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# Introduction to Airport Finance

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## **Introduction**

Airport ownership, regulation, and stakeholders

Airport costs and revenues

Wrap-up and Q&A

# Airport finance is a key tool for ensuring the longevity of an airport

## The role of airport finance

- Crucial to an airport's long-term survival is a consistent (and ideally growing) volume of traffic
- Airlines determine the level of service to an airport primarily based on the volume and characteristics (e.g., yield) of demand and based on other internal considerations (e.g., availability of suitable aircraft)
- However, two other important factors in an airline's decision to serve an airport are:
  - Is there sufficient infrastructure for me to serve the airport when I want to without incurring excessive costs of delays?
  - What will the airport charge me to operate there?
- Both of these factors are as we will see hugely influenced by effective management of airport finances

## Examples of involvement of airport finance

- “JFK's Longest Runway Re-opens”
  - *\$376 million runway repaving and widening and addition of high-speed exits and holding pads*
  - *NBC New York, June 29 2010*
- “Cincy Airport Considers Tearing Down Terminals”
  - *Airport has a lot of empty space because of cutbacks by Delta in its Cincinnati hub*
  - *Louisville News, October 26, 2011*
- “Delta Extends Nonstop Flights to Paris”
  - *Flights from Pittsburgh were operated with a \$9m state guarantee in case of losses during the first two years*
  - *Pittsburgh Tribune-Review, July 8, 2011*

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# Learning objectives

- Understand why airport finance matters to the stakeholders in the air transportation system
- Understand the intricate nature of airport ownership, regulation, and the multitude of stakeholders that care about the performance of airports
- Understand what the costs of running an airport are and who pays the bills in the end
- ...in short, get an understanding of the financial functioning of one of the important nodes in the air transportation system

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# Airports are effectively regional monopolies, much like other types of utilities

- Building an airport requires high capital investment costs and so duplicating the infrastructure for the sole purpose of competition becomes highly inefficient
- As a result, many airports and airport systems become regional monopolies
- Other examples of similar monopolies include:
  - Electric utilities
  - Cable companies
- The DC region is an interesting example in that it offers some regional competition:
  - MWAA owns and operates both IAD and DCA
  - BWI is owned and operated by a separate authority
- In contrast, although the Los Angeles area is even larger and is served by a multitude of airports, they are all owned and operated by LAWA (including LAX, ONT, BUR, SNA, and LGB)

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# These utilities can be owned and/or operated either as private or publicly owned entities, while controlled by through regulation

- US model:
  - Airports are publicly owned (e.g., by cities, counties)
  - Airports which receive AIP funding cannot make a profit for owners<sup>1</sup>
  
- UK model:
  - Most major airports are privately owned through BAA
  - Airport user charges are regulated and are reviewed every five years (Retail Price Index - x)%

# Our focus today will be publicly owned US airports

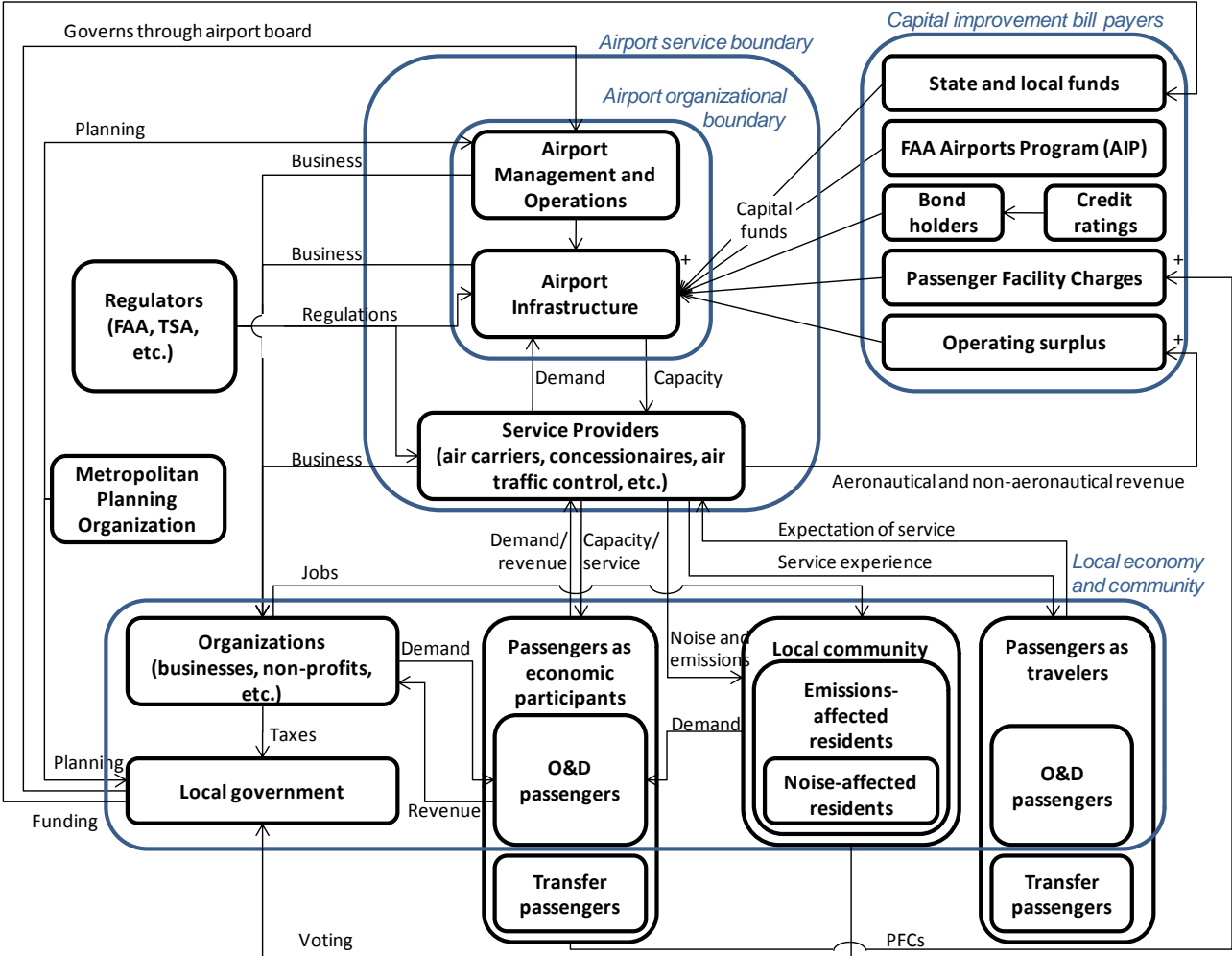
OEP-35	
ATL	Atlanta Hartsfield Intl
BOS	Boston Logan Intl
BWI	Baltimore-Washington Intl
CLE	Cleveland Hopkins Intl
CLT	Charlotte Douglas Intl
CVG	Cincinnati-Northern Kentucky Intl
DCA	Washington Reagan Natl
DEN	Denver Intl
DFW	Dallas-Ft Worth Intl
DTW	Detroit Metropolitan Wayne County
EWR	Newark Intl
FLL	Ft Lauderdale-Hollywood Intl
HNL	Honolulu Intl
IAD	Washington Dulles Intl
IAH	George Bush Intercontinental
JFK	John F Kennedy Intl
LAS	Las Vegas McCarran Intl
LAX	Los Angeles Intl

OEP-35	
LGA	La Guardia
MCO	Orlando Intl
MDW	Chicago Midway
MEM	Memphis Intl
MIA	Miami Intl
MSP	Minneapolis-St Paul Intl
ORD	Chicago O'Hare Intl
PDX	Portland Intl
PHL	Philadelphia Intl
PHX	Phoenix Sky Harbor Intl
PIT	Pittsburgh Intl
SAN	San Diego Intl-Lindburgh Field
SEA	Seattle-Tacoma Intl
SFO	San Francisco Intl
SLC	Salt Lake City Intl
STL	Lambert-St Louis Intl
TPA	Tampa Intl



# US airports have a multitude of stakeholders, both within and outside the physical and organizational boundaries of the airport

US airport stakeholders



# Not all of what goes on at the airport is the responsibility of the airport organization

## Examples of responsibilities of the airport



## Examples of responsibilities of entities other than the airport



Although the airport is not directly responsible for these areas, it controls several of them and derives revenues from some

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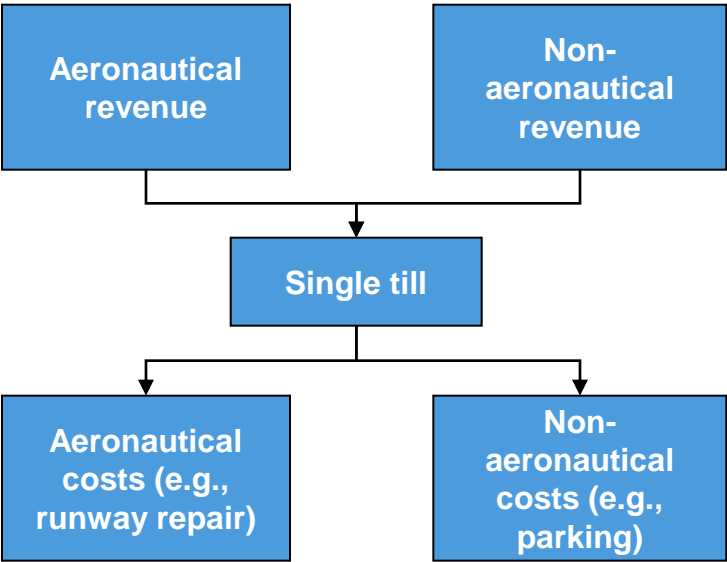
# Airports depend on both capital and operating revenues to pay for capital projects and operating expenses

## Examples of airport costs and revenues

<b>Capital</b>	<ul style="list-style-type: none"><li>▪ Runway construction</li><li>▪ Terminal construction</li><li>▪ Ground transportation infrastructure construction</li></ul>	<ul style="list-style-type: none"><li>▪ Grants</li><li>▪ Loans</li><li>▪ Operating surplus</li></ul>
<b>Operating</b>	<ul style="list-style-type: none"><li>▪ Maintenance</li><li>▪ Operations</li><li>▪ Administration</li></ul>	<ul style="list-style-type: none"><li>▪ Aeronautical revenues</li><li>▪ Non-aeronautical revenues</li></ul>
	<b>Costs</b>	<b>Revenues/Funds</b>

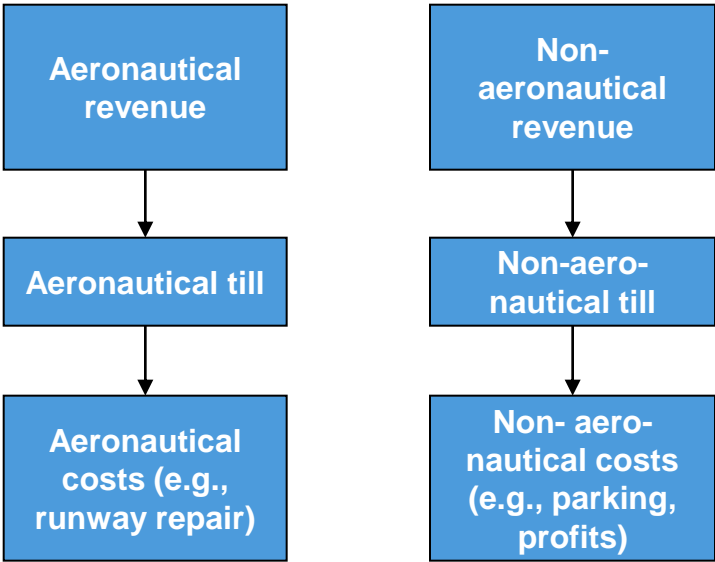
# Airports operate either on a single-till or a dual-till model

## Single-till model



More attractive to air carriers (e.g., USA)

## Dual-till model



More attractive to private airport operators (e.g., Austria)

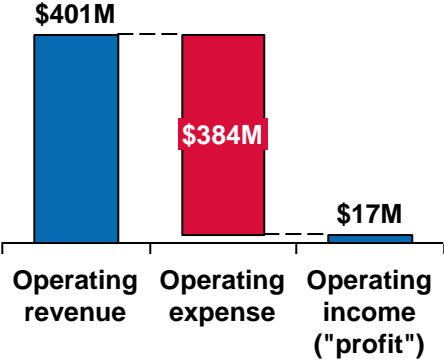
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# Airports are funded either through compensatory or residual means

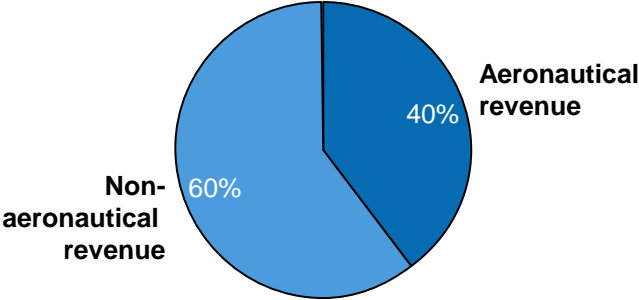
- Residual funding
  - A carrier is charged only the balance of costs which are not recovered through charges to other carriers or through non-aeronautical means
  - This means that the carrier takes on significant risk in case of a drop in other carriers' traffic
  
- Compensatory funding
  - The airport operator charges fees to air carriers to cover all actual costs that are not covered through non-aeronautical sources
  - In this model, the airport itself takes on the financial risk

# ATL generated a small operating income in 2010 and brought in more than half of its revenues from sources other than air carriers

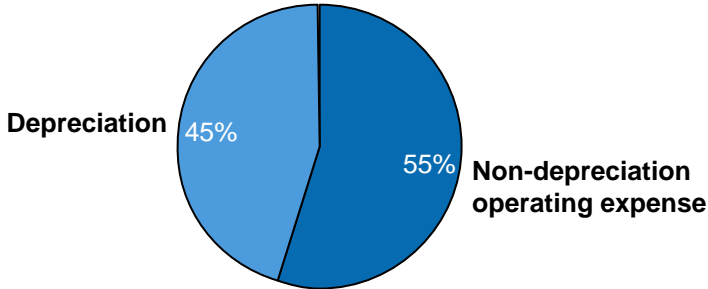
**Operating income at ATL**  
2010, US\$M



**Operating revenue at ATL**  
2010



**Operating expense at ATL**  
2010



ATL 2010 Profile	
▪	Total enplaned passengers: 45.4 million
▪	Annual aircraft operations: 76,359
▪	Total full-time equivalent employees: 601

Source: FAA Form 127

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# Airport operating costs cover many different categories

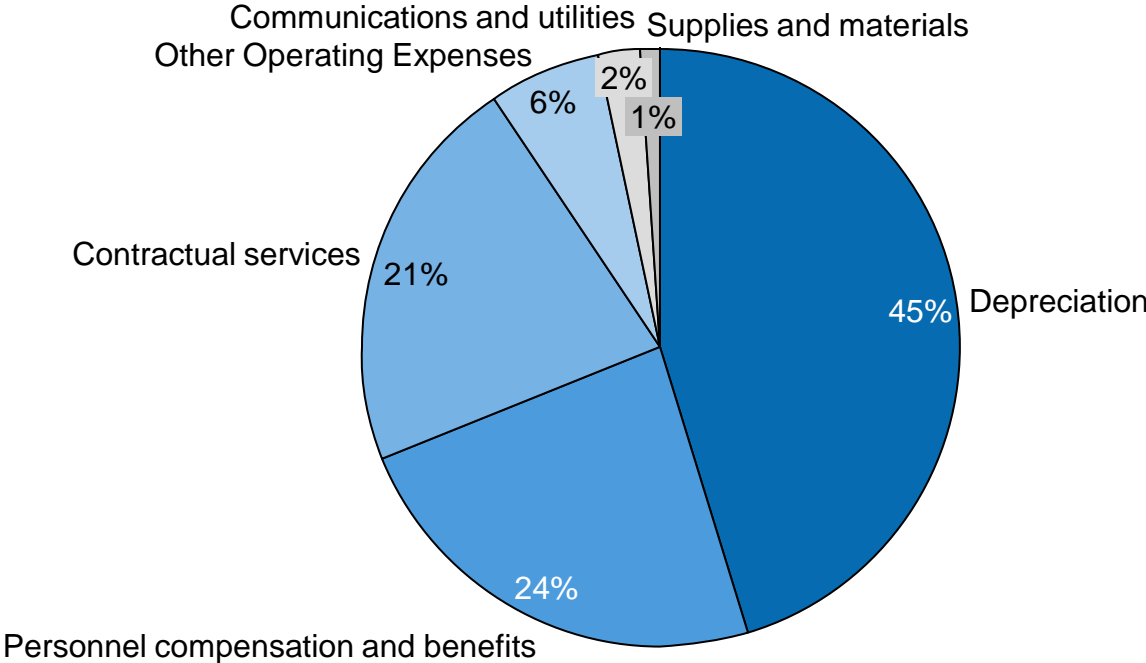
## Sample airport operating cost categories



# Beyond depreciation, ATL's operating costs are dominated by staff costs and contracts for service

Details of operating expense at ATL

2010



Source: FAA Form 127

# Airports take different approaches to determining which work to handle in-house vs. outsource

## Two possible outsourcing/insourcing strategies for an airport

### Outsource low-end work

- Airports in this category sign contracts with outsourcing providers to cover lower-skill work
- This may include services such as:
  - Cleaning
  - Bathroom maintenance
  - Customer service
- There are (at least) two motivations for outsourcing this type of work:
  - Making use of firms that can offer low hourly labor rates
  - Gaining increased flexibility in adjusting staffing levels to variable demand
- This approach favors keeping more high-end work (e.g., baggage system maintenance) in-house to maintain control of critical capabilities

### Outsource high-end work

- Airports in this category sign contracts with outsourcing providers to cover critical skill work
- This may include services such as:
  - Jet bridge maintenance
  - Baggage system operation and maintenance
- In this model, the airport has shifted the responsibility for ensuring that qualified staff is available to an outside firm
- Instead, the airport itself focuses on ensuring in-house staff are available to handle lower-end work

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# Capital costs come through both very large projects and through small and medium-sized equipment

## Examples of major capital costs



New Terminal 5 for JetBlue at JFK -- 0.75 billion dollars



O'Hare 7<sup>th</sup> runway and tower -- 0.5 billion dollars

## Examples of small and medium-sized capital costs

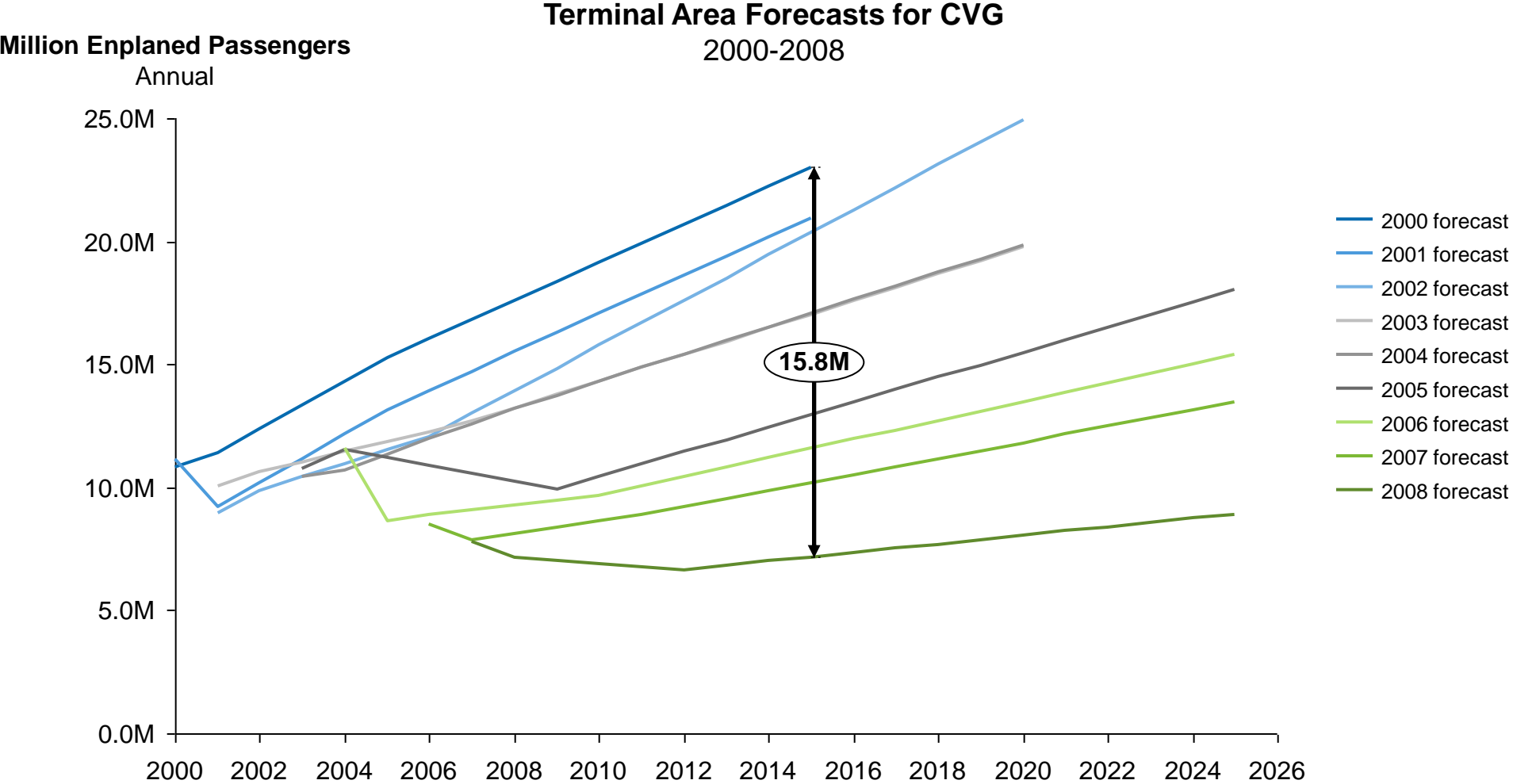


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# **Airport capital improvement is subject to very long time horizons and depend on forecasts which sometimes turn out to be off**

- Major capital projects are subject to very long time horizons
  - For example, construction of a new runway requires in-depth engineering planning but also review for its environmental impact, noise impact, etc.
  - Many projects are planned on a 10 to 20-year time horizon
  - This creates significant vulnerability to the accuracy of traffic forecasts
  
- Some projects go wrong due to traffic forecasts that turn out to be inaccurate
  - At Pittsburgh, terminals went through major improvements to increase its capacity and improve the quality of its facilities
  - Then US Airways dropped its hub service from PIT resulting in major traffic drops starting in 2004, and now the airport is significantly over capacity
  - MidAmerica airport near St. Louis is co-located with Scott AFB and was constructed at a total taxpayer cost of \$313M to alleviate congestion at STL
  - However, MidAmerica but has never had any major airline service and has not has any passenger service since Allegiant Air in 2009

# The forecasts can change rapidly with changing conditions



Source: FAA Terminal Area Forecast

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# CapEx investments can be a method for lowering OpEx

- There are generally two types of capital projects for an airport:
  - Those that expand the capacity of the airfield or terminal, or improve the quality/appearance of the facility
  - Those that automate or otherwise simplify the work that is paid for through OpEx
- The majority of CapEx spend falls in the former category since that ensures that the airport is able to accommodate traffic growth, maintains a pleasant experience for passengers, etc.
- However, the second category is particularly relevant to airports that seek to lower the fees that are charged to air carriers
  - Many CapEx projects are paid for with funds that are not charged to air carriers
  - As a result, investing in automation of certain aspects (e.g., crossing guards, “man-traps”, baggage drop) shifts an OpEx to a CapEx, enabling a lower fee to be charged to air carriers
  - This means that in some instances, it may be acceptable with a relatively long payback period for capital investments if an immediate OpEx reduction can be realized



Runway repaving at JFK will save \$500M in maintenance over the long term (\$376M investment)



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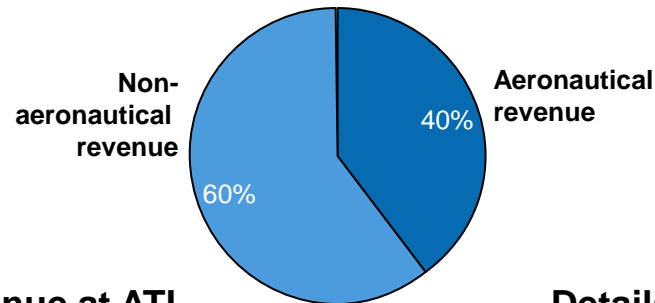
# Airports derive their revenues from a variety of sources, including both aviation related and non-aviation related sources



# The single most important source of operating revenue for ATL has nothing to do with aircraft -- it is parking and ground transportation

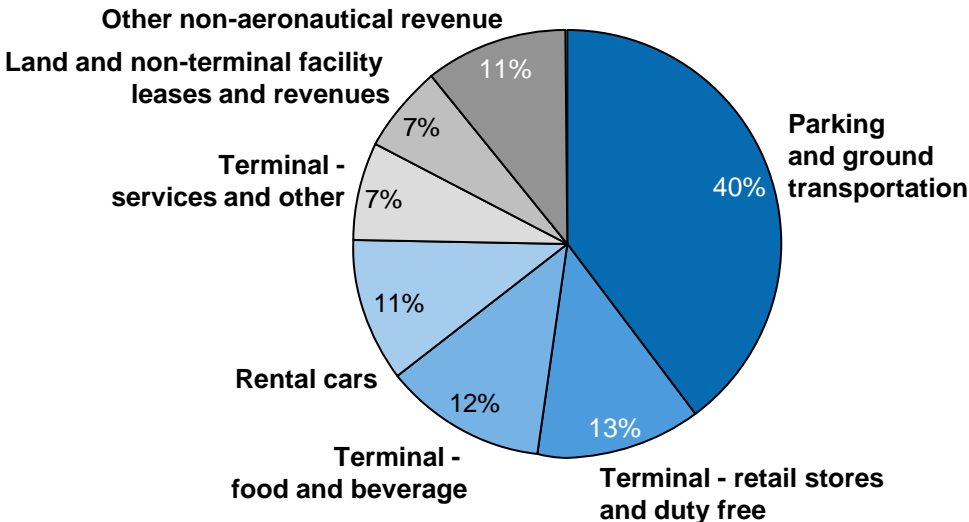
Operating revenue at ATL

2010



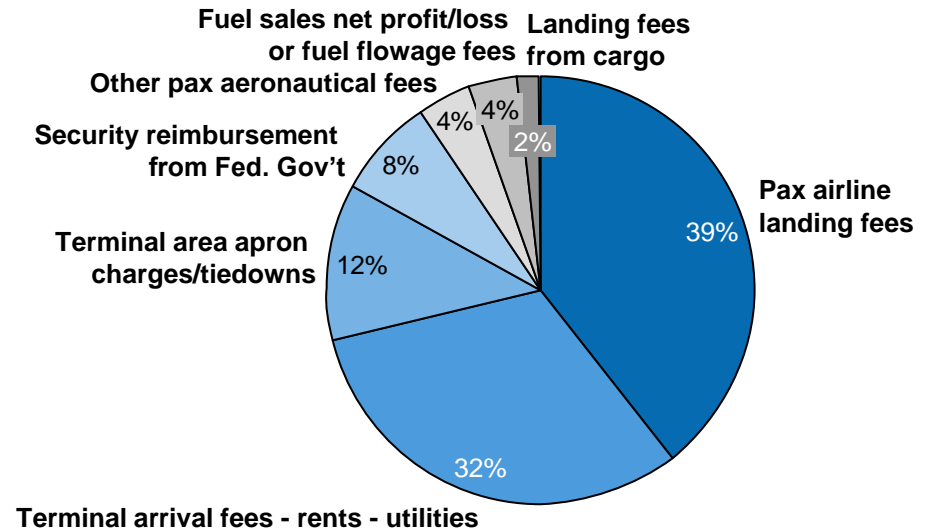
Details of non-aeronautical revenue at ATL

2010



Details of aeronautical revenue at ATL

2010



Source: FAA Form 127

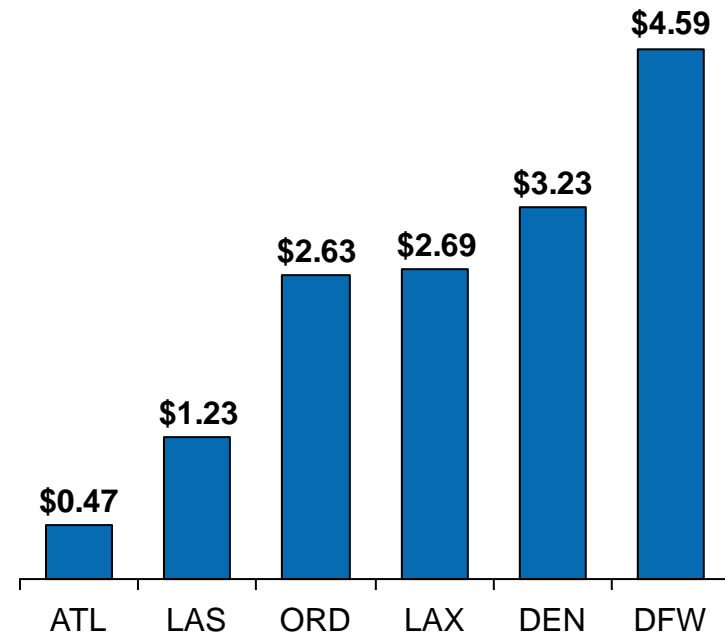
# Airport landing fees are based on some measure of aircraft size and can vary significantly by airport

## Airport landing fees

- Models for calculating airport landing fees:
  - Fee per lb of Maximum Landing Weight (MLW)
  - Fee per lb of Maximum Take-Off Weight (MTOW)
  - Others (e.g., number of seats)
- Example (2007 data) for IAD:
  - \$2.13 per 1,000 lbs of MLW
  - For a B747-400F at 652,000 lbs of MLW, the fee is \$1,389

## Sample landing fees

\$ per 1,000 lbs of MLW for passenger carriers; 2007



Sources: IAD website; ATL performance audit July 2007

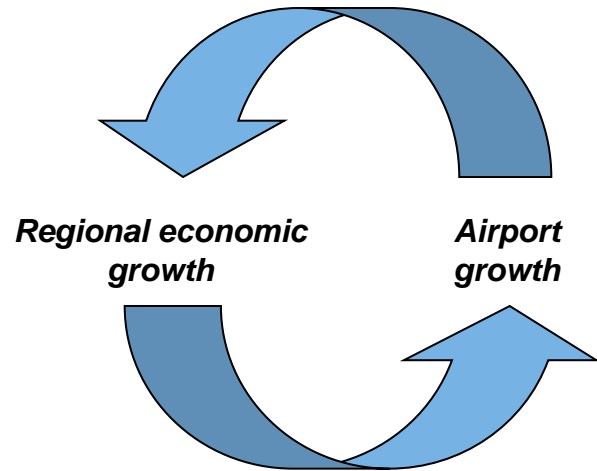
# Airports can benefit from both active approaches and operational conditions for driving non-aeronautical revenues

- To drive up non-aeronautical revenues, it is key for airports to employ strategies that are not dissimilar from shopping malls
  - Creating an attractive atmosphere in which passengers are more likely to spend money in restaurants, tax-free shops, etc., is key and there are firms which are specialized in helping airports accomplish this
  - Dwell times are an important metric in this area; a facility which the passengers simply pass through quickly may be convenient to passengers but will not generate significant non-aeronautical revenues
  - Many airports have been laid out to ensure that passengers have to pass through a variety of retail outlets on their way to the gate (e.g., CPH)
- In addition, some operational conditions may also impact non-aeronautical revenues
  - A certain level of delays may have a positive impact on the level of non-aeronautical revenues since they increase passenger dwell times
  - Passengers that are stuck waiting for a delayed flight are more likely to spend money on food and in retail outlets

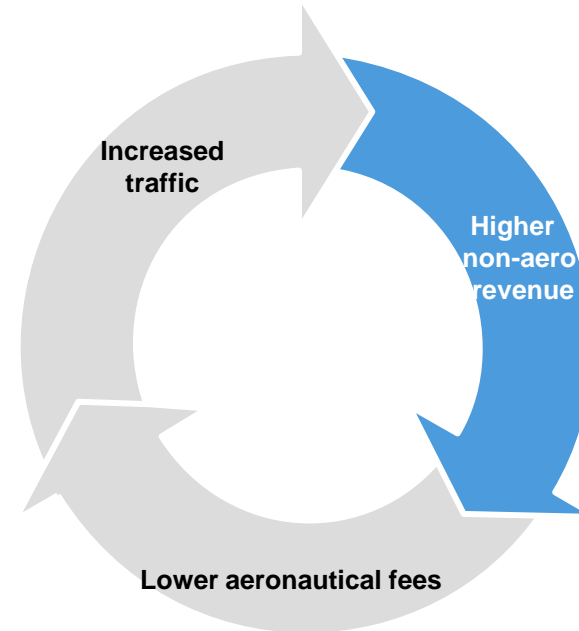


# In the long run, an airport prospers primarily thanks to the strength of its region's economy but also through strong fiscal performance

**Macro relationship between an airport's growth and its region's economy**



**"Micro" aspects of driving growth at an airport**



This all assumes the ability to accommodate traffic growth, either through existing facilities or through new construction

## Some airports also have unusual sources of revenue



**Casino at LAS**



**DFW airport is located on top of the Barnett Shale**

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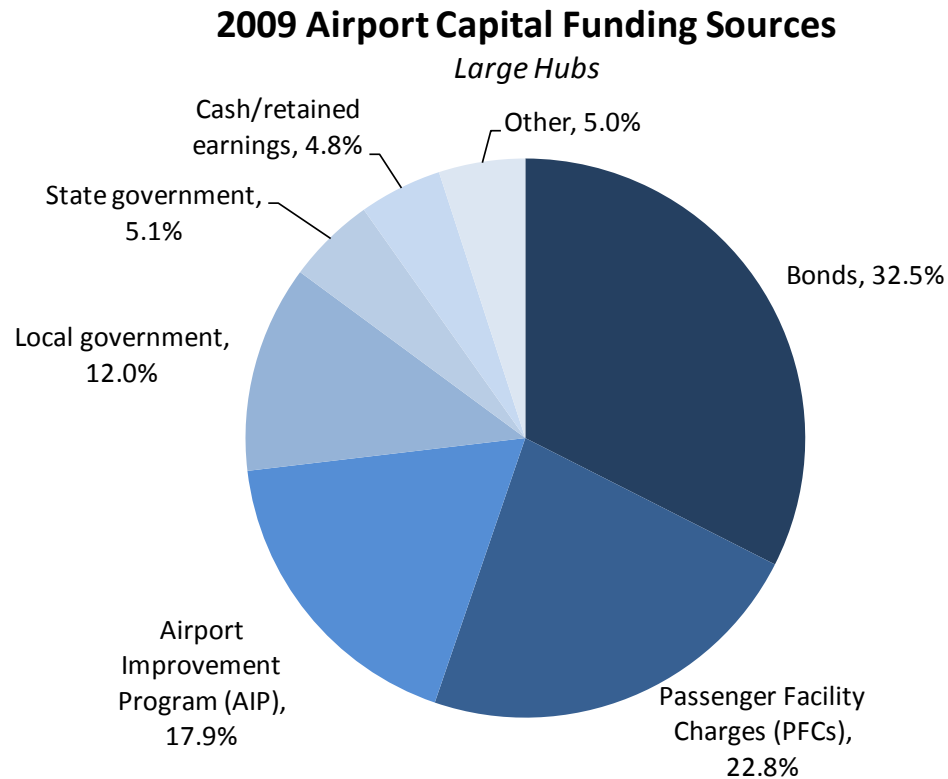
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# Airport capital funding come from both private financing, direct taxes and fees, and through government grants



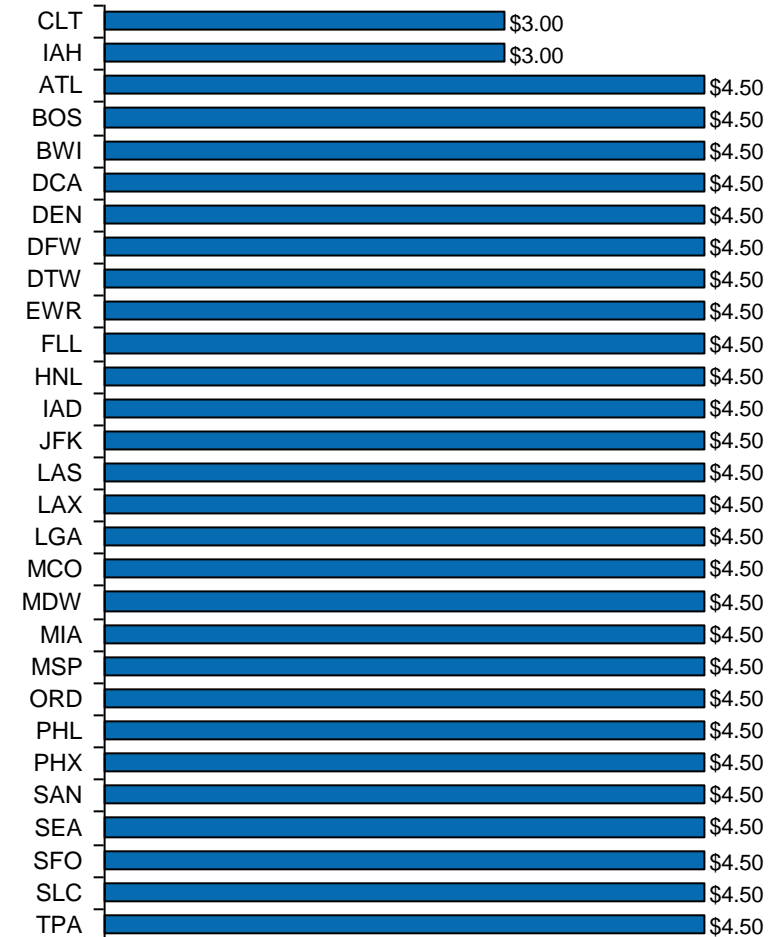
Source: Airports Council International - North America , Airport Capital Development Costs 2009-2013.

# Passenger Facility Charges (PFCs) are added to each ticket, and most major airports charge the maximum permitted amount

## Passenger Facility Charges

- PFCs are capped at \$4.50 per passenger by Congress
- Airports would like this limit to be raised
- The PFCs collected at an airport can only be spent on improvements at that same airport
- PFCs are also restricted in the way they can be used
  - PFCs can't be spent on revenue-generating projects
  - This includes parking garages and terminal space used by concessionaires

PFCs by airport  
October 2011; Major US airports



# The Airport Improvement Program is funded primarily through fuel taxes and is distributed based on various criteria

## Trust Fund Revenue Sources

The Airport Improvement Program
<ul style="list-style-type: none"> <li>▪ The AIP is funded through the Airport and Airway Trust Fund</li> <li>▪ The Trust Fund is funded through fuel taxes and user fees</li> <li>▪ The AIP can fund projects that have been included in the National Plan of Integrated Airport Systems (NPIAS)</li> <li>▪ Similar to PFCs, the types of projects that AIP funds can be spent on are also restricted                             <ul style="list-style-type: none"> <li>– Funds can only be spent on projects that support aircraft operations</li> <li>– This includes runways, taxiways, aprons, noise abatement, and safety, emergency, or snow removal equipment</li> </ul> </li> <li>▪ Funds can be distributed based on:                             <ul style="list-style-type: none"> <li>– Category of airport (small, medium, large)</li> <li>– Priority of project in the NPIAS</li> <li>– Legislative priorities</li> </ul> </li> </ul>

Source	Rate (1/1/2011)
Domestic passenger ticket tax	7.5 percent
Domestic flight segment tax (excluding flights to or from rural airports)	\$3.70 per passenger per segment
Tax on flights between the continental United States and Alaska or Hawaii (or between Alaska and Hawaii)	\$8.20 per passenger
Tax on international arrivals and departures	\$16.30 per person
Tax on mileage awards (frequent flyer awards tax)	7.5 percent of value of miles
Domestic commercial fuel tax	\$0.043 per gallon
Domestic general aviation gasoline tax	\$0.193 per gallon
Domestic general aviation jet fuel tax	\$0.218 per gallon
Tax on domestic cargo or mail	6.25 percent on the price paid for transportation of domestic cargo or mail

Source: GAO-11-358T

# Airport credit ratings are determined by a multitude of factors and are the key drivers of the cost of borrowing for capital projects

## Airport credit ratings

- Credit ratings for airports are set by ratings agencies (e.g., Moody's, Fitch) and reflect many different factors, including:
  - Growth projections for the regional population and economy
  - Employment mix
  - The level of O&D traffic
  - The role of the airport in the dominant carrier's network
  - Airport utilization trends
  - The importance of the airport to the overall air transportation system
  - The geographic location of the airport (natural hub location or not)
  - Airfield capacity
  - Current debt burden and carrying costs
- The credit ratings guide lenders on the level of risk they are taking on by loaning money to the airport
- Accordingly, the credit ratings drive the interest rates that airports have to offer the lenders to finance capital projects
- In general, airports are attractive to lenders since they are steady, dependable borrowers
- A nuance on airport bonds (and any other lending) are the tranches of debt:
  - Senior liens must be repaid first and represent lower risk (and thereby better credit ratings and lower interest)
  - Less senior liens have lower repayment priority and represent higher risk (worse credit ratings; higher interest)

## Senior lien airport credit ratings:

Sept 2009; Most of OEP-35

Airport	Rating
ORD	AA+
BOS	AA
DCA	AA
IAD	AA
LAX	AA
SEA	AA
DFW	AA-
EWR	AA-
JFK	AA-
LGA	AA-
MCO	AA-
MSP	AA-
TPA	AA-
ATL	A+
CLT	A+
DEN	A+

Airport	Rating
FLL	A+
IAH	A+
LAS	A+
MDW	A+
MEM	A+
SAN	A+
BWI	A
CLE	A
DTW	A
HNL	A
MIA	A
PHL	A
SFO	A
CVG	A-
PIT	BBB+
STL	BBB

Sample national credit ratings:

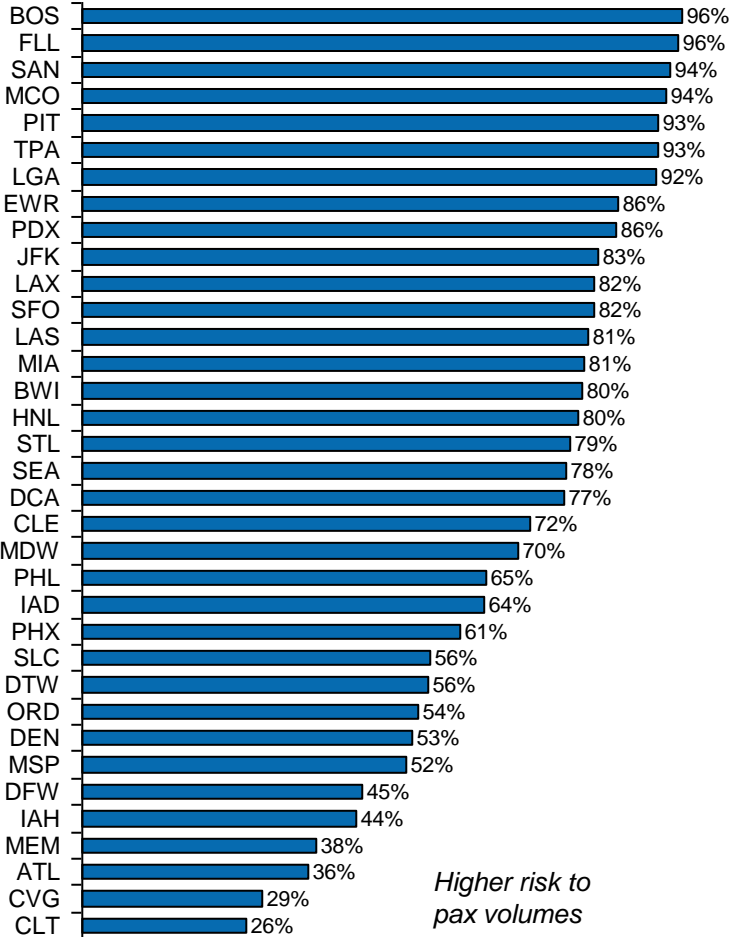
Italy: A+

Spain: AA-

Portugal: BBB-

# One of the important determinants of credit ratings is the level of O&D traffic at an airport and its expected growth

Percentage of domestic pax that are O&D  
2008; OEP-35 airports



*Lower risk to pax volumes*

*Higher risk to pax volumes*

### Origin & Destination (O&D) Traffic

- O&D traffic consists of passengers that are starting or ending their trip at an airport
- In contrast, connecting passengers are simply using the airport as a transit point
- For airports, connecting passengers are attractive in that they provide higher volumes than would be supported only by the local region
- However, connecting passengers also represent demand that could quickly disappear if a carrier decides to shift its hubbing operation
- Consequently, a high portion of connecting traffic can be viewed as a significant financial risk
- This risk is particularly high if an airport is only a carrier's secondary hub (e.g., ATL vs. CVG)

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## Some useful data sources

- FAA Form 127: Airport finances
- Airports Council International - North America website ([aci-na.org](http://aci-na.org)): Economic studies, airport financial reports, etc., from the airports' point of view
- Air Transport Association website ([airlines.org](http://airlines.org)): Economic studies, statistics, etc., from the airlines' point of view