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Privatizing U.S. Airports

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President-elect Donald Trump proposed a major infrastructure plan during the election campaign. Trump's campaign website spoke of "a bold, visionary plan for a cost-effective system of roads, bridges, tunnels, airports, railroads, ports and waterways, and pipelines."¹ The plan would "harness market forces" and "provide maximum flexibility to the states."

America does need to harness market forces and promote state flexibility in infrastructure. We should reduce federal intervention and move toward greater reliance on the private sector to fund, own, and operate the nation's infrastructure.

That is certainly true for aviation infrastructure, which will face major challenges as passenger demand outstrips the capacity of available facilities. Along with rising demand, the average size of planes has fallen, which has increased the number of planes using airports and the air traffic control (ATC) system.

Around the world, countries facing similar problems have adopted market-based aviation reforms. While our infrastructure is government-owned and bureaucratic, many airports abroad have been privatized, and foreign ATC systems have been restructured as independent, self-supporting organizations. While U.S. airports and ATC receive taxpayer subsidies, the global trend is toward aviation infrastructure funded by user charges.

This bulletin focuses on reforms to the nation's more than 500 commercial airports. These airports are owned by state and local governments, but the federal government provides aid for capital improvements. The aid and other federal policies create hurdles to restructuring along the lines of reforms abroad. As a result, our airports are missing out on innovations that would benefit the traveling public.

Airports should be self-funded by revenues from passengers, airlines, concessions, and other sources. Federal subsidies should be phased out, and state and local governments should privatize their airports to improve efficiency, competitiveness, and passenger benefits.

Federal Role in Airport Funding

In the early years of commercial aviation, numerous private airports operated alongside those established by state and local governments.² In 1924 Henry Ford opened an airport in Dearborn, Michigan, which would become the site of numerous innovations, including the first paved runway, the first airport hotel, and the first modern terminal facility. In Miami, the International Pan American Airport operated from 1933 to 1945. This large and sophisticated facility was the hub for Pan Am's extensive services to Central and South America.

The Los Angeles area had two major private airports. In Burbank, the Lockheed Air Terminal operated from 1930 until 1978, when it was sold to a local government authority. Today it is the Hollywood Burbank Airport. In Glendale, the Grand Central Air Terminal operated from 1929 to 1959.³ During the 1930s, it was the main airport in Southern California. Grand Central had the first paved runway west of the Rockies, and it was home to the first air service between Los Angeles and New York. The airport had a close association with famous names in aviation, including Charles Lindbergh, Amelia Earhart, Howard Hughes, and Jack Northrop.

Philadelphia's main airport from 1929 to 1940 was the private Central Airport in Camden, New Jersey. It was serviced by all four major airlines, and had three runways and the most modern equipment. Meanwhile, the main airport serving the nation's capital from 1930 to 1941 was the private Washington-Hoover Airport in Virginia.

Despite the impressive efforts of the early airport entrepreneurs, the industry soon became dominated by government-owned facilities. Many city governments were eager to own their own airports, even if private airports already served an area. Cities were able to issue tax-exempt bonds to finance their facilities, which gave them a financial edge over private airports. And beginning in the 1920s, the U.S. military and the Post Office were promoting government-owned airports over private ones.⁴

During the 1930s, the federal government provided large amounts of aid through New Deal programs to

government-owned airports.⁵ The effects were immediate in some cities. In Dayton, Ohio, the private owners of the city's major airport leased the facility to the city in 1934 to secure some of the New Deal aid.⁶ And then in 1936, the airport owners handed over full ownership to the city government.

Federal aid began causing a similar crowding out of private airports across the country. In the early 1930s, about half the nation's more than 1,100 airports were private, but by the late 1930s the number of public airports substantially outnumbered the private facilities.⁷

When World War II began, Congress appropriated funds to construct and improve 250 government-owned airports for national defense purposes.⁸ Then in 1944, the Surplus Property Act transferred excess military bases to state and local governments for public airport use.

The Federal Airport Act of 1946 began regular federal aid to government-owned airports, initially providing \$500 million over seven years.⁹ Once again, the justification for federal aid was the link to national defense.

The coming of jet aircraft and concerns about aviation safety spurred Congress to create the Federal Aviation Administration (FAA) in 1958. The new agency replaced previous agencies involved in air traffic control and airport development. Clifford Winston of the Brookings Institution says that after it was established, the FAA "prohibited private airports from offering commercial service."¹⁰

Congress started taxing aviation soon after it was established. It passed an excise tax on aviation fuels in 1932 and an excise tax on airline tickets in 1941. The revenue from these levies initially went into the government's general fund. That changed in 1970 when Congress created the Airport and Airway Trust Fund (AATF), which channeled aviation taxes and fees into funding for air traffic control and state and local airports.

The AATF currently raises about \$15 billion annually from a 7.5 percent tax on domestic airline tickets, taxes on aviation fuels, international departure and arrival taxes, and a number of other charges.¹¹ The AATF revenues pay for the bulk of the FAA's budget, with the balance coming from general federal funds.

Most FAA spending goes toward ATC operations and ATC capital investment. But about \$3.2 billion a year goes to the Airport Improvement Program (AIP), which funds capital projects at airports, such as runway expansions. The money is doled out both through formula and discretionary grants under a complex set of rules and regulations.¹²

Another source of funding for airport investment is the Passenger Facility Charge (PFC), which was authorized by Congress in 1990. PFCs are imposed by state and local airport agencies, but Congress sets a maximum charge, which since 2000 has been \$4.50 per passenger per flight segment.

Large airports rely more on PFC funding, and less on AIP grants, than small airports. Large airports also receive substantial revenue from commercial sources, including landing fees, airline space rentals, parking and rental car fees, and retail concessions. Smaller airports with less commercial airline service often rely on grants from state and local governments, in addition to AIP grants.

Current federal airport funding mechanisms are problematic. One issue is that Congress has kept AIP funding roughly flat for 15 years, even though U.S. aviation demand has grown.¹³ Another issue is that the allocation of AIP spending is determined by political and bureaucratic factors, not by marketplace demands, so the money is spent inefficiently. The 100 largest airports, which get the vast bulk of passengers, receive a relatively small share of AIP funding, while small airports receive a disproportionately large share.¹⁴

The inefficient AIP funding would not be much of a problem except that Congress puts airports in a financial bind by imposing the PFC cap. The cap limits the ability of airports to fund their own improvements, and thus tackle their own growth and congestion challenges independently from Washington.

Airport Privatization around the World

The private sector plays a larger role in the aviation infrastructure of other countries than the United States. Hundreds of airports around the world have been partly or fully privatized.¹⁵ There are dozens of international companies that own and operate airports, finance airport privatization, or participate in projects to finance, build, and operate new airports and airport terminals.

Airport privatization has been part of a broader privatization revolution that has swept the world since the 1980s.¹⁶ Governments in more than 100 countries have moved thousands of state-owned businesses to the private sector. Airports, airlines, and many other types of businesses valued at more than \$3.3 trillion have been privatized over the past three decades.¹⁷

The privatization revolution was launched by Margaret Thatcher's government in the United Kingdom, which came to power in 1979. Her government privatized dozens of major businesses, including British Airways and British

Airports Authority, which owned London's Heathrow and a half dozen other airports.

Other nations followed the British lead on privatization because of a "disillusionment with the generally poor performance of state-owned enterprises and the desire to improve efficiency of bloated and often failing companies," noted a report on privatization by the Organisation for Economic Co-operation and Development (OECD).¹⁸

For airports, privatization can be thought of along a continuum from fully government facilities to fully private. Although U.S. airports are owned by state and local governments, they contract out numerous services to private firms, such as retail concessions. A few U.S. airports—such as Albany International—have taken a step further and contracted with private firms to manage overall airport operations. And a few U.S. airports have entered long-term agreements with private firms to design, build, and manage new terminals. Terminal 5 at Chicago's O'Hare International Airport and Terminal 4 at New York's John F. Kennedy International Airport are examples. But, generally, U.S. airports are run by governments as static utilities, not as entrepreneurial businesses.

Abroad, many airports are owned and operating as for-profit businesses, often as publicly traded corporations. Britain led the way with the 1987 privatization of British Airports Authority. Today, most major British airports are corporations that are either mainly or fully private.

In other countries, many airports have been privatized in the form of long-term leases. Such leases shift risks, responsibilities, and growth incentives to the airport company. In Canada, reforms during the 1990s established the nation's top 26 airports as self-funded nonprofit corporations. The airport companies generally have 60-year leases from the federal government, and they are fully responsible for management, operations, and capital investment.

Privatized airports fund their operations through charges on passengers, airlines, advertising, and returns from airport retail and parking concessions. The Canadian airport companies not only cover their own costs, but they also make payments in lieu of taxes to municipal governments and make lease payments to the federal government.¹⁹

Back in the 1930s, private airports in the United States were entrepreneurial in generating revenues. Airports such as Grand Central in California and Central in New Jersey earned a substantial share of their income from on-site

amenities such as hotels, restaurants, swimming pools, sightseeing flights, air shows, and mini golf.²⁰

A 2016 study by Airports Council International (ACI) found that 47 percent of airports in the 28 European Union (EU) countries are either "mostly" or "fully" private, which is up from 23 percent in 2010.²¹ Since the largest airports in Europe tend to be the ones that have been privatized, the ACI study found that 75 percent of passenger trips in the EU are now through privatized airports.

According to the ACI study, there are 60 "fully private" airports in the EU, including the main airports in Antwerp, Budapest, Edinburgh, Glasgow, Lisbon, Liverpool, Ljubljana, London, and Zagreb. In addition, the study found that the main airports in Birmingham, Brussels, Copenhagen, Florence, Naples, Rome, Venice, Vienna, Zurich, and numerous other cities are "mostly private," which generally means that they are structured as corporations and the private sector holds a majority of the shares.

Even the government-owned airports in Europe are often structured as commercial enterprises. For example, Charles de Gaulle airport in Paris is operated by a corporation that is 51 percent held by the French government and 49 percent held by other shareholders. Similarly, the 46 major airports in Spain are owned by a publicly traded corporation that is 51 percent held by the Spanish government and 49 percent privately held.

The movement toward privatization is occurring worldwide.²² Australia privatized more than a dozen of its major airports. New Zealand privatized two of its three largest airports. Mexico has privatized numerous airports. Brazil sold 51 percent of five major airports in 2012 and 2013, including the main airports in Sao Paulo and Rio de Janeiro. Japan has passed legislation authorizing the sale of two dozen or so airports in coming years, and Saudi Arabia is moving ahead with plans to privatize two dozen of its airports.

Advantages of Privatization

Globally, privatization has been a successful reform in many industries. An OECD report reviewed the academic research and found "overwhelming support for the notion that privatization brings about a significant increase in the profitability, real output and efficiency of privatised companies."²³ And a review of studies in the *Journal of Economic Literature* concluded that privatization "appears to improve performance measured in many different ways, in many different countries."²⁴

For airports, some of the benefits of privatization include greater operating efficiency, improved amenities, and increased capital investment. American airports need such improvements. The American Society of Civil Engineers gave our aviation infrastructure a low grade of D in its most recent report.²⁵ That is not surprising given that our airports and air traffic control are government-owned bureaucracies.

In a Brookings Institution book, transportation scholars Steven Morrison and Clifford Winston summarized their recommendations for U.S. aviation infrastructure:

In our view, excessive travel delays are—to a significant extent—a manifestation of the failure of publicly owned and managed airports and air traffic control to adopt policies and introduce innovations that could greatly improve the efficiency of the U.S. air transportation system. Given little economic incentive and saddled with institutional and political constraints, major airports and the air traffic control system have not exhibited any marked improvement in their performance for decades despite repeated assurances that they would do so . . .

Some observers believe that delays would be reduced if the nation invested more money in airports and air traffic control. However, the returns from such spending would be compromised by the system's vast inefficiencies. Thus, the key to reducing delays efficiently is to rid the system of its major inefficiencies. We believe that can be accomplished only by privatizing the nation's aviation infrastructure.²⁶

Privatization and increased competition would boost the performance of our aviation infrastructure. It would reduce costs and encourage more efficient pricing structures for airport and air traffic control usage.²⁷ Airlines, passengers, private plane owners, and taxpayers would all benefit from a more entrepreneurial and commercial approach to airport operation.

The ACI report concluded that there is “no denying the tangible benefits” of market-based reforms in Europe's airport industry, including “significant volumes of investment in necessary infrastructure, higher service quality levels, and a commercial acumen which allows airport operators to diversify revenue streams and minimize the costs that users have to pay.”²⁸ In Britain,

privatization has created a highly dynamic and efficient industry with substantial competition between airports and lots of new entry by low-cost airlines.²⁹

The need to privatize airports can be partly traced back to airline deregulation in 1978. President Jimmy Carter signed into law the Airline Deregulation Act, which removed government controls over airline fares, routes, entry, and mergers. Under deregulation, prices fell and the volume of air travel increased dramatically. Airlines reconfigured their routes, updated their equipment, and improved their capacity utilization. New airlines opened for business. Consumers saved tens of billions of dollars a year from the reforms.

However, it is also true that today's airline service leaves much to be desired because of delays, crowded planes, and other inconveniences. If service by some airlines in some markets is lacking, why haven't entrepreneurs offered better alternatives? It turns out that many are trying, but they often have difficulty obtaining gates at airports. Airline deregulation is an unfinished reform until it includes airport deregulation and privatization.

Many U.S. airports are still run in a bureaucratic manner typical of the pre-deregulation era. Their management is passive and risk-averse compared to the leading privatized airports abroad. Research by Oxford University scholars has shown that the managements of privatized airports are more “passenger friendly” than those of traditional airports.³⁰ And a statistical study of airport productivity in 109 airports worldwide looked at whether ownership was correlated with productivity. It found that privatized and corporatized airports are more productive than fully government-owned airports.³¹

Privatization offers a clear advantage when it comes to capital investments. Government transportation investments—whether airports, highways, or air traffic control systems—often experience large cost overruns. In the 1990s, for example, the construction of Denver International Airport more than doubled in cost from the original estimates.³² Such cost overruns are one reason why many nations are partly privatizing infrastructure through public-private partnerships (PPPs or P3s). PPPs can shift the financing, management, operations, and risks of projects to the private sector.

A McKinsey & Company report on infrastructure noted that cost overruns were about seven times more likely on traditional government projects than PPP projects.³³ And an Australian study that compared 21 PPP infrastructure projects with 33 traditional projects found: “PPPs demonstrate clearly superior cost efficiency over

traditional procurement . . . PPPs provide superior performance in both the cost and time dimensions.”³⁴

Another advantage of airport privatization is that it would enhance competition between airlines. Private airport managers are more willing to take the risks of new investments, including the creation of new gates for additional flights and airlines. Private airports try to attract new carriers to earn added revenues and profits. By contrast, current U.S. airport agreements with major incumbent airlines often give the airlines what amounts to veto power over terminal expansions, called majority-in-interest clauses.³⁵

Also, major incumbent airlines in current U.S. airports often have exclusive-use agreements for gates. From the standpoint of risk-averse airport managers, these long-term agreements give them a guaranteed revenue stream. But when new-entrant airlines want to start service to such airports, there may be no gates available, which reduces competition. Even if there are gates available, Steven Morrison and Clifford Winston note that dominant incumbent airlines can “prevent competitors from having access even to gates that are little used.”³⁶

By contrast, experience has shown that privatized airports generally do not cede de facto control over their facilities to the large airlines. At privatized airports, the gates typically remain under the control of the airport company, and they are allocated to individual airlines as needed, sometimes even hour by hour.

In sum, airline competition would be enhanced if we reformed the current ownership and management structures of U.S. airports. Much of the world is moving to a new paradigm—the airport as a private business enterprise—that is more consistent with today’s dynamic economy and demanding aviation consumers.

Hurdles to U.S. Privatization

Why has the United States resisted the sort of airport restructuring that is occurring abroad?³⁷ One factor has been that state and local governments can issue tax-exempt bonds to finance public airports, but private airports would have to rely on taxable bonds. The result is that financing is less costly for establishing and expanding government-owned airports than private airports.

The best way to fix this financing bias would be to eliminate the state and local interest exemption under the federal income tax. But short of such a reform, federal policymakers should consider allowing private airport developers to issue tax-exempt revenue bonds (private activity bonds), as policymakers have allowed in toll highway projects.

Another hurdle to private airport development is that only government-owned airports are eligible for federal airport subsidies (except for airports in the Pilot Program, as discussed below). The combination of federal subsidies and tax-exempt financing for government-owned airports makes it difficult for entrepreneurs to enter the airport business and compete with existing facilities.

If a state and local government wants to privatize an existing airport, yet another hurdle is that federal law generally requires the repayment of previous federal grants received by an airport. Moreover, all lease or sale proceeds from privatization must be used for airport reinvestment, according to FAA rules. That prevents a state or city from selling its airport and using the proceeds for other infrastructure projects or for the general budget.

If these federal rules were not enough of a hurdle, a final barrier to privatization has been opposition from the airlines. They worry that they might face more competition under privatization and have to pay the full market-based costs of airport services. Typically, major airlines are like anchor tenants in shopping malls. They often have lease-and-use agreements at airports that give them control over terminals or concourses and the right to approve or veto capital spending plans. That gives them the power to oppose airport expansion if it would mean more competition.

Airlines have also resisted eliminating the federal cap on PFCs. Eliminating the cap would allow airports to raise more of their own funding for expansion. PFCs are a useful funding source for airports to increase gate capacity, but airlines tend to disfavor the greater competition that new gates would bring.

State and local governments add their own hurdles to private airport development. Government-owned airports do not pay state or federal income taxes, and they are generally exempt from property taxes. By contrast, a private for-profit airport would have to pay income and property taxes. Private airports may also face higher tort liability risks than government airports do.³⁸

Privatization Pilot Program

In the 1990s some state and local officials saw what Margaret Thatcher had done in Britain and were inspired to try and sell or lease their own airports. Congress responded by passing the Airport Privatization Pilot Program in 1996.³⁹ The program allows exemptions from onerous provisions of airport grant agreements for up to 10 U.S. airports. Cities whose airports are accepted for the program do not have to repay previous federal grants, and they are allowed to keep airport sale or lease proceeds.

However, the airlines lobbied to include a provision specifying that to keep sale or lease proceeds from a privatization, a city has to get the approval of 65 percent of the airlines serving an airport. So airlines can often block privatization if, for example, they believe it would increase competition. Also, privatized airports in the program are eligible for less generous grants under the AIP, and the process of applying to the FAA for the Pilot Program is costly and time-consuming.⁴⁰

For these and other reasons, the program has had little success. The first airport privatized under the 1996 Pilot Program was Stewart International Airport north of New York City. The airport was operated under a 99-year lease by the National Express Group. But that lease was later terminated by mutual consent, and the Port Authority of New York and New Jersey gained control of the airport.

Chicago tried twice to privatize Midway Airport via the Pilot Program. In 2008 it selected a winning bidder, but the deal could not be financed because of the credit market crunch at the time. A second attempt ended up with only a single bidder, apparently due to the restrictive conditions on the proposed lease. Without competing bids, in 2013 the city decided not to proceed.

The only airport currently privatized under the program is Luis Munoz Marin International in San Juan, Puerto Rico. The deal with Aerostar consortium was finalized in 2013. The company paid \$615 million up-front and agreed to invest \$1.2 billion in the airport over the 40-year lease term. Aerostar will also share airport revenue with the government. So far, the company has made renovations to the airport's two terminals, including new retail stores and automatic baggage scanners.

Another slot in the Pilot Program is held by Hendry County, Florida. It plans to lease Airglades Airport to a consortium for conversion into a cargo reliever airport for Miami International. The consortium has received an initial contract to manage the airport while its application waits for final approval from the FAA. Some other airports have considered applying for the Pilot Program, but progress has been slow.

One positive development is that a small but growing number of U.S. airports have management contracts with private companies. Indianapolis International Airport, for example, completed a successful management contract with a British airport company. Other contract-managed airports include Albany, Burbank, and White Plains.

Conclusions

The Pilot Program has been a step in the right direction, but much larger reforms are needed to spur

private investment in U.S. airports. One important step would be to reduce or eliminate the income tax exemption for municipal bonds to put private airport financing on a level playing field with government financing. Another step would be to remove the 65 percent supermajority requirement that lets airlines block privatization.

Congress should also phase out the AIP program (at least for medium and large commercial airports) to encourage greater self-funding of airport capital spending. It should also eliminate the cap on PFCs to allow airports to fund operations through user charges on their own passengers. PFCs are a more direct and transparent revenue source than the AIP program.⁴¹ PFCs and other airport-generated revenues can enhance airline competition by providing funding to build new gates and other facilities to attract additional flights and carriers.

Opening up our aviation infrastructure to businesses and entrepreneurs would benefit the traveling public by encouraging additional investment and greater competition. America has a remarkable history of aviation innovation, but we need major policy reforms to ensure that our infrastructure remains at the leading edge in today's global economy.

¹ See "Infrastructure" at the Trump campaign website www.donaldjtrump.com.

² Studies that discuss early airport history include: National Park Service, "American Aviation Heritage: Identifying and Evaluating National Significant Properties in U.S. Aviation History," March 2011; Deborah Gwen Douglas, "The Invention of Airports: A Political, Economic and Technological History of Airports in the United States, 1919–1939," PhD dissertation, University of Pennsylvania, 1996; Janet R. Daly Bednarek, *America's Airports: Airfield Development, 1918–1947* (College Station, TX: Texas A&M University Press, 2001); and Janet R. Daly Bednarek, "Innovation in America's Aviation Support Infrastructure," in *Innovation and the Development of Flight*, ed. Roger D. Launius (College Station, TX: Texas A&M University Press, 1999).

³ The airfield was privately developed before 1920, but was redeveloped in 1929 as the Grand Central Air Terminal. After World War II, it was the Grand Central Airport, and it went into decline as the Los Angeles government-owned airport expanded.

⁴ Bednarek, "Innovation in America's Aviation Support Infrastructure," p. 59.

⁵ By the end of the 1930s, federal funding of airport investment through New Deal programs had surpassed state and local funding. See Douglas, p. 601.

⁶ Bednarek, "Innovation in America's Aviation Support Infrastructure," pp. 69, 70.

⁷ Douglas, pp. 299, 598.

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- ⁸ United States Congress, Office of Technology Assessment, "Airport System Development," August 1984, p. 209.
- ⁹ National Park Service, p. 201.
- ¹⁰ Clifford Winston, *Last Exit: Privatization and Deregulation of the U.S. Transportation System* (Washington: Brookings Institution Press, 2010), p. 9.
- ¹¹ Bart Elias and Rachel Y. Tang, "Federal Civil Aviation Programs: In Brief," Congressional Research Service, R42781, September 27, 2016, p. 2.
- ¹² Rachel Y. Tang and Robert S. Kirk, "Financing Airport Improvements," Congressional Research Service, R43327, March 24, 2016. See also Michael Sargent, "End of the Runway: Rethinking the Airport Improvement Program and the Federal Role in Airport Funding," Heritage Foundation, November 2016.
- ¹³ Tang and Kirk, p. 4.
- ¹⁴ Clifford Winston, "On the Performance of the U.S. Transportation System: Caution Ahead," *Journal of Economic Literature* 51, no. 3 (September 2013): 790.
- ¹⁵ The Government Accountability Office notes: "at least 450 airports around the world have been privatized to some degree." Government Accountability Office, "Airport Privatization: Limited Interest despite FAA's Pilot Program," GAO-15-42, November 2014, Executive Summary.
- ¹⁶ Chris Edwards, "Options for Federal Privatization and Reforms Lessons from Abroad," Cato Institute Policy Analysis no. 794, June 28, 2016.
- ¹⁷ Worldwide privatization proceeds between 1988 and August 2015 were \$3.26 trillion. See William L. Megginson, "Privatization Trends and Major Deals in 2014 and Two-Thirds 2015," in *The PB Report 2014/2015*, Privatization Barometer, www.privatizationbarometer.net.
- ¹⁸ Organisation for Economic Co-operation and Development (OECD), *Privatising State-Owned Enterprises* (Paris: OECD, 2003), p. 21.
- ¹⁹ There is concern that the Canadian lease payments are too high, which is harming airports and subsidizing the Canadian government. This contrasts with U.S. airports, which receive government subsidies.
- ²⁰ Douglas, p. 303. And see Bednarek, *America's Airports: Airfield Development, 1918-1947*, pp. 83-86.
- ²¹ Airports Council International (Europe), "The Ownership of Europe's Airports, 2016," 2016.
- ²² The International Civil Aviation Organization has written case studies on aviation reforms in 26 countries. See International Civil Aviation Organization, "Case Studies on Commercialization, Privatization and Economic Oversight of Airports and Air Navigation Services Providers," August 2013.
- ²³ Organisation for Economic Co-operation and Development, p. 9.
- ²⁴ William L. Megginson and Jeffrey M. Netter, "From State to Market: A Survey of Empirical Studies on Privatization," *Journal of Economic Literature* 39, no. 2 (June 2001): 25.
- ²⁵ American Society of Civil Engineers, "Report Card for America's Infrastructure," 2013.
- ²⁶ Steven A. Morrison and Clifford Winston, "Delayed! U.S. Aviation Infrastructure Policy at a Crossroads," in *Aviation Infrastructure Performance* (Washington: Brookings Institution, 2008), p. 9.
- ²⁷ As one example, current airport landing fees are generally based on weight and not time of day, so pricing is not structured to help reduce congestion. Clifford Winston, "On the Performance of the U.S. Transportation System: Caution Ahead," p. 788.
- ²⁸ Airports Council International (Europe), p. 1.
- ²⁹ David Starkie, "The Airport Industry in a Competitive Environment: A United Kingdom Perspective," Organisation for Economic Co-operation and Development, July 2008.
- ³⁰ Research described in Asheesh Advani, "Passenger-Friendly Airports: Another Reason for Airport Privatization," Reason Public Policy Institute, March 1, 1999.
- ³¹ Tae H. Oum, Jia Yan, and Chunyan Yu, "Ownership Forms Matter for Airport Efficiency: A Stochastic Frontier Investigation of Worldwide Airports," *Journal of Urban Economics* 64, no. 2 (March 2008).
- ³² Chris Edwards and Nicole Kaeding, "Federal Government Cost Overruns," DownsizingGovernment.org, Cato Institute, September 1, 2015.
- ³³ McKinsey & Company, "Rethinking Infrastructure: Voices from the Global Infrastructure Initiative," May 2014, p. 23. The report looked at greenfield projects. See also Frederic Blanc-Brude and Dejan Makovsek, "Construction in Infrastructure Project Finance," EDHEC Business School (France) Working Paper, February 2013.
- ³⁴ Allen Consulting Group and the University of Melbourne, "Performance of PPPs and Traditional Procurement in Australia," November 30, 2007.
- ³⁵ Clifford Winston, "On the Performance of the U.S. Transportation System: Caution Ahead," p. 806.
- ³⁶ Morrison and Winston, p. 21.
- ³⁷ For further background on issues in this section, see Government Accountability Office, "Airport Privatization: Limited Interest despite FAA's Pilot Program," GAO-15-42, November 2014.
- ³⁸ Government Accountability Office, p. 22.
- ³⁹ For further background on the pilot program, see Government Accountability Office, and see Rachel Y. Tang, "Airport Privatization: Issues and Options for Congress," Congressional Research Service, R43545, February 3, 2016.
- ⁴⁰ Government Accountability Office, p. 23.
- ⁴¹ Marc Scribner, "Obama FY2015 Budget: Aviation Funding Recommendation Not Great, But a Step in the Right Direction," Competitive Enterprise Institute, March 4, 2014.