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Commercial Air Service at Virginia's Airports: Challenges and Opportunities

by Michael D. Wittman

Introduction

Scheduled commercial air service plays an important role in connecting American residents and businesses to family, friends, new markets, and economic opportunities. For many communities, airline service provides a convenient and direct link to other regions of the country and the world; a small airport with direct service to a hub of a network carrier like American Airlines, Delta Air Lines, or United Airlines can often offer one-stop connections to hundreds of points throughout the globe. These links have grown in importance with the rapid pace of globalization. As Roger Cohen, the president of the Regional Airline Association, said in a recent interview: "In today's global economy, the only two things a community must have are an Internet connection and scheduled air service."[1]

However, from 2007 to 2012, U.S. airports have seen widespread reductions in both the availability of domestic air transportation and the level of connectivity to the worldwide airline network. According to a 2013 study by the Massachusetts Institute of Technology (MIT), airlines cut scheduled domestic flights by 14.3 percent at the nation's airports from 2007 and 2012 in reaction to high fuel prices, an economic downturn, and a newfound airline focus on cutting unprofitable service that has been referred to as "capacity discipline."[2] Small airports were disproportionately affected by these cuts in service; domestic flights were cut by 21.7 percent at smaller airports from 2007 to 2012, compared to a reduction of just 8.8 percent at the country's 29 largest airports.

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Virginia and its airports were also affected by these larger trends that shaped the U.S. domestic airline industry. From 2007 to 2012, airports in the state suffered losses in service, a repositioning of capacity into larger markets, and have been the center of regulatory attention during the American Airlines/US Airways merger. In response, Virginia's airports have needed to get creative to win new flights and continue to offer airline network connectivity to area residents and businesses. The success of Virginia's airports in weathering the challenges of the capacity discipline era may well serve as a bellwether for the rest of the country as airports nationwide adapt to the "new normal" of service that is consolidated at larger airports in multi-airport regions, limited connectivity, and a greater reliance on low-cost and ultra-low-cost carriers to provide flights to smaller markets. While there is no official definition of low-cost and ultra-low-cost carriers, the low-cost carrier category often includes carriers like Southwest Airlines, JetBlue Airways, and Virgin America Airlines, and the ultra-low-cost carrier category includes carriers such as Allegiant Air, Frontier Airlines, and Spirit Airlines.

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"While the U.S. airline industry was already struggling to make money, the global financial crisis of 2007-2008 and the ensuing Great Recession in the United States provided a series of further shocks to the airlines."

The remainder of this article is structured as follows: first, I briefly review trends and market forces that have shaped the U.S. domestic airline industry nationwide since the start of the Great Recession. Then, I move to Virginia's airports, first providing a broad overview of trends in available service and connectivity at Virginia's nine primary commercial service airports. I then take a closer look at trends affecting two groups of Virginia airports: the complex relationship between Washington Dulles International Airport and Ronald Reagan Washington National Airport in northern Virginia and the creativity of smaller airports in the rest of Virginia in responding to the challenges of the capacity discipline era. I conclude with a brief discussion of what steps are necessary to ensure the continued maintenance and improvement of air service accessibility at Virginia's airports.

A Brief Overview of Air Service Trends in the U.S., 2005 to 2014

Prior to 2007, airports and airline passengers were well positioned in regards to the cost and availability of domestic air transportation. In that year, U.S. airlines provided a record number of scheduled domestic flights from the nation's airports, according to an analysis of airline schedule data from Diio Mi, an aviation data provider, which sources data from Innovata's Schedule Reference Service (SRS).[3] As a result, passengers had many choices of itineraries and carriers when deciding how to reach their intended destination. With ample capacity in the market and healthy competition among airlines, including several low-cost carriers, fares remained relatively low.

However, while this era was beneficial for airports and passengers as they experienced greater itinerary choice with lower cost, it was a challenging period for U.S. airlines, which continued their perpetual habit of losing money. Delta Air Lines and Northwest Airlines both declared bankruptcy in 2006, and US Airways merged with struggling America West Airlines in the same year. The combination of lower fares, rising unit costs, and the over-provision of capacity in the domestic market led airlines to struggle to break-even in the pre-2007 period—for instance, U.S. airlines lost over $25 billion in the year 2005 alone, according to data from the U.S. Bureau of Transportation Statistics that was consolidated by the MIT Airline Data Project.[4]

While the U.S. airline industry was already struggling to make money, the global financial crisis of 2007-2008 and the ensuing Great Recession in the United States provided a series of further shocks to the airlines. First, the recession stunted demand for domestic and international air transportation; as the economy worsened, people were less likely to fly for business or pleasure. Additionally, the financial crisis resulted in a spike in the price of oil, directly affecting airline operations. High and volatile fuel prices caused uncertainty for airline managers and limited the incentives for airlines to use "fuel hedging" strategies to protect against higher future oil prices, since a future reduction in oil prices to pre-recession levels would render expensive fuel hedging contracts worthless.[5]

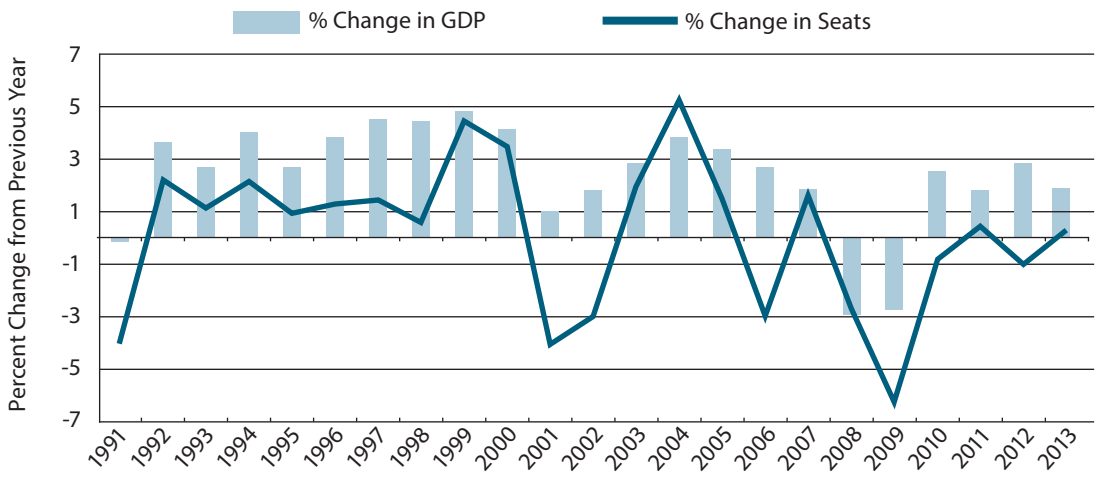
Generally, growth in airline capacity is highly correlated to economic growth—as the economy improves, more demand for air transportation is induced. Therefore, given the paired shocks of an economic downturn and high and volatile fuel prices in 2008 and 2009, it is not surprising that U.S. airlines reduced the amount of available domestic capacity in the wake of the financial crisis. In other similar downturns, such as the one following the terrorist attacks and subsequent recession of 2001, airlines also cut flights to respond to a lower level of demand. In previous crises, airlines would typically add capacity as the domestic economy began to recover to take advantage of bolstered levels of demand.

Yet as the U.S. economy started to recover from the financial crisis and as fuel prices became less volatile from 2010 to the present day, airlines surprisingly did not respond by adding new domestic service to return to pre-recession levels as would have been expected. Instead, airlines kept growth low and maintained domestic capacity at recession-era levels, as shown in **Figure 1**, which plots the annual percentage change in U.S. gross domestic product (GDP) and available domestic seats from 1990 to 2013.

Note from Figure 1 that following the financial crisis of 2008 and 2009, growth in available seats was kept negative or flat despite healthy growth of GDP. This period was the first time in modern aviation history that U.S. airlines maintained negative or flat growth in available domestic seats for five years in a row, despite domestic economic growth for three of those years.

This strategy of keeping growth in capacity low relative to historical levels despite the economic recovery has been referred to as "capacity discipline."[6] Airlines have relied on capacity discipline to remove unprofitable service from their networks, largely through cutting flights in smaller markets. A 2013 MIT study found that airlines cut scheduled domestic flights by 8.8 percent from 2007-2012 at the 29 largest airports in the U.S., as compared to a 21.7 percent drop in flights at smaller airports over the same period.[7]

Figure 1: Annual Percentage Change in U.S. GDP and Available Domestic Airline Seats, 1990 to 2013



Sources: Bureau of Economic Analysis, National Income Accounts data and Innovata SRS via Diio Mi.

"…U.S. airlines had an average load factor of 83.5 percent in 2013, the highest in aviation history."

Medium-sized airports were particularly affected as network carriers shut down secondary hubs at airports like Cincinnati, Memphis, Pittsburgh, and Cleveland.

The capacity discipline era led to a period of stable profitability for U.S. airlines, as well as an increase in inflation-adjusted fares for airline passengers. This makes sense economically—since airlines restricted the supply of airline seats in the market, basic microeconomics would suggest that prices would rise as a result. Indeed, a review of airfares from 2007 to 2012 found that, adjusting for inflation, one-way airfares increased by 8.7 percent at large airports and 11.9 percent at medium-sized airports over that period.[8] The price-dampening effects of some low-cost carriers, like Southwest Airlines, have also weakened over the capacity discipline period.[9] Southwest and other airlines have changed their business strategy to focus more on larger airports by removing some service from the smaller secondary and tertiary airports they traditionally served. As a result, available flights decreased and airfares increased at some smaller airports in multi-airport regions that had relied heavily on Southwest Airlines for passenger traffic.

The airlines' newfound focus on operating only profitable routes and restricting capacity growth in unprofitable markets has increased airline passenger revenues and yields while also increasing the load factor—a measure of the percent of seats which are filled on an average flight. According to the MIT Airline Data Project, which aggregates data from the U.S. Bureau of Transportation Statistics, U.S. airlines had an average load factor of 83.5 percent in 2013, the highest in aviation history.[10] Since fewer seats are flying empty, it is not surprising that airlines have been able to record higher profits as they deploy aircraft more intelligently. Airlines have also moved towards "unbundling" their products by charging ancillary fees for services like checked baggage, seat selection, and food and beverage service. This increased profits but often frustrated airline passengers who had grown accustomed to these services being included in the ticket price.

Hence, while the post-recession capacity discipline era has been a successful one for airlines, which have shown little sign of breaking the pattern in the near future, the past seven years have been challenging for passengers and airport directors, who have seen levels of service and scheduled flights decrease coupled in many cases with rising fares. Smaller airports have been particularly harmed by capacity discipline; to stanch losses in service, many directors of those airports have started making payments directly to airlines to add or maintain flights. Therefore, commercial air service at many smaller airports is now supported by subsidies at either the federal or local level, often including revenue guarantees that offer insurance to airlines in case the route does not deliver economic gains as promised.

The changes to commercial air service in Virginia from 2007 to 2014 must be evaluated in the context of nationwide industry trends during that time. In many ways, Virginia and its airports serve as a microcosm of the U.S. airline industry during this turbulent period; while some of the state's larger airports showed growth over the last seven years, many smaller airports saw reductions in available service as airlines reconfigured their networks with their new capacity discipline mentality. This has forced directors of smaller Virginia airports to get creative to win new flights and prevent existing airlines from leaving or cutting service. These air service trends at Virginia's airports are discussed in detail in the following sections.

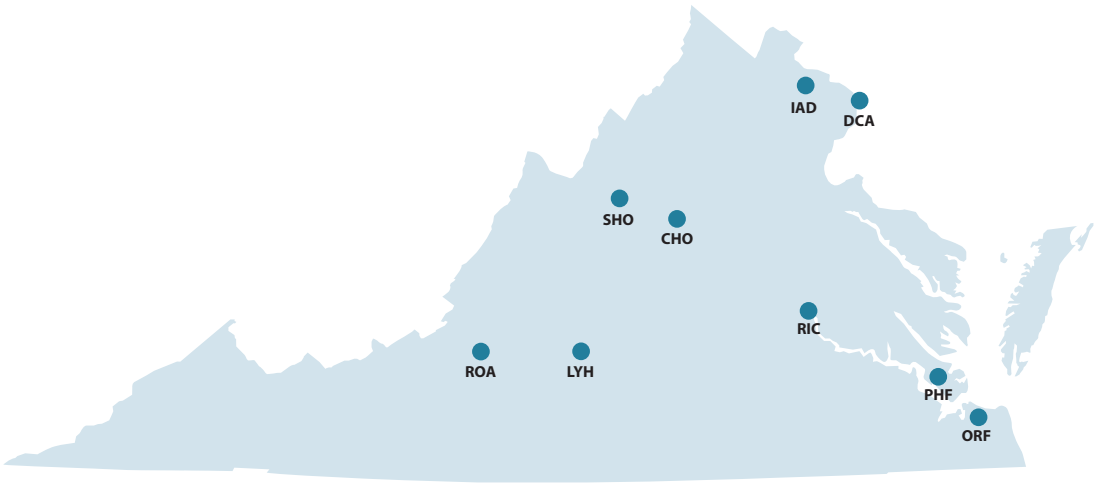
An Introduction to Commercial Air Service in Virginia

"There are nine airports in Virginia that are currently classified as "primary commercial service airports" by the Federal Aviation Administration…"

There are nine airports in Virginia that are currently classified as "primary commercial service airports" by the Federal Aviation Administration (FAA). Primary commercial service airports are defined as those airports that enplaned at least 10,000 passengers in the previous year. These airports are located throughout the state, but are generally clustered near major metropolitan areas and population centers. **Figure 2** shows a map of Virginia's nine primary commercial service airports, and **Table 1** shows some summary statistics about these airports including the number of enplaned passengers in 2011 and 2012 and the FAA "hub type" designation for each airport. The FAA assigns each primary commercial service airport into one of four "hub type" categories (large-hub, medium-hub, small-hub, and non-hub) based on the number of passengers enplaned in the previous year as a percentage of the U.S. total. For instance, airports that enplane 1 percent or more of the U.S. total of domestic enplaned passengers are designated as large-hubs, and airports that enplane between 0.25 percent and 1 percent of the U.S. total are designated as medium-hubs. The FAA use of the word "hub" should not be confused with the idea of an airline-connecting hub. For instance, Norfolk International Airport is defined as a "small-hub" even though it is not a connecting hub for any carrier.

As Table 1 shows, Virginia has two airports classified as "large hubs"—Washington Dulles International Airport and Ronald Reagan Washington National Airport. These two are among the 29 in the nation classified as large hubs in 2013. The remaining seven airports are all classified as small-hubs or non-hubs. This distribution of

Figure 2: Primary Commercial Service Airports in Virginia



Source: The author, based on airport classifications from the Federal Aviation Administration.

Table 1: Primary Commercial Service Airports in Virginia

Airport			Number of Enplanements		
Name	Code	Hub Type	2011	2012	% Change
Washington Dulles International	IAD	Large	11,044,383	10,816,216	-2.1
Ronald Reagan National	DCA	Large	9,053,004	9,462,231	4.5
Norfolk International	ORF	Small	1,606,695	1,651,440	2.8
Richmond International	RIC	Small	1,571,155	1,582,565	0.7
Roanoke Regional	ROA	Non-hub	320,961	315,877	-1.6
Newport News International	PHF	Non-hub	516,789	314,139	-39.2
Charlottesville-Albemarle	CHO	Non-hub	216,957	230,097	6.1
Lynchburg Regional	LYH	Non-hub	73,821	79,889	8.2
Shenandoah Valley Regional	SHD	Non-hub	12,033	15,179	26.1

Source: Federal Aviation Administration, "Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports." (June 23, 2014).
http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/

airport size throughout Virginia is fairly typical; most U.S. states have one or two large airports situated around populous metropolitan regions supported by a network of smaller regional airports in less-populous regions. Large hubs are often much more busy in terms of passengers and flights than smaller regional airports and have higher degrees of connectivity, since passengers can connect between domestic flights or to international flights at large hubs. Indeed, each of Washington Dulles and Reagan National alone enplaned nearly twice as many passengers in 2013 as the rest of Virginia's airports combined.

While most Virginia airports showed some increases in enplaned passengers from 2011 to 2012, this growth came despite a reduction in scheduled domestic flights. **Table 2** shows the number of scheduled domestic flights for Virginia's airports in the years 2007, 2012, and 2013, and the percent change in such service between 2007-2013 and 2012-2013. The rationale for showing these years was to demonstrate the changes from 2007 to the present (to show the effects of capacity discipline), as well as the changes over the last year alone.

Table 2 demonstrates that airline capacity cutting is still in full force in Virginia, despite the regional and nationwide economic recovery from the Great Recession. Only two Virginia airports—Reagan National and Shenandoah Valley Regional—had more scheduled domestic flights in 2013 than in 2007. While Shenandoah Valley Regional saw a slight increase in flights from 2007 to 2013, it suffered a 20.9 percent reduction in flights over the last year as United Airlines cut some scheduled service to Beckley, WV. Only Reagan National showed a growth in departures from 2012 to 2013. The remaining Virginia airports all suffered a significant reduction in departures from 2007 to 2013, with five airports losing more than 20 percent of their domestic flights over that time period. **Figure 3** shows how the number of domestic departures in Virginia has continued to fall each year since the financial crisis as a result of airline capacity discipline; in all, there were 12 percent fewer scheduled domestic flights in Virginia in 2013 than there were in 2007.

The passenger enplanement, scheduled departure, and connectivity data from Tables 1-3 suggest several guiding questions to understanding recent changes in Virginia's commercial air service. First, why has Reagan National Airport been the only Virginia airport to show consistent and sustainable growth through the capacity discipline period? How has Reagan's growth affected nearby Washington Dulles International Airport? Additionally, how have airline mergers and consolidation affected smaller airports in Central and Southern Virginia? Finally, how have managers of Virginia's smaller airports responded to cuts in available service, and what strategies are possible to maintain or grow departures in the future? Each of these questions is discussed in detail in the following two sections, which examine more closely the two Virginia airports in the metro Washington area as well as the smaller regional airports in the rest of the state.

Northern Virginia's Larger Airports Are Moving in Opposite Directions

As shown earlier in Table 1, Virginia's largest airports in terms of available domestic flights and enplaned passengers are Ronald Reagan National Airport and Washington Dulles International Airport, both located in northern Virginia. Together with Baltimore/Washington International Airport (BWI), Reagan National, and Washington Dulles form a *multi-airport region* around the Washington, DC area. There are many such multi-airport regions in the country, typically

"…airline capacity cutting is still in full force in Virginia, despite the regional and nationwide economic recovery from the Great Recession."

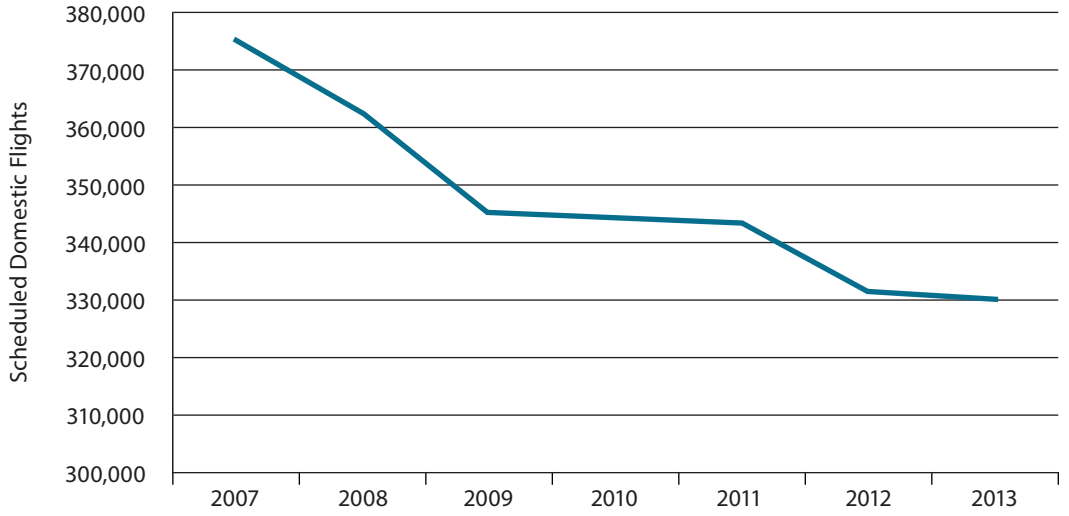
Table 2: Scheduled Domestic Flights at Virginia Airports, 2007, 2012, and 2013

Airport		Number of Flights			% Change	
Name	Code	2007	2012	2013	2007-2013	2012-2013
Washington Dulles International	IAD	138,616	111,749	109,615	-20.9	-1.9
Ronald Reagan National	DCA	135,485	137,872	141,100	4.1	2.3
Norfolk International	ORF	33,965	27,484	26,909	-20.8	-2.1
Richmond International	RIC	33,898	27,146	26,616	-21.5	-2.0
Roanoke Regional	ROA	11,287	8,991	8,891	-21.2	-1.1
Newport News International	PHF	10,374	7,246	6,574	-36.6	-9.3
Charlottesville-Albemarle	CHO	8,143	7,291	7,103	-12.8	-2.6
Lynchburg Regional	LYH	2,352	2,081	2,063	-12.3	-0.9
Shenandoah Valley Regional	SHD	1,064	1,400	1,108	4.1	-20.9

Source: Author's calculations from Innovata SRS schedule data provided by Diio Mi.

"The Washington, DC area is unusual in that it is served by three primary airports, each of which is classified as large-hub by the FAA."

Figure 3: Scheduled Domestic Flights from Virginia Airports, 2007 to 2013



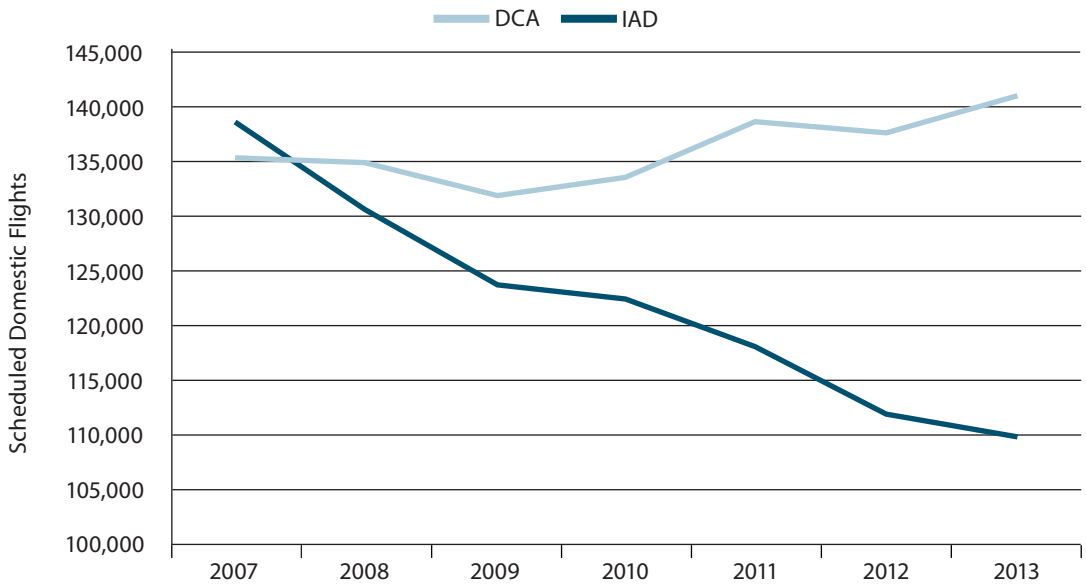
Source: Author's calculations from Innovata SRS schedule data provided by Diio Mi.

served by one large primary airport and one or more smaller, secondary airports.[11] The Washington, DC area is unusual in that it is served by three primary airports, each of which is classified as large-hub by the FAA.

In many multi-airport regions in the United States, airlines reduced available domestic capacity at secondary airports from 2007 to 2012 while largely maintaining or boosting capacity at primary airports. An example of this behavior can be seen in the San Francisco, CA multi-airport region, in which domestic flights increased by over 20 percent at San Francisco International Airport while secondary airports in Oakland and San Jose each saw reductions in departures of over 30 percent over the same period. These shifts occurred as legacy carriers that existed before airline deregulation in 1978 like American Airlines, Delta Air Lines, and United Airlines refocused their networks around their primary connecting hubs, and low-cost carriers like Southwest Airlines started cutting service from smaller airports and entering large markets.

Among the three airports that serve the Washington, DC region, there is no clear distinction between primary and secondary airports. However, as shown in **Figure 4**, Washington Dulles and Reagan National have had opposite experiences through the capacity discipline period. From 2007 to 2013, Washington Dulles

Figure 4: Scheduled Domestic Flights at Ronald Reagan National Airport (DCA) and Washington Dulles International Airport (IAD), 2007 to 2013



Source: Author's calculations from Innovata SRS schedule data provided by Diio Mi.

lost 20.9 percent of its domestic departures as its hub airline, United Airlines, started to cut service to small communities. Yet Reagan National not only survived the challenging economic period of 2008-2009 largely unscathed—it also saw a 4.1 percent increase in domestic flights from 2007 to 2013.

Much of this divergence in capacity discipline outcomes can be tied to the continuing strength of the Washington, DC domestic market. Due to its more central location to the city center and its connection to the city's MetroRail system, high-yield business travelers have long preferred Reagan National. DCA has also seen the entry of several low-cost carriers, including JetBlue Airways, Frontier Airlines, and Southwest Airlines, each of which have served to backfill any cuts in flights by network carriers.

Additionally, Reagan National is one of a handful of U.S. airports at which the scheduling of flights is limited by certain regulations. At most U.S. airports, airlines are free to schedule flights throughout the day whenever they wish; there is no oversight by the FAA or the airport authority to control the volume or timing of flights to avoid periods of congestion. In contrast, Reagan National is one of four airports in the United States that is "slot-controlled."[12] At slot-controlled airports, airlines are assigned takeoff and landing "slots" for a specific time-of-day, and airlines may not schedule or operate flights outside of those slots. The number of slots available is set by a regulatory agency to limit congestion at these busy airports. For this reason, it can be assumed that slot-controlled airports are high-demand locations that would see even more flights scheduled by airlines if not for the slot restrictions.

Given the restriction on flight operations at these busy and lucrative airports, slots are extremely valuable to airlines—American Airlines estimated the value of 138 slots at Reagan National Airport and LaGuardia Airport in New York City at $425 million, or over $3 million per slot.[13] International slots are even more valuable; in June 2014, American Airlines paid $31 million for a single takeoff slot at London's Heathrow Airport.[14] Airlines also have incentives to continue using their slots even if the operated service is not profitable—if slots are left unused, they are forfeited and distributed to other competing airlines. This helps explain why Reagan National did not see a large drop in service during the financial crisis—airlines had the incentive to continue to operate even unprofitable flights so that they would still have access to the slots in better economic times.

Washington Dulles, on the other hand, does not have slot restrictions, so airlines are free to schedule (and cut) flights at will. It is also a hub for United Airlines, and it is the main international airport for the Washington, DC region. United operates more than 75 percent of the flights out of Washington Dulles in most years, with a focus on generating domestic traffic for its lucrative international flights.

However, while United did cut domestic service by about 10 percent from 2007 to 2013, most of the losses in domestic flights at Washington Dulles over the capacity discipline period came from other airlines besides United limiting their exposure to Washington Dulles and transferring service to Reagan National. For instance, JetBlue Airways operated over 8,000 domestic flights out of Washington Dulles in 2007; in 2013, it operated just 2,500. Much of this capacity was reassigned to nearby Reagan National—after starting operations in 2010, JetBlue now operates nearly 6,500 domestic flights per year out of Reagan National. The same pattern holds for American Airlines, Southwest Airlines, and US Airways, each of which cut domestic departures by 40 percent or more from 2007 to 2013 in tandem with growth at Reagan National.

Moving forward, Washington Dulles will have to respond to its new position as the capital region's second airport. The new Silver Line connection on MetroRail, which directly links Washington Dulles into the region's transportation network and which is scheduled to reach the airport in 2018, will help increase the attractiveness of Washington Dulles relative to Reagan National for domestic travelers looking to reach the city center. However, much of the success of Washington Dulles in the coming years will be based upon the capacity strategy of United Airlines relative to Washington Dulles and its other east coast hub at Newark Liberty International Airport in Newark, NJ. While a certain level of domestic service will likely persist at Washington Dulles to feed international flights, it is not clear that United will start bolstering domestic flights to supply the local market, particularly if many of its passengers connect domestically over Newark Liberty.

On the other hand, potential growth at Reagan National will continue to be restrained by the airport's slot restrictions. To this end, Reagan National was the subject of an increased amount of attention in 2013 and 2014 as a result of the proposed merger between American Airlines and US Airways. Regulators were concerned that the combined carrier, which would control over two-thirds of the slots at Reagan National, would hold too much market power over the airport.

"…much of the success of Washington Dulles in the coming years will be based upon the capacity strategy of United Airlines relative to Washington Dulles and its other east coast hub at Newark Liberty International Airport…"

"…the capacity discipline era has forced Virginia's smaller airports to reassess their positions in the nation's air transportation network and adopt innovative strategies to both maintain and grow commercial air service."

The Department of Justice, which originally filed to block the merger, came to an agreement that required the combined carrier to divest 104 takeoff and landing slots (or 52 flights per day) from Reagan National and sell the slots to competing carriers to increase competitive balance at the airport.

The combined carrier argued that being forced to divest slots would lead to the elimination of service to small communities. Indeed, after the slots were divested, American Airlines and US Airways announced the termination of scheduled flights from Reagan National to 17 airports; most of them were medium-hubs and smaller. The divested slots were sold to low-cost carriers Southwest Airlines, JetBlue Airways, and Virgin America Airlines, each of which announced that the new slots would be mostly used to serve larger airports. These slot transactions at Reagan National highlight the challenges that smaller communities face in maintaining air service. While travelers on high-frequency routes out of northern Virginia will likely benefit from lower fares and increased service out of Reagan National, many smaller communities lost their direct access to the nation's capital as a result.

With a larger low-cost presence at Reagan National the airport will likely not see a reduction in available service over the next five years. Proposed changes to loosen the perimeter rule, which limits the distance of flights that can be flown non-stop from Reagan National and was instituted in part to protect Washington Dulles from competition from Reagan National, would serve to further strengthen Reagan National's competitive position in Northern Virginia. However, in the current environment of airline capacity discipline, it seems unlikely that Washington Dulles will see a return to pre-recession levels of domestic service, despite the future opening of the MetroRail Silver Line airport connection and healthy economic growth in the Washington, DC metropolitan region.

Virginia's Regional Airports: Coping with Change and Defining New Identities

Elsewhere in Virginia, the trends in available domestic air service more closely resemble the declining service at Washington Dulles rather than the growth at Reagan National. With the exception of Shenandoah Valley Regional Airport, which is Virginia's smallest primary commercial service airport, each of the state's other primary airports outside of the Washington, DC area have lost at least 10 percent of their scheduled domestic departures since 2007. Additionally, each of these seven airports lost service in the last year, suggesting that capacity cutting at Virginia's smaller airports may not yet be finished.

Each of central and southern Virginia's airports has a different story to tell regarding the circumstances behind cuts in service. Some airports, like Norfolk International, saw an initial reduction in network carrier service following the economic downturn of 2008-2009—this service was not rebuilt in the economic recovery following the Great Recession as carriers switched to a capacity discipline strategy. At other airports, like Newport News International Airport, losses in service came more abruptly; in 2012, AirTran Airways announced it would no longer serve Newport News after previously operating at least 3,000 flights per year.[15]

Regardless of the cause, the capacity discipline era has forced Virginia's smaller airports to reassess their positions in the nation's air transportation network and adopt innovative strategies to both maintain and grow commercial air service. One such strategy to increase the attractiveness of smaller airports to airlines is the use of *airport incentives*. In general terms, airports use incentives to improve the economics of flights to smaller communities by reducing either the risk or cost to the airlines.

There are many different types of incentives that airports use to attract new air service. Arguably the most popular type of air service incentive is known as a *revenue guarantee*, which essentially acts as insurance to an airline in the case that the proposed new service is not as profitable as predicted. For example, suppose an airport issues a $500,000 revenue guarantee for new service, but the service only yields $200,000 to the airline. The airport would then pay the airline $300,000 to make up the shortfall. If the service yields at least $500,000 in revenue, no payment is made. Such a guarantee significantly reduces the risk to the airline, which then must worry only if the aircraft deployed to serve the new route could be better utilized in some other market.

Other common airport incentives include waiving or reducing the cost of using the airport by lowering landing fees, departure fees, or airport rents; providing advertising support; or using *travel banks*, in which a certain number of prepaid vouchers for future flights are sold before service begins. Combinations of one or more incentive packages are often used when making a pitch to an airline; in the current capacity-constrained environment, airlines typically have more bargaining power than airports when it comes to the introduction of new service.

Due to this imbalance of bargaining power, incentive packages can be very costly to airports,

often ranging into the millions of dollars.[16] With this high price of incentives, airports and airport authorities in small communities are often not able to afford the costs alone. As a result, several federal programs exist to provide small airports with funding support towards attracting additional air service or marketing and maintaining current service. Only five state governments, not including Virginia, provide funding for airport incentives. In most cases incentive grants are locally provided or are from federal grants or a combination of local and federal grants.[17]

There are two main federal programs that provide incentive funding assistance to small airports: Essential Air Service (EAS) and the Small Community Air Service Development Program (SCASDP). Of the two, Essential Air Service is more highly funded and reaches a larger number of communities. EAS is intended to provide subsidies directly to airlines to provide flights to small rural communities that would not ordinarily receive commercial air service. These airports must be at least 70 miles from the nearest medium-hub or large-hub airports, and restrictions exist regarding the type of service that can be provided with EAS funding. In 2013, over $250 million was spent to provide EAS service to 163 communities in the United States, including Shenandoah Valley Regional Airport in Virginia, which receives over $3 million per year in subsidies to support flights on Silver Airlines to nearby Washington Dulles Airport.[18]

On the other hand, the Small Community Air Service Development Program provides grants to small communities that may already be receiving unsubsidized service. This makes these grants more accessible to small airports that may already have a minimal level of service, but are having trouble maintaining this service or adding new flights. SCASDP grants are usually less than $1 million, and are distributed through a competitive process each year in which airports file grant applications for proposed air service development projects. The Department of Transportation typically awards between 20-30 grants per year, at a cost to taxpayers of about $10-20 million.[19]

Typically, SCASDP grantees have shown mixed success in achieving the goals of their grant proposals. A 2005 Government Accountability Office (GAO) study[20] found that "about half" of SCASDP grantees saw an improvement in air service after receiving the grant, and a 2013 MIT review of 115 SCASDP grantees from 2006-2011 found that only 37.5 percent of grantees were able to meet their original air service goals.[21] However, as U.S. Department of Transportation Assistant Secretary of Aviation and International Affairs Susan Kurland testified at a recent House Subcommittee on Aviation hearing on small community air service, SCASDP is intended to serve as a "laboratory" for small airports to experiment with innovative approaches to winning new air service. The program remains one of the best ways for small airports to fund air service development efforts that may otherwise be infeasible.

Since 2006, five Virginia airports have received at least one SCASDP grant to obtain additional air service or market existing service. These airports are shown in **Table 3**, along with the grant amounts, the targeted air service development goal, and whether the airport was able to succeed in reaching their target within 28 months of receiving the grant.[22]

"With this high price of incentives, airports and airport authorities in small communities are often not able to afford the costs alone."

Table 3: Virginia Airports Receiving Small Community Air Service Development Grants, 2006 to 2013

Year	Airport	Grant Amount ($)	Goal	Success?
2006	Lynchburg Regional	250,000	New Washington Dulles service	No
2010	Charlottesville-Albemarle	500,000	New American Airlines service to O'Hare International Airport in Chicago	Yes
2011	Lynchburg Regional	700,000	Service from a low cost carrier	No
2011	Shenandoah Valley Regional	150,000	Market existing service	N/A[a]
2012	Newport News International	950,000	Increase aircraft size or new service	Yes
2013	Richmond International	750,000	Salt Lake City, UT or Denver, CO service	Too soon to say

Source: Source: SCASDP filings and Michael D. Wittman, "Public Funding of Airport Incentives: The Efficacy of the Small Community Air Service Development Grant (SCASDG) Program," MIT International Center for Air Transportation, Report No. ICAT-2014-01. http://web.mit.edu/wittman/www/ICAT-2014-01.pdf

a Not applicable. This grant was not assessed because its goals were too nebulous to be evaluated by flight schedule data alone.

"Without a significant level of community support from local residents and businesses, new commercial air service at Virginia's airports stands no chance to survive in the current airline industry environment."

Virginia's airports have shown some success in utilizing SCASDP grants to obtain additional flights. For instance, Charlottesville-Albemarle Regional Airport used a SCASDP grant to fund a revenue guarantee for American Airlines service to its hub at Chicago O'Hare International Airport, which was ranked as the most connected airport in the country in a recent MIT report.[23] As of 2013, this service still operated twice daily from Charlottesville. Additionally, Newport News International provided incentives and a short-term loan to a startup airline, PEOPLExpress, to make Newport News their hub and provide service to seven destinations, including Atlanta, Boston, and Newark. This service is intended to help replace the destinations lost when AirTran exited Newport News in 2012.

The creative use of incentives by airports like Charlottesville-Albemarle and Newport News International will be an important model to follow if Virginia's smaller airports wish to maintain and improve their air service in the coming years. With airlines restricting the amount of available capacity in the system, small airports throughout the country will need to compete to attract the attention of carriers and provide incentives for these carriers to begin new service.

In the short term, Virginia's smaller airports will likely be more successful by focusing their incentive proposals on airlines that are currently in growth mode, particularly Frontier Airlines, Spirit Airlines, and Allegiant Air. As opposed to the network carriers, which are reducing the amount of service they provide to small communities, ultra-low-cost carriers like Frontier, Spirit, and Allegiant are looking directly at small communities to provide growth opportunities. For Virginia's airports, the challenge will be convincing these airlines that Virginia offers a greater degree of economic opportunity than other regions of the country, which will also be vying for a limited amount of capacity in the domestic air transportation network.

Conclusion: How Can Virginia's Airports Continue to Bolster and Improve Air Service Accessibility?

Virginia's airports, like many airports throughout the country, face a number of challenges in maintaining critical air service connectivity in an era of airline capacity discipline and limited service. In particular, Virginia's smaller airports have seen significant reductions in service over the 2007 to 2012 period as airlines cut flights and reallocated capacity to larger markets. Since the trend of airline capacity discipline does not appear to be weakening in the short-term, these airports will likely be unable to return to pre-recession levels of air service and airline connectivity.

However, this is not to say that opportunities do not exist for small airports in Virginia to grow their domestic air service portfolios. Newport News International Airport's partnership with a startup airline, PEOPLExpress, to provide service after losing flights from AirTran is a good example of an airport taking an innovative approach to build air service connectivity in the face of significant challenges. Other airports in the state have achieved small wins in gaining new service, and Reagan National should continue to maintain high levels of supply, limited only by its slot restrictions.

To continue to grow air service availability and increase connectivity, Virginia's small airports should focus on the carriers in growth mode—particularly, ultra-low-cost carriers like Frontier, Spirit, and Allegiant. Network carriers do not yet appear to be ready to reintroduce capacity to small markets, but these carriers have been adding flights to medium-hub markets in the last year. If this trend continues to small-hub markets in the next 12 to 24 months, it would be good news for Virginia's small hub airports in Norfolk and Richmond.

Yet most importantly, the capacity discipline era has shown that air service will not survive if it is not supported by the local community and backed up by favorable operating economics. Airports face the growing challenge of convincing passengers who are used to driving hours to fly from the nearest large airport that small community air service is a valuable addition to their community for which it is worth paying (in some cases) higher fares. Without a significant level of community support from local residents and businesses, new commercial air service at Virginia's airports stands no chance to survive in the current airline industry environment.

Airports in Virginia are thus left in the unenviable position of catering to everyone: government leaders, for whom air service helps build tax revenues and new local business; airlines, to whom a coherent business case must be made to support the addition of any new flights; and passengers, who have grown frustrated with the lack of flight options and higher price and who show an overwhelming preference for low fares, even if it means a drive of several hours to a nearby airport. Despite an airline industry environment that is perhaps the most challenging for small communities in recent memory, the successes of some of Virginia's airports in gaining new service demonstrate that those airports that successfully cope with these myriad challenges will be best positioned for growth in future years.

ABOUT THE AUTHOR.

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