for such an analysis. The results of this analysis will serve as a foundation for an independent answer to the question “what has been accomplished” by the Kansas Affordable Airfares Program (KAAP) and it will serve as the framework with which to assess (1) the reports published by REAP and (2) the audit findings reported by LPA.

The LPA report (p. 16) offered this recommendation (among others): “To ensure its reporting on results obtained from the State grant are accurate and consistent, REAP officials should do the following: . . . simplify the data they report and use the air travel data recommended by the U.S. Department of Transportation.”

REAP, in its February 4, 2011 response letter to LPA (p. 20 of the LPA report) stated: “In regard to the specific recommendation to utilize air travel data from the U.S. Department of Transportation, REAP does not believe that the data set accurately captures the economic impact of KAAP. However, if the Legislative Post Audit Committee or the Kansas Department of Commerce directs us to utilize these data, we will do so.”

This response by REAP suggests a co-mingling of issues that might be better kept analytically separate. A full review of the reports, the persistent concern expressed by the Legislature as to the accuracy of the REAP reports, and the LPA-REAP exchange quoted above seems to indicate that the following two (separable) analytical issues defined the conversation: (1) the data used by REAP to report on the core metrics on the law—“more air flight options, more competition for air travel and affordable air fares” and (2) the supplemental (and secondary) “data” REAP used from a 2008 Wichita State University study related to the “economic impact” to the Wichita Metropolitan Statistical Area as a consequence of AirTran Airlines entering the Wichita market.

A clear delineation of the two issues helps promote understanding. K.S.A. 74-50,150 states that REAP “shall evaluate and present a report on the effectiveness of this program . . .” The law clearly stipulates a set of core metrics: “more air flight options, more competition for air travel and affordable air fares for Kansas . . .” The law says nothing about metrics related to “economic impact,” although it may be fair to argue that a broad reading of the word “effectiveness” could include economic impact metrics. However, the goal of analytical clarity recommends keeping the two different sets of metrics separate and distinct.

Accounting for Passenger Traffic

Despite the LPA-REAP exchange quoted above, REAP (ironically) primarily uses U.S. Department of Transportation data to report on the core metrics of the Kansas Affordable Airfares Program (KAAP). LPA’s report notes correctly that REAP sometimes uses data received from the Wichita Airport Authority. However, based on information received from
Valerie A. Wise, Air Service and Business Development Manager for the Wichita Airport Authority, the Airport Authority often receives its data from consultants that gather the data from U.S. DOT sources.

However, Ms. Wise says she also independently collects data related to passenger counts directly from the airlines. Chart 1 illustrates the difference between the data Ms. Wise collects and the appropriate passenger data from U.S. DOT.² If, in fact, REAP uses (or sometimes uses) Wichita Airport Authority data instead of U.S. DOT data, two points deserve attention.

Chart 1:
A Comparison of Wichita Outbound Passenger Counts

Point one: Beginning in 2003, the two data series move closely together but have different levels. The average monthly difference (post 2003) is 1,914 passengers, with the Airport Authority almost always recording the higher count. Ms. Wise says she collects data based on the number of passengers on the outbound airplane (as reported to her from the airlines).

The Wichita Airport Authority has an analytical motivation to count all passengers potentially moving through the Wichita Airport and using airport amenities—regardless of whether the passengers originate in Wichita or are “passing through” after originating elsewhere.

An evaluation of KAAP should focus on the passengers originating in Wichita. The U.S. DOT data illustrated in Chart 1 counts only outbound passengers that originated at the Wichita airport. That difference in definition between the two data series in the chart could explain the difference in levels. If a passenger on a particular flight number boarded in a city different from Wichita but had a layover (or route through) Wichita, that passenger may count in Ms. Wise’s data collection but not the U.S. DOT data represented in Chart 1. (Note: There is a U.S. DOT database that includes counts of passengers “passing through” an airport from a different origin, the so-called T100—Segment database, but counting such passengers would be inappropriate for evaluating the core metrics related to KAAP.)

² The data from the Wichita Airport Authority begins in 2001; U.S. DOT data dates back to 1993.
Point two: Notice the large differences in levels before 2003, as illustrated in Chart 1. A substantial change in U.S. DOT data collection and reporting regulations provides the major explanation for this difference. In October of 2002, the U.S. DOT began to include data from “Small Air Carriers” into the database, whereas before that date small carriers were accounted for in a separate database (the Schedule T-1 database). So, an accurate analysis requires that the U.S. DOT data used for Chart 1 be augmented with the U.S. DOT Schedule T-1 data for small air carriers.

Points one and two reinforce—and point two augments—LPA’s recommendation to use the U.S. DOT data. (And, per REAP’s response letter, “the economic impact of KAAP” has no relevance to the recommendation.) First, the Airport Authority data and the appropriate U.S. DOT data are somehow measuring different things—and only the U.S. DOT data shares a similar collection methodology with all other airports that might be used for comparison. Second, the two data series are fundamentally different when it comes to pre-2003 data—and the REAP reports use either 2001 or 2000 as a base year for comparison of future years. So, REAP reports should also account for small aircraft passenger counts whenever it uses pre-2003 measurements.

That previous statements notwithstanding, the citations in the REAP reports indicate that they use U.S. DOT data. LPA’s findings of inconsistency may have resulted from other data issues; namely, which U.S. DOT database was used and did the reporting accurately account for the changes in U.S. DOT data definitions related to small air carriers, which adds thousands of passengers each month to the Wichita count.

Accounting for Flight Options

According to the LPA report (p. 11):

REAP officials omitted data on the number of flights available to passengers—a key goal of the program—from all but one of the annual reports. One of the primary purposes of the State Affordable Airfares Fund is to increase the number of flights arriving and departing from Wichita airport. Kansas law requires that performance information on this measure be included in REAP’s annual reports to the Legislature, however, it was only included in REAP’s 2007 report. REAP officials told us they think this measure has become inaccurate because of route adjustments and a decrease in flights across the nation due to high fuel costs, capacity reductions and soft passenger demands. However, this is a statutorily required indicator and should be included in the annual reports.

REAP, in its 2011 and 2012 reports (p. 3), responded to the LPA with the following information:

Air service through Wichita Mid-Continent Airport addresses the statutory objective of more flight options, as follows:

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A total of 11 airlines provide service from Wichita to seven nonstop destinations with connecting service and four nonstop destinations with no connecting service. Overall, there are on average 38 daily (with 40 on weekdays) nonstop or one-stop flights by commercial air carriers, providing access to 4,989 U.S. and international destinations.

LPA’s recommendation is correct. Having a consistent (and perhaps more detailed) time series of this information would illuminate the marketplace dynamics associated with KAAP (and its predecessor program, FairFares). For example, a June 2005 article in *Business Travel News*, reported that:

Delta Air Lines on July 1 will reduce Wichita, Kan., service from 11 daily flights to three hubs to just four daily flights to Atlanta amid a dispute between the Federal Aviation Administration and the City of Wichita over subsidies paid to Delta rival AirTran.\(^4\)

This change in Delta operations (in the era of the FairFares program) unambiguously altered the air flight options available from the Wichita airport. However, it may have been a change with an acceptable trade-off in the context of other elements of the program. Lawmakers with oversight responsibilities cannot assess such trade-offs if the information is not provided by REAP. (Even though the Delta example predates KAAP, REAP has used pre-FareFares data for its evaluations of KAAP.)

Chart 2 illustrates the total monthly outbound flight count from the Wichita airport (as reported by the U.S. DOT). Flight count is one way to measure flight options but not the only way. The same database used to create Chart 2 has information related to: departures by travel segment by airline. (Note that the database used to generate Chart 2 does not include flight counts for small air carriers until October 2002, the exact month of the surge in flight counts shown on the chart.)


REAP reports use two different types of airfare data: (1) U.S. DOT itinerary data (taken as a random 10-percent sample of all airline itineraries) and (2) internet-posted prices. (The Wichita Airport Authority subscribes to third-party data services, and data from such sources may supplement the other two data sources.) These sources are appropriate for analyzing KAAP.

In many respects, REAP’s use of real-time internet-posted air travel prices for comparison purposes is a better approach than using the prices published by the U.S. DOT—when presenting forward-looking rather than backward-looking price information. The U.S. DOT price data (from the DB1B database) results from a random sample of 10 percent of ticket sales, as reported to DOT by the airlines. Consequently, depending on random chance and sample size, the price data for a particular route can vary substantially, and potentially produce an inaccurate measure of actual average price levels. REAP could improve its reported comparisons by standardizing and expanding its practice of gathering real-time price information. For example, REAP could establish a defined set of travel routes, airline competitors, and airports, and then consistently query prices a few times each year (instead of just once per year, as past reports have done).

One critique: REAP does not adjust its price data for inflation. In certain circumstances, a lack of adjustment may be warranted to reveal to the reader important historical perspective related to the dollar prices perceived by travelers. However, the lack of adjustment produces misleading or incorrect information when comparing prices across time, as REAP does.

General REAP Report Methodology

REAP set out a basic methodology and format for its reports with the 2008 report, and has followed the same basic structure in each subsequent report. The information presented offers one way to present the results. However, from an uninitiated reader’s perspective, the reports lack continuity and historical perspective, as the LPA report notes. A reader must study each report to understand that REAP has provided a generally consistent approach. Establishing a consistent set of metrics and presenting them in timeline-fashion would allow those charged with oversight and evaluation of KAAP a means of better tracking the relevant information.

Despite the lack of historical perspective and timeline continuity, REAP has accurately described the general results of the KAAP program, given the reporting approach it established with the first report. There are a few technical caveats to that general statement:

- REAP has developed a protocol of comparing two years—originally with 2001 and then 2000 as the base year. This procedure is not invalid but it leaves out texture that would help a reader understand what has transpired in the intervening years. Additionally, there is a certain logic to picking 2000 as a base year (based on the start data of the Wichita FareFares program, the 2001 recession, and the air travel consequences related to the terrorist attacks on September 11, 2001, but analysis below will indicate reasons why using 2000 as a base year has distinct analytical implications for assessing the results of KAAP; namely, 2000 was the most expensive airfare year among the years of available data.
REAP makes a good faith effort to calculate the aggregate consumer savings on airfares that result from the KAAP (or, more precisely, having AirTran and Frontier serving the Wichita market). However, the results cannot be as definitive as the reports imply. There are a few components to the explanation of this argument: REAP argues that lower airfares tend to increase passenger count; they are correct. REAP’s calculations compare prices for “low-cost” routes or airlines with “non-low-cost” routes or airlines and calculates a price difference. REAP then multiplies the price difference by the number of travelers on the “low-cost” routes. But if the prices had been higher, the traveler count may have been lower, so the aggregate savings may be overstated. There is no reliable resolution to this measurement problem. REAP’s various estimates come closer to the estimates produced by this independent review (see below) when REAP considers particular markets rather than total passenger travel.

Comments on the WSU Economic Impact Study

REAP invited a distracting controversy—and the Legislature’s apparent lack of confidence in REAP’s reports—by including the results of a Wichita State University economic impact study in its first three annual reports on the Kansas Affordable Airfares program. REAP’s desire to include the economic impact analysis is understandable. Economic impact analysis could be included in a broad interpretation of the law’s mandate that REAP report on the “effectiveness” of the Kansas Affordable Airfares Program. However, economic impact analysis is an estimation method and its results should not be confused with the “data” related to the statutory metrics related to the air-travel market.

As the LPA report notes (p. 12): “REAP is not required to report on the economic impact of the State Affordable Airfare Funds. However, in each of its reports for fiscal years 2008-2010, REAP has claimed that the annual investment of State and local moneys has resulted in more than 9,700 average annual jobs in Wichita, and that the State has received $5.25 in additional revenue for every $1 invested. . . . These figures are based on a 2008 economic impact study conducted by the Center for Economic Development and Business Research at Wichita State University. The Wichita Airport Authority commissioned the study to evaluate the impact of AirTran on the Wichita economy.”

LPA’s report takes issue with some of the findings and, by extension, some of the methodological issues with the report. LPA makes valid point.

WSU also makes valid points in response, especially this one (p. 23 of the LPA report): “The CEDBR has recommended that the post audit review create its own reasonable measure of the jobs impact for two reasons. First, the 2008 report was about AirTran and its impact on the Wichita MSA, which started in 2002 because of the FairFares program. The Kansas Affordable Airfares program did not start until 2006. This means this report is being evaluated for something that was not the direct intent and purpose of the study.”

Methodological disagreements are a perennial element of economic impact analysis. It is nothing more than an estimation methodology driven by analytical assumptions applied to historical (and often dated) patterns of commercial activity.

This review will add another methodological critique related to the WSU study, one never addressed in the LPA-CEDBR dialog. It is perhaps the most relevant methodological issue related to economic impact analysis—the one most vital for public sector decision makers to understand. The authors of the WSU study have a reputation for careful scholarship. They made this all-important disclaimer in the report:

An opportunity costs exists for the use of public funds for subsidies. If public funds were not used to provide subsidies, they would be available for alternative uses. Estimating the potential economic impact of alternative uses of these opportunity costs was beyond the scope of this analysis.\(^6\)

This caveat is all too common in economic impact analysis that involves the use of taxpayer money. It automatically renders the results inflated—especially from a state-level perspective (as opposed to a local-level perspective). If the state government collects tax money from all regions of the state and then concentrates the spending of that money in a particular locality, the standard methodological procedures of economic impact analysis will always show a positive impact for the locality. It is the scholar’s responsibility to build into the scope of the analysis the potential countervailing forces that can put the automatically-generated positive results into better context. At a minimum, analysts conducting economic impact analysis should always measure the opportunity cost of reducing the disposable income of taxpayers via taxation. The measurement procedure is straightforward and the countervailing (negative) economic impact offers appropriate context.

Summary statement: Lawmakers and other interested parties may wish to have an analysis of how the KAAP program has influenced net changes in employment and income at a state or local level. Economic impact (or input-output) analysis offers a useful tool toward that end. However, the estimation results should be kept analytically separate and distinct from the measurement of the statutory metrics associated with KAAP: options, competition, and affordability.

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**Independent Analysis of the Wichita Air-Travel Market and the Influence of KAAP**

As implied by the REAP annual reports and the LPA report, an evaluation of the Kansas Affordable Airfares Program cannot be separated from the Wichita FareFares program, because KAAP is (analytically speaking) and continuation of the market-changing results of the FareFares program. The entry of AirTran Airlines into the Wichita market marks the defining analytical event.

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For the sake of analysis, this evaluation will assume that AirTran would not have entered the Wichita market without the subsidies/revenue-guarantees offered by the FareFares program.

From an economic policy perspective, the Wichita FareFares program and the transformation of this program in the Kansas Affordable Airfares Program can be thought of as a “collective action” problem. Note this reliable Wikipedia entry: “The term ‘collective action problem’ describes the situation in which multiple individuals would all benefit from a certain action, but has an associated cost making it implausible that any one individual can or will undertake and solve it alone. The rational choice is then to undertake this as a collective action the cost of which is shared.”

Framing the FareFares/KAAP issue as a collective action problem mitigates the need to rationalize it through economic impact analysis. If a revenue-guarantee contract is the only method of securing “low-cost” air service options, then the creation of that service is the measurable value of resolving the collective action problem. The auxiliary benefit, if any, of improved employment and income opportunities is a natural part of the wealth creation process associated with (improved) market activity—but it is a hard-to-measure secondary goal.

A review of news reports related to AirTran Airlines suggests that a component of its business model was to actively engage select communities in a manner that worked to resolve a collective action problem related to low-fare air service. AirTran sought revenue guarantees from many communities other than Wichita. AirTran would enter a market with low-cost service if it could gain enough confidence that the promised service was financially viable. (Note that Southwest Airline, the new owner of AirTran’s assets, became successful following a much different business model, one based on finding markets that did not required subsidies/revenue-guarantees, and has had to field a variety of inquiries related to that practice after it purchased AirTran.8)

The Wichita FareFares program began, conceptually speaking, as a private-sector oriented approach to resolving the collective action problem. According to the LPA report (p. 18): “The original campaign was to generate $15 million in pledges ($5 million per airline) from area businesses to provide the start-up support that the airlines would need to become established at the airport and compete with other airlines. Businesses were asked to pledge 25%-50% of their annual travel budget to the campaign. Once the airlines were established, each business’ pledge would be converted to a line of credit that could be used to purchase fares with a Fair Fares purchase card.”

The final structure of the FareFares program involved the City of Wichita and then Sedgwick County. Government action is one way to resolve the collective action problem, but not a necessary way. The evolution of the FareFares program into KAAP shifted a major portion of the funding from the local government to the state government, but maintained a requirement that local governments contribute at least 25 percent of the funding.

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From an economic policy perspective, the further the funding moves away from the direct beneficiaries of the program, the more difficult it is to analytically evaluate the true opportunity cost of the program. For example, the geographic distribution of state tax payments in Kansas correlates closely with the geographic distribution of income generation. Over the life of KAAP, the Wichita metro area (comprised of Sedgwick County and counties contiguous to Sedgwick) has accounted for about 21 percent of state personal income; the combined Kansas counties comprising the Kansas City, Lawrence and Topeka metro areas have accounted for about 46 percent of state personal income. The residents of these latter metro areas may be funding close to 34 percent (75% x 46%) of the KAAP and are unlikely to be beneficiaries of the program. Consequently, the actual opportunity cost associated with resolving the collective action problem, from the perspective of the likely beneficiaries, appears much lower than it really is.

<table>
<thead>
<tr>
<th>Table 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A History of FareFares and KAAP Payouts to Participating Airlines ($Millions)</strong></td>
</tr>
<tr>
<td>AirTran</td>
</tr>
<tr>
<td>3.0</td>
</tr>
<tr>
<td>Frontier</td>
</tr>
</tbody>
</table>

Note: KAAP granted American Eagle Airlines a contract for $333,333 to service Garden City in FY 2012
Source: Sedgwick County, Division of Finance; City of Wichita

Table 1 provides a summary history of funds paid to airlines associated with the FareFares program and the KAAP. These payments resulted from an auditable revenue-guarantee contract. Here is an example of revenue-guarantee contract language from the Fiscal Year 2012 Transportation Services Agreement with AirTran (which is capped at $6.5 million):

As an inducement to AirTran to provide Boeing 717 jet service, [Sedgwick] County guarantees to AirTran gross passenger revenues of U.S. $4,849 plus appropriate fuel adjustment per block hour for the [Atlanta-Wichita] service or U.S. $4,467 plus appropriate fuel adjustment per block hour for [Orlando-Wichita] service, plus an amount equal to five percent (5%) of such amount, as such amount may be adjusted from time to time in accordance with the terms hereunder, for each whole or apportioned block hour of jet service flight time for each daily scheduled round trip jet service flight provided herein (“Block Hour Guarantee”).

The following pages present a graphical analysis of how such revenue guarantees for AirTran Airlines and Frontier Airlines altered the market for air-travel services in connection with the Wichita Mid-Continent Airport. The commentary associated with the charts will, as appropriate, comment on data sources and the statutory metrics of: options, competition, and fares. (Note that much of the data used is available in month or quarterly time frames. The analysis relies on annual time frames to smooth out the naturally cyclical nature of the data, which makes the trends harder to assess without adding any additional clarity to the analytical story.)
Commentary on Chart 3:

- Chart 3 illustrates the rank of the Wichita Mid-Continent Airport based on lowest average fares per airport out of the 200 largest airports by 1993 passenger sample count. (The sample of airports remains constant across the years.) For example, in 1996 Wichita ranked 70th lowest, meaning it had lower average fares than 130 other airports in the sample. In 2000, it ranked 145th lowest, meaning it was lower than only 55 other airports in the sample.

- In the year 2000, Wichita scored its “worst” ranking. This fact should be kept in mind when reviewing REAP’s (and LPA’s) analysis that uses 2000 as the base comparison year.

- BTS calculated the average fares used to create Chart 3. Here is the definition BTS provides: Average fares are based on domestic itinerary fares, round-trip or one-way for which no return is purchased. Fares are based on the total ticket value which consists of the price charged by the airlines plus any additional taxes and fees levied by an outside entity at the time of purchase. Fares include only the price paid at the time of the ticket purchase and do not include other fees, such as baggage fees, paid at the airport or onboard the aircraft. Averages do not include frequent-flier or ‘zero fares’ or a few abnormally high reported fares. (The DB1B—Ticket database was used where bulk fare equals zero, itinerary fare is greater than or equal to fifty dollars ($50) and itinerary yield is less than or equal to three dollars ($3).
Commentary on Chart 4

- The data source for Chart 4 is the same as for Chart 3. The Center for Applied Economics selected a sample of airports for comparison. Choices for the sample where influenced by geographic region, passenger traffic (relative to Wichita), and degree of geographic separation from major airports (similar to Wichita). Among the sample, Omaha has the highest passenger count and Sioux Falls has the lowest. (Appendix Table A reports the passenger counts for select years.)

- Wichita is represented by the red-colored dotted line and the U.S. by the red-colored dashed line. Comparing these lines shows average inflation-adjusted airfares in Wichita compared to the U.S. (NOTE: The dollar figures are inflation-adjusted to the year 2011, so the airfare levels are much higher in the early 1990s than what the unadjusted numbers would show—and what consumers experienced in nominal terms.)

- Showing all of the airports together is designed to show a broad market context. Wichita average airfares have (roughly) converged to the national average. However, the airfare dispersion among the entire sample has narrowed significantly over time. Note: Many of the airports showing the lowest average fares in the 1990s had substantial service from Southwest Airlines. Until mid-1998, Southwest reported all of its fares
to BTS in the form of one-way fares (roughly half the measure of a roundtrip fare); this skews the comparison of such airports until 1999.

- AirTran Airlines entered the Wichita market in May of 2002 (marked by the vertical line on the chart). Among the sample of airports, Wichita clearly has the most dramatic declines in airfares at that time. However, many other airports (and the U.S.) also experienced declines at that time, suggesting that broader market forces were also in play.

- Frontier Airlines also entered the Wichita market for a brief time in 2003 with assistance from the FareFares program, and then exited in early 2004. The prices offered by Frontier may have had some influence on the price trend in those years.

- With assistance from the KAAP program, Frontier Airlines entered the Wichita market in October of 2007, offering two daily flights to Denver. Wichita experienced a noticeable decline in fares at that time, but, again, so did other airports. However, Chart 3 shows that Wichita improved its relative rank. Frontier discontinued its service in November of 2012.

- The steep decline in average Wichita airfares from 1994 to 1996 corresponds with the entrance of Kansas City-based Vanguard Airlines into the market, a company with a low-cost business model.

- The so-called Great Recession began in December of 2007 and ended in June of 2009. This event corresponds with a general decline in airfares.
Chart 5:  
A Comparison of Average Monthly Wichita Passenger Counts, Before and After AirTran Entry

![Chart 5: A Comparison of Average Monthly Wichita Passenger Counts, Before and After AirTran Entry](image)

Source: Bureau of Transportation Statistics, T100—Market & Small Air Carriers—Schedule T-1

Chart 6:  
A Comparison of Relative Growth Trends, Average Annual Wichita Airfares vs. Annual Wichita Passenger Counts

![Chart 6: A Comparison of Relative Growth Trends, Average Annual Wichita Airfares vs. Annual Wichita Passenger Counts](image)

Source: Bureau of Transportation Statistics, Airline Origin & Destination Survey (10% Sample), DB1B—Ticket; T100—Market

Commentary on Charts 5 & 6:

Chart 5 compares the average monthly passenger counts moving through the Wichita airport before and after the entry of AirTran. The number of months for each sample is identical for comparison purposes (112 months). The after-AirTran time sample ends in September of 2011, so it captures a significant breadth of experience, and incorporates the entry of Frontier Airlines.

The passenger count data includes only those passengers boarding and unboarding in Wichita.

Chart 6, along with other evidence, suggests that the lower fares introduced by AirTran helped cause the increase in passenger count. The different passenger counts in Chart 5 represent about an 18 percent increase.

Chart 6 illustrates the strong inverse relationship between price and quantity demanded predicted by economic theory. The inverse relationship between changes in passenger count and airfares breaks down briefly during the unusually strong income growth years of 2004-2006, but resumes in 2007.

The price drop from 1994 to 1996 corresponds with the entry of Vanguard Airlines. The drop in 2002 corresponds with the entry of AirTran. The escalation in prices after 2003 are generally unrelated to Atlanta-routed traffic, the route used by AirTran, as will be demonstrated elsewhere.
Charts 7a through 7e provide comparative evidence to support the contention that the entry of AirTran caused a measurable change in passenger traffic in Wichita.

The airports listed are the same as those in Chart 4. The passenger data is presented as relative growth trends for ease of comparison. (See Appendix Table A for passenger counts.) Each chart compares Wichita and the U.S. against select airports.

None of the comparison airports show the same sharpness of upward inflection from 2001 to 2002, the time period corresponding to AirTran’s entry in May of 2002.

Each airport has some unique attributes (underscoring the regional nature of certain economic trends), but all the comparison airports share a similar pattern of passenger growth in the 2000s, with an inflection point upwards in the early 2000s (following the 2001 recession) and a downward or leveling trend in correspondence with the Great Recession.

The upward spike in Wichita outbound passenger traffic in the early 1990s corresponds with the entry of Vanguard Airlines. The downward trend after the 1996 peak has more to do with the fortunes of Vanguard than something systematically amiss in the Wichita market.
**Chart 7b:**
Comparative Growth Trends in Outbound Passengers, Select Airports

**Chart 7c:**
Comparative Growth Trends in Outbound Passengers, Select Airports

Source: Bureau of Transportation Statistics, T100—Market & Small Air Carriers—Schedule T-1
**Chart 7d:**
Comparative Growth Trends in Outbound Passengers, Select Airports

**Chart 7e:**
Comparative Growth Trends in Outbound Passengers, Select Airports

Source: Bureau of Transportation Statistics, T100—Market & Small Air Carriers—Schedule T-1
Commentary on Chart 8:

- Chart 8 provides information on the direction Wichita outbound passengers took on their first-leg (or final destination).
- The major lesson of Chart 8 is the change from Northeast to Southeast routing beginning in 2002. That date corresponds with the entry of AirTran and its Wichita-Atlanta flight schedule.
- The Entry of AirTran shows up also in the Northeast-direction data. The sharp inflection point from 2001 to 2002 captures the timing of AirTran’s Wichita-Chicago Midway flight schedule. That route terminated in January of 2003.
- The upward inflection point in the West from 2006 to 2008 corresponds with the entry of Frontier Airlines.
- The BTS T100—Market database provides a complete count of passengers originating at airport A and flying to airport B. Many passengers may be passing through airport A from another originating airport but they are excluded from the T100—Market database. (The T100—Segment database includes the passengers passing through, but does not indicate their origin; just that they are also on the plane with passengers originating at airport A. Passengers counted by the Small Air Carrier database are included; that database was essentially merged with the T100 database in Q4 of 2002.) This definitional constraint of the T100—Market data explains why Chart 8 can only specify the first-leg of an itinerary: with the complete-count
T100—Market database, the researcher can know how many people originated at airport A and flew to airport B, but cannot know if airport B was the final destination or the first-leg of a longer journey.

- The direction indicators are stylized. *Northeast* mean (roughly) north and east of Wichita (with north-south being defined by the latitude of the North Carolina-Virginia border. *Southeast* follows the same convention; only (roughly) south and east of Wichita. *North* means Nebraska, and the Dakotas. *South* means Oklahoma and Texas.
**Commentary on Chart 9:**

- Chart 9 has all of the same data characteristics of Chart 8, except that it specifies the high-volume airports associated with outbound Wichita flights.
- Note the Kansas City curve. That primarily represents the Vanguard Airlines episode mentioned in association with other charts. Also notice the once-dominant but now obsolete St. Louis route.
- The evidence supports the general notion that the Atlanta route has replaced the St. Louis, Dallas, and Chicago routes to the east. As with the other charts, the inflection point associated with the Atlanta route marks the timing of AirTran’s entry into the Wichita market.
- The Denver route experienced an increasing trend in passengers beginning in 2005. However, the inflection point from 2007 to 2008 corresponds with the entry of Frontier Airlines in October of 2007.
Commentary on Chart 10:

- Chart 10 provides inflation-adjusted airfare data for five of the select airports in Chart 9. (Note that the adjustment procedure works to increase the levels of the data prior to 2011; these price levels are not the sticker-price experienced by consumers. The further back in time, the more the inflation-adjustment procedure will elevate the prices above the sticker-price consumers actually experienced.)
- AirTran entered the Wichita market in May 2002 with routes to Atlanta and Chicago Midway Airports. The flights to Midway lasted only until January of 2003. Both entry points are apparent in the Chart 10 data. The Atlanta price trend follows the others in a manner consistent with the 2001 recession—and then continues to decline and stabilize at a much lower level than the other selected airports. AirTran’s Midway flight offered a Chicago substitute to an O’Hare route. The 2002-2003 price trend for O’Hare seems to reflects AirTran’s brief influence on roundtrip flights to Chicago.
- Frontier Airlines entered the Wichita-Denver market in October of 2007. That influence also seems apparent in the price data.
• The Wichita FareFares program and the KAAP have made no expenditures related to the Dallas and Houston routes.

• The data source for Chart 10 has shifted from other airfare data presented in previous charts. The airfares are averages for known roundtrip travel to the select airports. The BTS DB1B—Market database collects a random 10 percent sample from airlines’ itineraries. This data allows the researcher to know the entire travel itinerary for a passenger in the sample and the price paid for it. The averages in Chart 10 represent all roundtrip itineraries to the select airports reported in the database.

• Given the high-volume of passenger traffic associated with the select airports, the sample sizes for roundtrips number several hundred per month per airport, so the airfare data should accurately represent typical passenger experiences.
Commentary on Chart 11:

- Chart 11 illustrates the passenger counts of various airlines routing to (or through) Atlanta, as they appear in the T100—Market database.
- ExpressJet and AirTran dominate the Wichita-Atlanta route, according to the database.
- The BTS database is not the best source of information for understanding the nuances of corporate structures and partnerships among the operating airline companies. The Wichita Airport Authority has better information related to airline partnerships. The airline industry continually evolves, with frequently changing business structures and partnerships. Often, smaller carriers will “do business” as larger, more identifiable carriers. For example, ExpressJet began as a business arrangement associated with Continental Airlines. It incorporated in 1996. It spun off from Continental in 2002 and became independent in 2006. Comair and Pinnacle operate in association with Delta. Air Wisconsin operated in association with AirTran.
Commentary on Chart 12:

- Chart 12 shows inflation-adjusted airfare for Wichita-Atlanta roundtrips on select airlines. Note that there are airlines present on Chart 12 that are not on Chart 11 because the databases are different. Chart 12 pulls from the DB1B—Market database that captures a sample of exact itineraries. Some people flew from Wichita to Atlanta and routed through other airports rather than taking a direct flight. Breaks in the lines indicate a time period with no sample data available.
- The change in the level of average prices corresponding with the entry of AirTran is unambiguous.
- How much have Mid-Continent travelers saved on roundtrip journeys to Atlanta? Using the quarterly version of the DB1B—market data used to generate Chart 12, the researcher can calculate a weighted average price based on the samples of itineraries available. The inflation-adjusted pre-terrorist attack weighted average fare was $585; the post-AirTran fare was $284. That difference amounts to $301 for the average journey. If the researcher could know with certainty the number of passengers that took roundtrip flights to Atlanta during the pre-terrorist attack time period, it would be legitimate to apply the $301 difference to each traveler to estimate an aggregate level of consumer savings from the entry of AirTran. It would not be legitimate to apply the $301 to all of the post-AirTran roundtrips to Atlanta, because the increased volume of passengers resulted from the lower fares. Of course, the lower fares and the higher
volume of travelers offer two clear measures of the “effectiveness” of the FareFares program (and its continuation as KAAP): Affordability and More Flight Options (where “Options” is a function of Affordability).

- Chart 12 suggests another interesting calculation. Chart 11 indicates that AirTran and ExpressJet ferry the most passengers to (or through) Atlanta; they are the key competitors. Chart 12 shows the average Atlanta roundtrip fares between AirTran and ExpressJet to be relatively stable. Per Table 1, AirTran has received $6.5 million (or more) per year from the KAAP. Based on the outbound passenger count from Chart 11 (which, according to the T100 database, would capture all AirTran passengers leaving Wichita), AirTran receives average revenue guarantees per passenger as shown in the top line of Table 2. Adding the per-passenger revenue-guarantee amount to the market fare offered by AirTran gives the total fare received by AirTran. This total fare has typically exceeded the total fare received by ExpressJet by about 10 percent to 17 percent. Perhaps competition would have been strengthened—to the benefit of air travelers—if ExpressJet (or some other airline) had been allowed to bid against AirTran for the allotted revenue-guarantee funds.

| Table 2: Estimated Total Airfares for Wichita-Atlanta Roundtrip Flights, AirTran vs. ExpressJet |
|-------------------------------------------------|----------------|----------------|----------------|----------------|----------------|
|                                                  | 2007 | 2008 | 2009 | 2010 | 2011 |
| AirTran KAAP Payment per Passenger                | $84  | $83  | $105 | $96  | $85  |
| AirTran Average Market Fare per Passenger         | 258  | 267  | 225  | 236  | 297  |
| AirTran Average Total Fare per Passenger          | 342  | 350  | 330  | 332  | 382  |
| ExpressJet Average Total Fare per Passenger       | 308  | 298  | 282  | 300  | 389  |
| AirTran Difference                                | 34   | 52   | 48   | 32   | -7   |
Commentary on Chart 13:

- REAP has made it clear in its reports that the primary goal of the KAAP has been to induce low fares to eastern destinations. Chart 13 is consistent with the other evidence that AirTran’s entry into the market lowered, and has kept lower, the airfares to eastern destinations.
- Based on the quarterly version of the data that generated Chart 13, Table 3 reports the airfare savings for the average roundtrip traveler to these major eastern destinations (as measured by a 10 percent sample of tickets):

<table>
<thead>
<tr>
<th>Destination</th>
<th>Avg. Fare Pre-2001</th>
<th>Avg. Fare Post-AirTran</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orlando, FL: Orlando International</td>
<td>$463</td>
<td>$339</td>
<td>$124</td>
</tr>
<tr>
<td>Washington, DC: Ronald Reagan</td>
<td>603</td>
<td>372</td>
<td>231</td>
</tr>
<tr>
<td>Washington National</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York, NY: LaGuardia</td>
<td>673</td>
<td>369</td>
<td>304</td>
</tr>
<tr>
<td>Boston, MA: Logan International</td>
<td>731</td>
<td>386</td>
<td>345</td>
</tr>
<tr>
<td>Miami, FL: Miami International</td>
<td>527</td>
<td>375</td>
<td>152</td>
</tr>
</tbody>
</table>

Source: Bureau of Transportation Statistics, Airline Origin & Destination Survey (10% Sample), DB1B—Market
Chart 14a:
Estimated Quarterly Roundtrip Passengers, All AirTran Destinations Traveled from Wichita

Chart 14b:
Weighted Average Roundtrip Fares, All AirTran Destinations Traveled from Wichita

Source: Bureau of Transportation Statistics, Airline Origin & Destination Survey (10% Sample), DB1B—Market & Small Air Carriers—Schedule T-1
Commentary on Chart 14a and Chart 14b:

- REAP has made good-faith estimates related to the total passenger savings related to KAAP (and FareFares). Charts 14a and 14b provide a foundation for an alternative approach to such an estimate. Unlike previous charts, the data is presented quarterly instead of annually to capture more texture. Charts 14a and 14b focus on roundtrip flights, which account for 85% to 90% of all flights. The same procedure described below was also undertaken for one-way flights.

- Both charts rely solely on the data provided in the databases made available by the Bureau of Transportation Statistics (the U.S. DOT data recommended in the LPA report). Data for specific itineraries comes only from the DB1B database, which represents a 10 percent random sample provided by the airlines for all itineraries. There is no specific way to know if any particular subset of itineraries represents a true 10 percent sample; some destinations may be over or under represented in the sample. Chart 14a derives from a query of the DB1B—Market database for all AirTran destinations flown from a Wichita origin. The query produced 57 unique destinations. Those destinations were matched to all flights available in the database, and separated into AirTran and Non-AirTran flights. The passenger counts that resulted from the query of the DB1B database were multiplied by 10 to arrive at passenger counts. Note that this multiplication procedure will correctly count total passengers only to the extent that the 10-percent samples from specific routes accurately represent 10-percent samples. (To provide for continuity of passenger count in the 1990s, the Small Air Carrier database, Schedule T-1, was also queried for the specific cities identified in the DB1B query. Small carriers were excluded from the DB1B database until October of 2002.)

- For all flights (and all destinations) implied by Chart 14a, a weighted average (inflation-adjusted) fare was calculated for non-AirTran and AirTran flights. Chart 14b shows the calculations for roundtrip flights. As with other evidence, the entry of AirTran put unambiguous downward pressure on airfares.

- The analytical challenge of calculating a total savings from the entry of AirTran is that the lower fares increased the quantity demanded for trips. To isolate this problem, one approach is to imagine what passengers would have paid on the same specific routes if the post-AirTran fare structure had existed before the lower fares stimulated more travel demand. This approach produces a lower-bound estimate because it counts passengers that paid to travel at the higher fares.

- Table 4 shows the data and calculations. The average annual “what-if” savings sum to $19.8 million. If one assumes that AirTran would have never entered the Wichita market without FareFares or would have immediately left the market without FareFares or KAAP—and all pricing would have immediately reverted to pre-2001 levels, then it is legitimate to say that the $19.8 million is a reasonable approximation of the monetary benefit that accrued to Kansas travelers in return for the revenue guarantee paid to AirTran. The same procedure for one-way travel yields an annual average of $4 million—for a total lower-bound estimate of $23.8 million. The Passenger count estimation procedure captures only about 75 percent of the AirTran T100 outbound passenger count illustrated in Chart 11. If the 25 percent undercount of passengers also holds for the Non-AirTran flights (pre-2001), the savings might be closer to $29.75 million.

<table>
<thead>
<tr>
<th>Table 4: Estimates of Aggregate Passenger Savings from AirTran Entry (Roundtrips Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Roundtrip Passenger Count, 1993 to Q2-2001</strong></td>
</tr>
<tr>
<td><strong>Weighted Average Fare (2011$), 1993 to Q2-2001</strong></td>
</tr>
<tr>
<td><strong>Weighted Average Fare (2011$), Q2-2002 to Q2-2012, AirTran</strong></td>
</tr>
<tr>
<td><strong>Weighted Average Fare (2011$), Q2-2002 to Q2-2012, Non-AirTran</strong></td>
</tr>
<tr>
<td><strong>Aggregate Fares Paid, 1993 to Q2-2001</strong></td>
</tr>
<tr>
<td>&quot;What if&quot; Aggregate Fares Paid, 1993 to Q2-2001:</td>
</tr>
<tr>
<td>AirTran Fares (20% of Capacity) and Non-AirTran Fares (80% of Capacity)</td>
</tr>
<tr>
<td><strong>Difference in Aggregate Fares</strong></td>
</tr>
<tr>
<td><strong>Annual Average Difference (9.5 years)</strong></td>
</tr>
</tbody>
</table>
Chart 15:
Wichita to Denver Passenger Count by Airline (First-Leg or Final Destination)

Source: Bureau of Transportation Statistics, T100—Market

Commentary on Chart 15:

- Chart 15 illustrates the passenger counts of various airlines routing to or through Denver (the western route that REAP has focused on for the KAAP), as they appear in the T100—Market database.
- United Airlines dominates the route. According to records from the Wichita Airport Authority, SkyWest does business as United Express (and briefly also did business as Delta Connection).
- Frontier Airlines entered the market in October 2007 as a participant in the KAAP. It discontinued its Wichita service in November of 2012.
Commentary on Chart 16:

- Chart 16 shows inflation-adjusted airfares for Wichita-Denver roundtrips on select airlines.
- The entry of Frontier Airlines corresponds with a sharp decline in the average fares offered by United and SkyWest. Based the quarterly version of the data used to generate Chart 16, the average United fare from 2002 to the second quarter of 2007 was $447; for SkyWest (from 2005 to the second quarter of 2007), the average fare was $450. Beginning in the third quarter of 2007, the average fares were: $300 for United; $340 for SkyWest; and $255 for Frontier.
- Note that the sharp increase in SkyWest fares in 2011 corresponds with a sharp drop in passengers, as illustrated in Chart 15. Frontier essentially captured those passengers.
- Based on Frontier’s outbound passenger count reported in Chart 15 and its $500,000 annual KAAP revenue guarantee (as reported in Table 1), Frontier’s estimated per passenger subsidy averaged between $10 to $13 from 2008 to 2011, much lower than the estimated $80 to $100 received by AirTran (as reported in Table 2).
Commentary on Chart 16:

- Chart 16 reports average roundtrip fares to select western destinations. The general trends are similar to the trend for Denver, reported in Chart 15. The entry of Frontier appears to have put downward competitive pressure on fares. (Not all of the destinations involve Frontier.)
- Table 4 reports a comparison of average fares pre- and post-Frontier, most of which are lower after Frontier entered.

| Table 4: Comparison of Roundtrip Average Airfares to Select Western Destinations |
|---------------------------------|------------------------------|-----------------|
|                                 | 2002 to 2007 (Q2) | 2007 (Q3) to 2012 (Q2) |
| Las Vegas, NV: McCarran International | $161 | $140 |
| Phoenix, AZ: Phoenix Sky Harbor International | 214 | 199 |
| Seattle, WA: Seattle/Tacoma International | 303 | 234 |
| Los Angeles, CA: Los Angeles International | 225 | 180 |
| San Francisco, CA: San Francisco International | 232 | 194 |
| San Diego, CA: San Diego International | 234 | 176 |
| Portland, OR: Portland International | 247 | 248 |
| Salt Lake City, UT: Salt Lake City International | 219 | 236 |
Chart 17a:
Estimated Quarterly Roundtrip Passengers, All Frontier Destinations Traveled from Wichita

Chart 17b:
Weighted Average Roundtrip Fares, All AirTran Destinations Traveled from Wichita

Source: Bureau of Transportation Statistics, Airline Origin & Destination Survey (10% Sample), DB1B — Market
Commentary on Chart 17a and Chart 17b:

- Chart 17a and Chart 17b result from the same procedure that generated Chart 14a and Chart 14b related to AirTran.
- The query of the DB1B—Market database identified 67 unique locations traveled on Frontier from Wichita.
- Table 5 presents the results of the “what-if” calculations related to the entry of Frontier Airlines. Unlike, the calculations for AirTran in Table 4, which explores dates back to 1993, the Frontier calculation compares dates back to 2002.
- The average annual “what-if” savings for roundtrips sum to $3.9 million. If one assumes that Frontier would have never entered the Wichita market without KAAP—and all pricing would have immediately reverted to 2002-2007 levels, then it is legitimate to say that the $3.9 million is a reasonable approximation of the monetary benefit that accrued to Kansas travelers in return for the revenue guarantee paid to Frontier. The same procedure for one-way travel yields an annual average of just over $3 million—for a total lower-bound estimate of $6.95 million.
- A comparison of the T100—Market passenger counts for Frontier with the estimated passenger counts using the DB1B—Market database indicates that the estimation procedure captured only 60 percent of the Frontier Passenger count. If the same undercount applied to the Non-Frontier count from 2002 to Q-3 2007 (as shown in Table 5), then the total lower-bound estimate would increase to almost $9.75 million.

<table>
<thead>
<tr>
<th>Table 5: Estimates of Aggregate Passenger Savings from Frontier Entry (Roundtrips Only)</th>
</tr>
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<tbody>
<tr>
<td>Total Roundtrip Passenger Count, 2002 to Q3-2007</td>
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<tr>
<td>Weighted Average Fare (2011$), 2002 to Q3-2007</td>
</tr>
<tr>
<td>Weighted Average Fare (2011$), Q3-2007 to Q2-2012, Frontier</td>
</tr>
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<tr>
<td>Aggregate Fares Paid, 2002 to Q3-2007</td>
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<tr>
<td>&quot;What if&quot; Aggregate Fares Paid, 2002 to Q3-2007:</td>
</tr>
<tr>
<td>Frontier Fares (12% of Capacity) and Non-Frontier Fares (88% of Capacity)</td>
</tr>
<tr>
<td>Difference in Aggregate Fares</td>
</tr>
<tr>
<td>Annual Average Difference (6.75 years)</td>
</tr>
</tbody>
</table>
## Appendix Table A:
### Outbound Passenger Counts for Select Airports and Years

<table>
<thead>
<tr>
<th>Location</th>
<th>1993</th>
<th>2003</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omaha, NE: Eppley Airfield</td>
<td>1,052,915</td>
<td>1,779,963</td>
<td>2,044,148</td>
</tr>
<tr>
<td>Tucson, AZ: Tucson International</td>
<td>1,256,764</td>
<td>1,694,006</td>
<td>1,769,289</td>
</tr>
<tr>
<td>Oklahoma City, OK: Will Rogers World</td>
<td>1,481,567</td>
<td>1,607,274</td>
<td>1,736,512</td>
</tr>
<tr>
<td>El Paso, TX: El Paso International</td>
<td>1,758,135</td>
<td>1,405,369</td>
<td>1,450,557</td>
</tr>
<tr>
<td>Boise, ID: Boise Air Terminal</td>
<td>743,623</td>
<td>1,358,568</td>
<td>1,393,795</td>
</tr>
<tr>
<td>Tulsa, OK: Tulsa International</td>
<td>1,430,650</td>
<td>1,361,410</td>
<td>1,344,182</td>
</tr>
<tr>
<td>Charleston, SC: Charleston AFB/International</td>
<td>650,105</td>
<td>801,244</td>
<td>1,246,070</td>
</tr>
<tr>
<td>Little Rock, AR: Bill and Hillary Clinton Nat Adams Field</td>
<td>1,114,788</td>
<td>1,051,115</td>
<td>1,061,122</td>
</tr>
<tr>
<td>Des Moines, IA: Des Moines International</td>
<td>665,808</td>
<td>886,084</td>
<td>931,477</td>
</tr>
<tr>
<td>Greer, SC: Greenville-Spartanburg International</td>
<td>585,524</td>
<td>672,357</td>
<td>880,079</td>
</tr>
<tr>
<td>Knoxville, TN: McGhee Tyson</td>
<td>649,926</td>
<td>691,895</td>
<td>840,501</td>
</tr>
<tr>
<td>Wichita, KS: Wichita Mid-Continent</td>
<td>596,120</td>
<td>691,117</td>
<td>738,354</td>
</tr>
<tr>
<td>Lubbock, TX: Lubbock Preston Smith International</td>
<td>598,843</td>
<td>508,226</td>
<td>503,023</td>
</tr>
<tr>
<td>Midland/Odessa, TX: Midland International</td>
<td>544,782</td>
<td>394,994</td>
<td>474,421</td>
</tr>
<tr>
<td>Cedar Rapids/Iowa City, IA: The Eastern Iowa</td>
<td>379,873</td>
<td>468,053</td>
<td>431,661</td>
</tr>
<tr>
<td>Sioux Falls, SD: Joe Foss Field</td>
<td>263,207</td>
<td>294,404</td>
<td>418,340</td>
</tr>
<tr>
<td>Billings, MT: Billings Logan International</td>
<td>300,669</td>
<td>359,594</td>
<td>407,149</td>
</tr>
<tr>
<td>Amarillo, TX: Rick Husband Amarillo International</td>
<td>445,576</td>
<td>387,507</td>
<td>392,813</td>
</tr>
<tr>
<td>Fargo, ND: Hector International</td>
<td>211,510</td>
<td>248,995</td>
<td>345,750</td>
</tr>
</tbody>
</table>

Source: Bureau of Transportation Statistic, T100—Market & Small Air Carriers—Schedule T-1