

The Role of U.S. Airports in the National Economy

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Financing Airports
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ACRP 03-28, Report 132 – Key Collaborators

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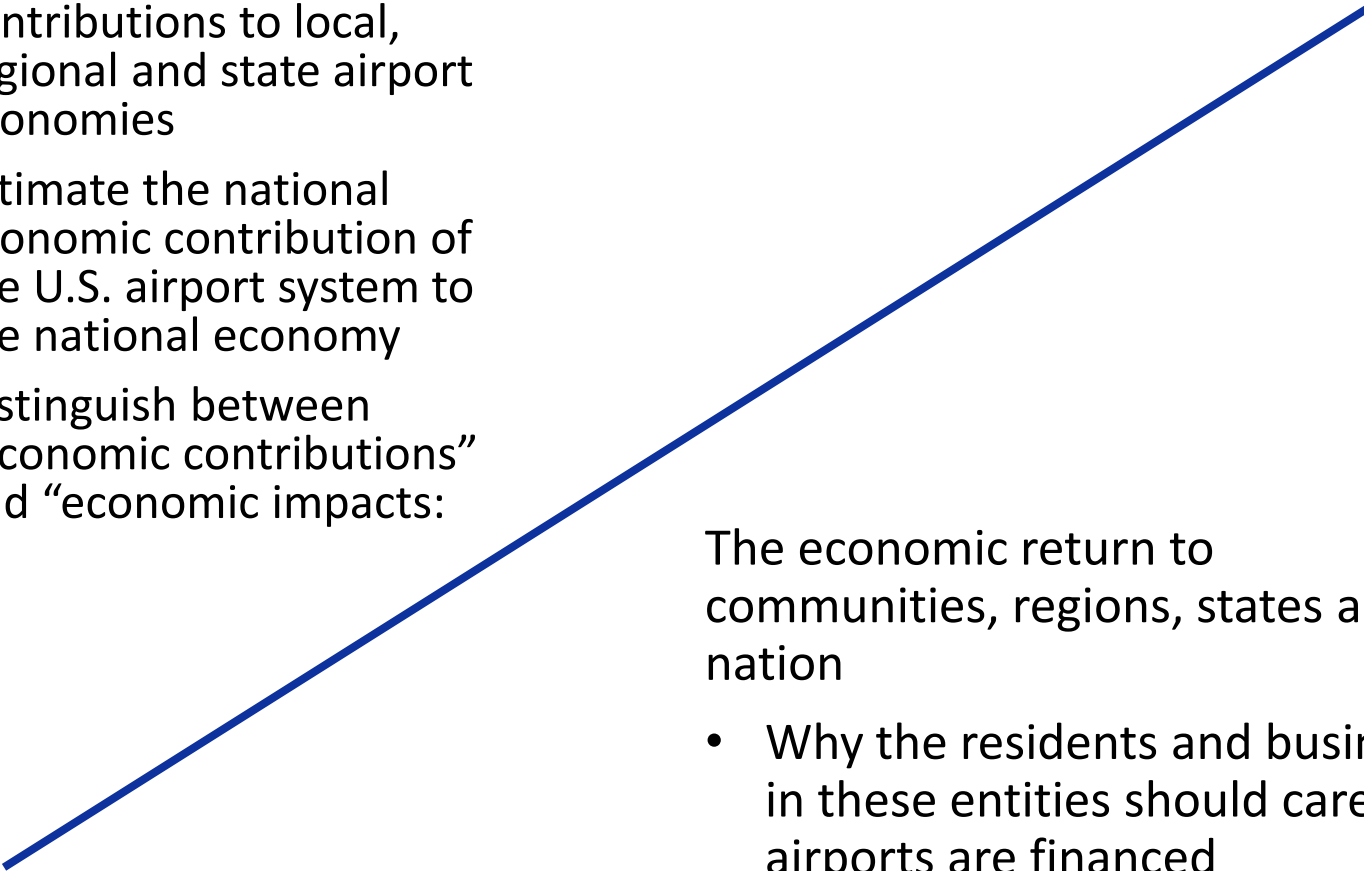
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Objectives of ACRP 132 / Relevance to this Session

1. Separate the role of airports in the national economy and contributions to local, regional and state airport economies
2. Estimate the national economic contribution of the U.S. airport system to the national economy
3. Distinguish between “economic contributions” and “economic impacts:



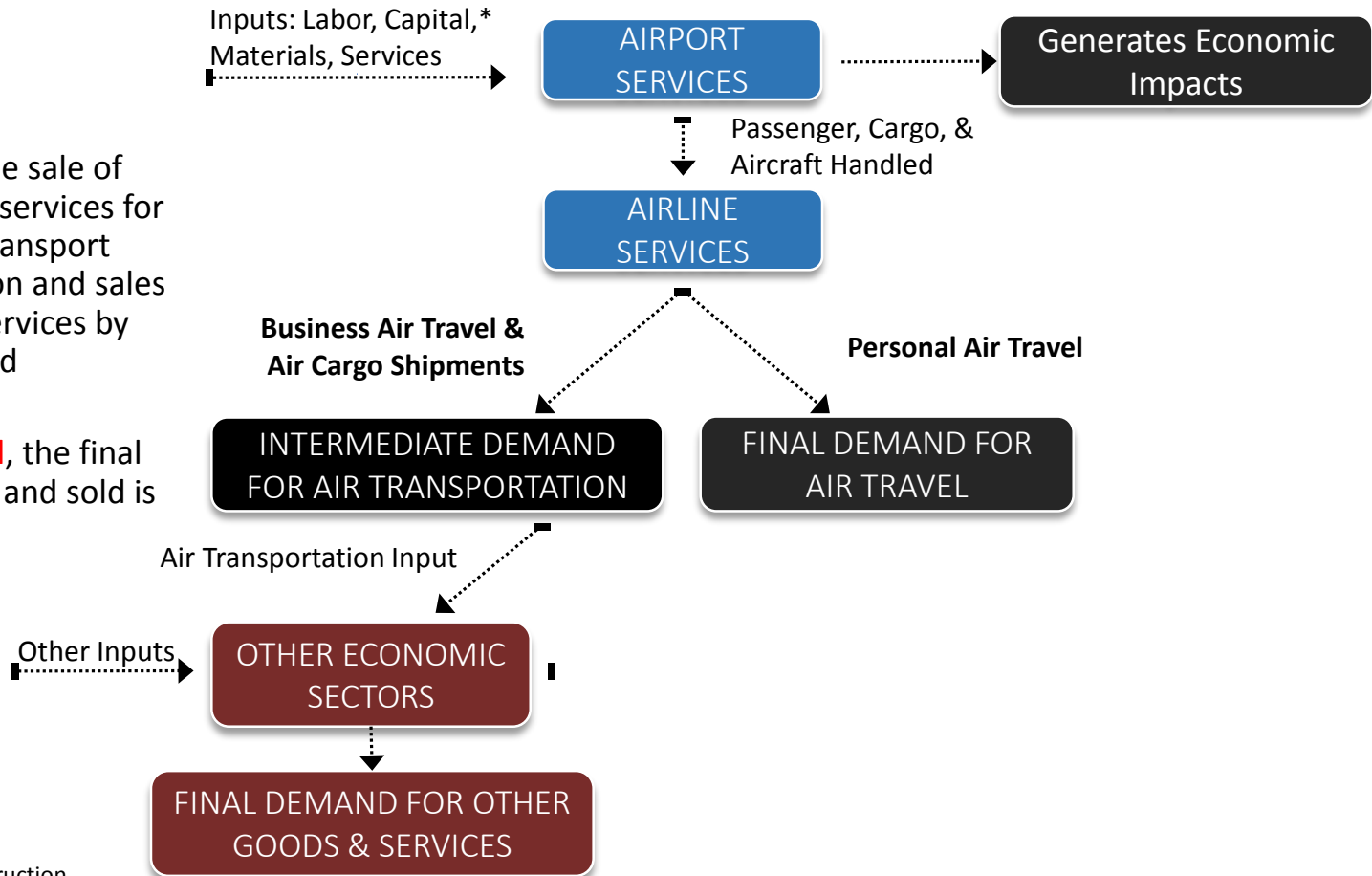
The economic return to communities, regions, states and the nation

- Why the residents and businesses in these entities should care that airports are financed

Tracing Airports' Economic Roles

For businesses, the sale of air transportation services for travel and cargo transport support production and sales of products and services by U.S. companies and industries.

For personal travel, the final product produced and sold is transportation.



*Includes construction

Overview of Economic Role of Airports

1

Assess Contribution of Airports to Economy

STATIC

On- Airport Aviation Related Activity

Inflow of Income Due to Airports

- Spending by visitors
- Benefits of air freight
- Benefits of business travel
- Support to industries (e.g., agriculture)

2

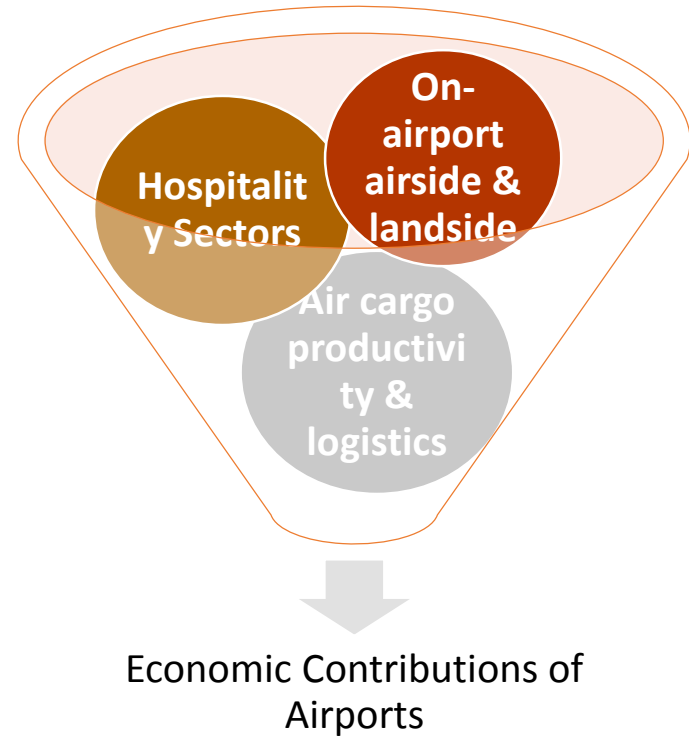
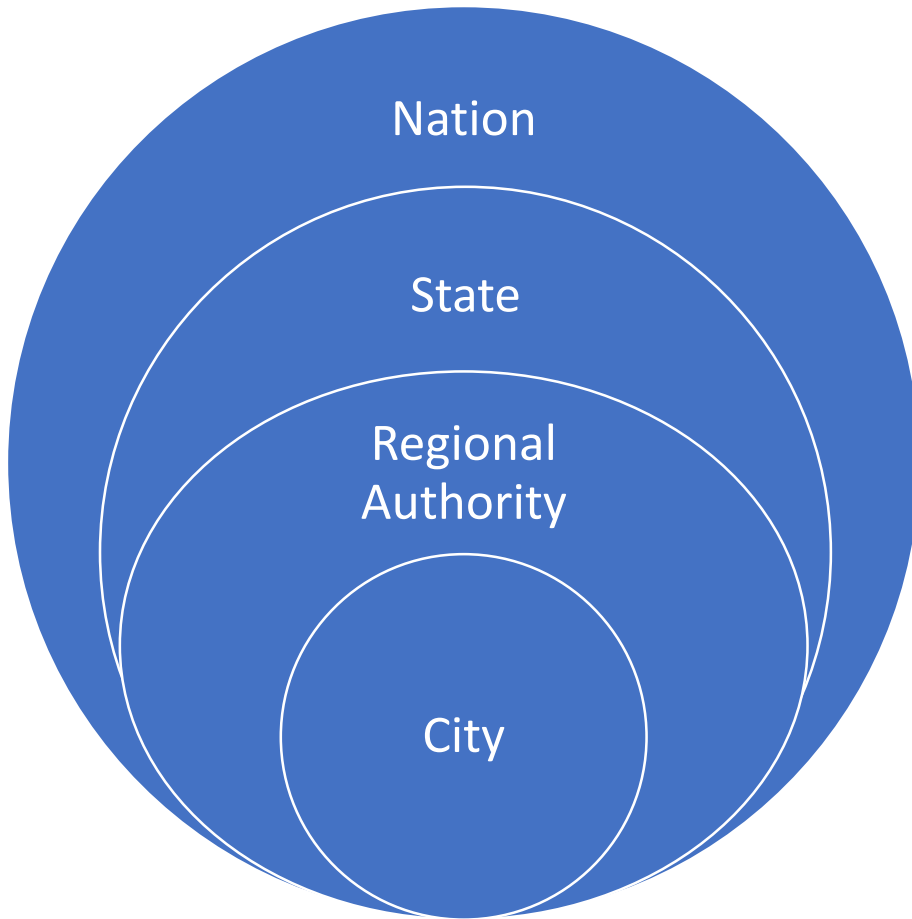
Determine How Changes in Airports/Aviation Affect the Economy

DYNAMIC

Connectivity

- Improved Connectivity by Nonstop Flights
- Relationship of Air Cargo and Industry Productivity

Perspectives



How is a National Economic Analysis of U.S. Airports Different than an Airport Study for a Region or State?

Measures what airports ***add to the national economy***:

1. On-airport commerce
 2. International cargo (*brings income to the U.S. from other countries*)
 3. Spending of international visitors who arrive by air
-

Does not include flows between domestic (U.S.) airports, which ***redistributes*** impacts within the U.S.:

1. Domestic air cargo are purchases and sales within the U.S.
2. Spending of domestic air visitors represent shifting of spending from one U.S. region to another

Difference Between Local and National

- Airports and airport systems account for an economic footprint.
 - The traditional methods of accounting for economic impacts of airports or airport systems, except it does not include redistribution of economic effects within the United States.

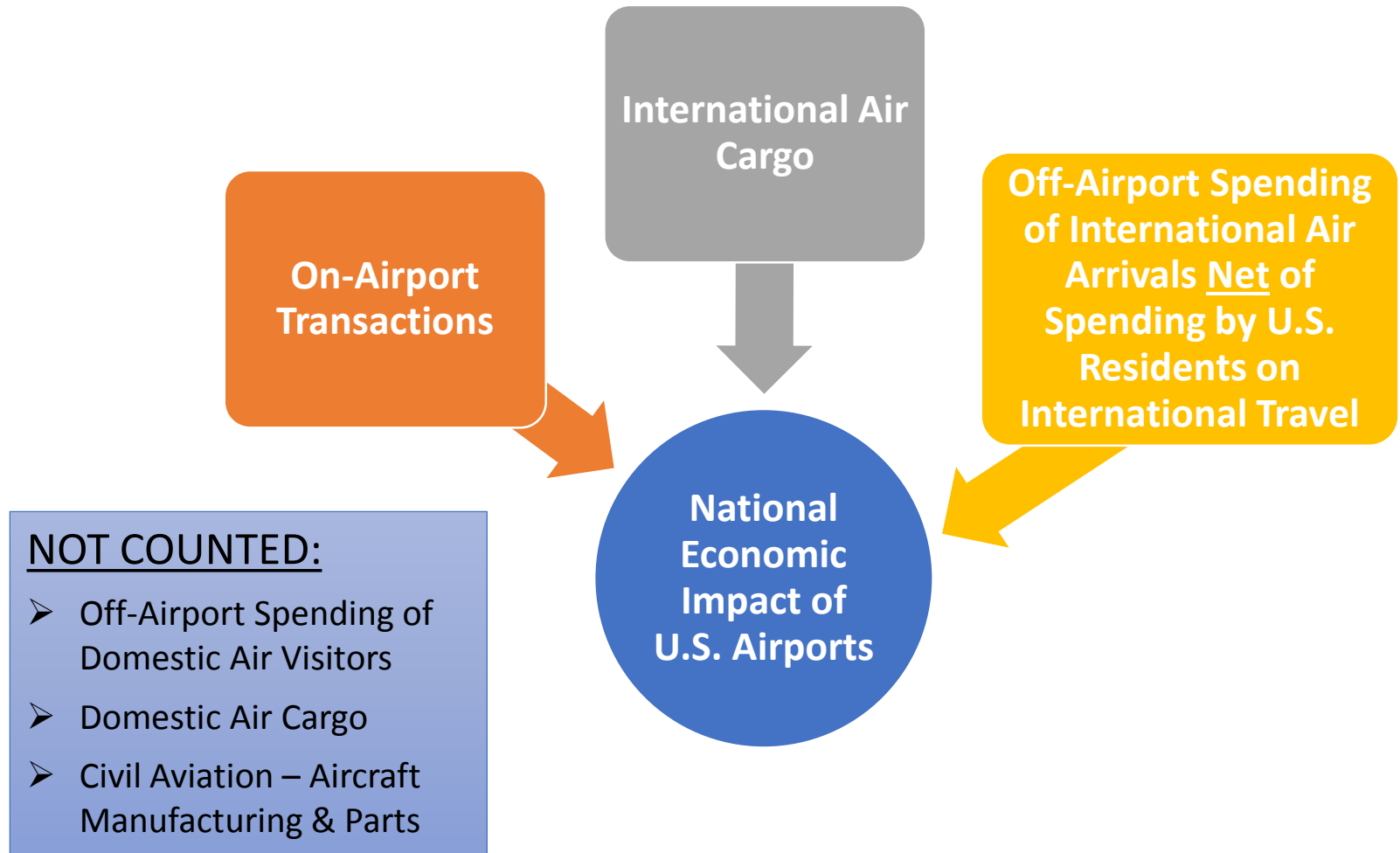
Example:

A traveler from Idaho to Texas brings money **to** the Texas economy, but takes money **from** the Idaho economy

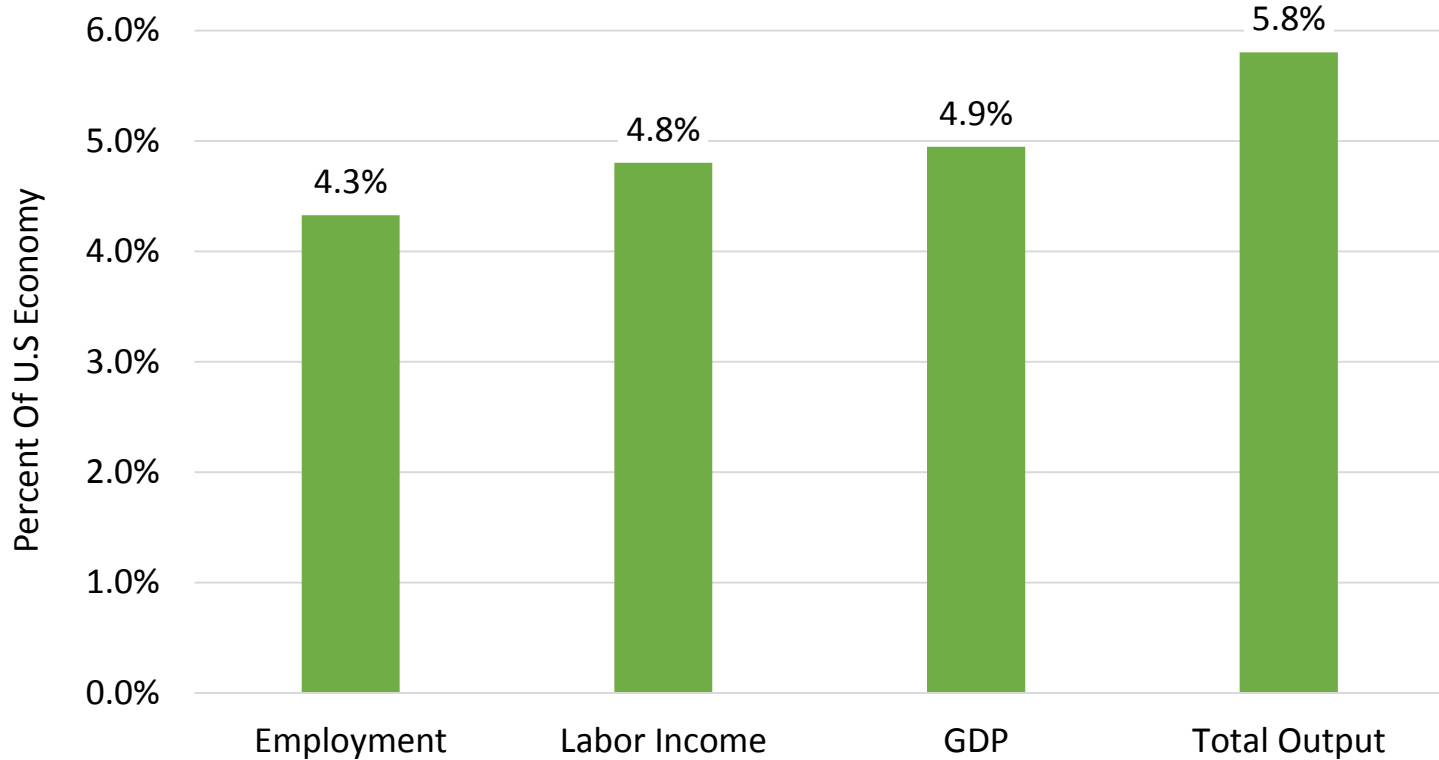


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Economic Impact of U.S. Airports on the National Economy



Total Impacts of US Airports as Percent of U.S. Economy



Includes direct impacts & indirect and induced multiplier effects. Calculations based on national data sets and U.S. Bureau of Economic Analysis, using IMPLAN, LLC.

Dynamic Analysis Complements Static Contribution Analysis

Dynamic: if changes at airports occur, the consequence will be increases in productivity across industry sectors.

The Effects of Improved Connectivity:

- Improved connectivity has direct effects (costs & time) and can have indirect effects by, for example, increasing accessible market size and reducing costs in the supply chain

Estimate Linkage Between Changes in Air Connectivity and Changes in Productivity

- Selected a representative sample of 20 Regions (**MSAs**) and **26 Airports**
- Assembled data on change in Multi-factor Productivity (MFP) for each region in 1995, 2000, 2005 and 2010:

MFP By Industry
(BLS)

Regional Economic
Data (GRP,
investment, labor)

Nonstop Flight
Pattern (O-Ds,
frequency) for
sample airports

Among the 26 sample airports
and between the 26 airports & 15
major international markets

MFP = *compare output to inputs*

Key Connectivity Measures

Two or More Daily Nonstop Domestic Flights

International Nonstop Destinations

Domestic Nonstop Destinations

Percent of the World GDP Served Daily

Five or More Daily Nonstop Domestic Flights

Airline Hubs Served-Domestic

International Nonstop Departures

Percent of the World GDP Served Nonstop

Domestic Nonstop Departures

Percent of the World GDP Served Twice or More Daily

Number of Airlines

Note: 18 connectivity variables were analyzed. The table above shows the variables that proved significant for one or more industries.

Regions and Airports for Connectivity Analysis

Code/ Multi-Airport Region	Airport/Region	Airports in Multi-Airport Regions
SF Bay	San Francisco Bay Area	SFO, OAK, SJC
Chicago	Chicago metropolitan region	ORD, MDW
ATL	Hartsfield-Jackson Atlanta International Airport	
CVG	Cincinnati/Northern Kentucky International Airport	
STL	Lambert-St. Louis International Airport	
PIT	Pittsburgh International Airport	
RDU	Raleigh-Durham International Airport	
DEN	Denver International Airport	
Phoenix	Phoenix metropolitan region	PHX, AZA
SLC	Salt Lake City International Airport	
Boston	Boston metropolitan region	BOS, MHT, PVD
PHL	Philadelphia International Airport	
DTW	Detroit Metropolitan Wayne County Airport	
SAN	San Diego International Airport	
PDX	Portland International Airport	
TPA	Tampa International Airport	
MCI	Kansas City International Airport	
TUL	Tulsa International Airport	
SAT	San Antonio International Airport	
BNA	Nashville International Airport	

11 Industry Sectors Included in Connectivity Analysis

NAICS Code	Sector
31-33	Manufacturing
42	Wholesale Trade
51	Information
52	Finance and Insurance
53	Real Estate and Renting and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative Support, Waste Management & Remediation Services
71	Arts, Entertainments, and Recreation
72	Accommodation and Food Services
11, 21, 22, 44-45, 48- 49, 61, 62, 81 and 92	Other: Agriculture, Forestry, Fishing & Hunting; Mining, Quarrying, and Oil & Gas Extraction; Utilities; Retail Trade; Transportation & Warehousing; Educational Services; Health Care and Social Assistance; Other Services; and Public Administration

Direct Value Added per Industry Sector in 20 MSAs Based on 1% Increases of Connectivity Variables (\$millions)

Industry	Number of Airlines	Domestic Non-Stop Departures	Airline Hubs Served-Domestic	Domestic Non-Stop Destinations	Two or More Daily Non-stop Domestic Flights	Five or More Daily Non-stop Domestic Flights	International Non-Stop Departures	International Non-Stop Destinations	% World GDP Served Non-Stop	% World GDP Served Daily
Manufacturing	\$158	\$85		\$123	\$356			\$172		
Wholesale Trade	\$43	\$51		\$30		\$64		\$38		\$6
Information			\$24		\$19		\$39	\$23		\$41
Finance & Insurance		\$151	\$226		\$99		\$42			\$34
Real Estate, Rental & Leasing		\$95		\$176	\$180	\$49		\$236		
Professional Scientific & Technical Services		\$57	\$112				\$82			\$153
Management of Companies & Enterprises			\$8	\$26			\$7	\$18	\$16	
Administration & Support Waste Management Services		\$11		\$33			\$23	\$95	\$51	
Art, Entertainment & Recreation			\$3	\$4		\$7				\$14
Accommodation & Food Services		\$0		\$20						\$19
Other**		\$3		\$272				\$100		\$95
Total	\$201	\$453	\$374	\$686	\$654	\$119	\$192	\$683	\$68	\$361

Note: Impacts on each industry sector vary according to connectivity variable.

** Other represents the aggregation of 9 economic sectors shown on Slide 27.

Impacts of Connectivity Variables Differ According to Industry Sector

Example of Findings:

Dollars in 2010 Millions of GDP Generated by 1% Increases in the 3 connectivity variables shown

Industry	Number of Airlines	Domestic Non-Stop Departures	Airline Hubs Served-Domestic
Manufacturing	\$158	\$85	
Wholesale Trade	\$43	\$51	
Information			\$24
Finance & Insurance		\$151	\$226
Real Estate, Rental & Leasing		\$95	
Professional Scientific & Technical Services		\$57	\$112
Management of Companies & Enterprises			\$8
Administration & Support Waste Management Services		\$11	
Art, Entertainment & Recreation			\$3
Accommodation & Food Services		\$0.1	
Other**		\$3	
Total	\$201	\$453	\$374

** Other represents the aggregation of 9 economic sectors shown on Slide 27.

Total Economic Impacts for the 20 MSAs Driven by a 1% Increase in Each Variable Including Direct & Indirect and Induced Effects

Variable	Jobs	Labor Income	Output	Value Added
Number of Airlines	7,500	\$471	\$1,725	\$794
Domestic Nonstop Departures	9,900	\$614	\$2,025	\$1,118
Airline Hubs Served-Domestic	7,600	\$493	\$1,340	\$831
Domestic Nonstop Destinations	17,400	\$963	\$3,030	\$1,676
Two or More Daily Nonstop Domestic Flights	19,200	\$1,161	\$4,455	\$2,135
Five or More Daily Nonstop Domestic Flights	1,900	\$106	\$336	\$221
International Nonstop Departures	4,400	\$267	\$689	\$429
International Nonstop Destinations	17,500	\$949	\$3,240	\$1,742
% of World GDP Served Nonstop	2,300	\$108	\$247	\$156
% of the World GDP Served Daily	9,100	\$517	\$1,291	\$807
% of the World GDP Served Two or More Daily	2,800	\$176	\$635	\$291

Note: Jobs rounded to the nearest “100”. Dollars in \$2010 Millions. Direct employment, labor income, output and all spinoff impacts calculated using IMPLAN, LLC.

Estimated National Impacts of Each Connectivity Variable

National extrapolation to show order of magnitude

Impacts based on 1% increase in the connectivity variables below	Direct Effects		Total Direct and Multiplier Effects	
	Jobs	Value Added	Jobs	Value Added
Number of Airlines	5,600	\$862	32,200	\$3,407
Domestic Nonstop Departures	13,300	\$1,944	42,500	\$4,797
Airline Hubs Served-Domestic	12,400	\$1,605	32,600	\$3,566
Domestic Nonstop Destinations	29,600	\$2,944	74,700	\$7,192
Two or More Daily Nonstop Domestic Flights	17,200	\$2,806	82,400	\$9,161
Five or More Daily Nonstop Domestic Flights	3,400	\$511	8,200	\$948
International Nonstop Departures	8,200	\$824	18,900	\$1,841
International Nonstop Destinations	27,500	\$2,931	75,100	\$7,475
% of World GDP Served Nonstop	5,600	\$292	9,900	\$669
% of the World GDP Served Daily	18,500	\$1,553	39,000	\$3,463
% of the World GDP Served Two or More Daily	2,100	\$305	12,000	\$1,249
Mean Impacts of All Variables	13,036	\$1,507	38,864	\$3,979

Note: Jobs rounded to the nearest "100". Dollars in \$2010 Millions. Calculations based on the value added previously presented. The basis of the extrapolation is that the national GDP is 4.3 times the aggregate GDP of the 20 regions tested.

Direct Economic Impacts of U.S. Airports in the National Economy

Activity	Jobs	Labor Income	Output	Value Added
Economic Impact of U.S. Airports	2,172,200	\$147,642	\$637,002	\$247,424
Changes in Economic Impacts Generated by:				
1% Improvement of Connectivity Variables	13,000	\$795	\$3,043	\$1,507
1% Increase of Air Cargo Tonnage	5,100	\$403	\$2,103	\$742
1% Decrease in Air Fares	1,400	\$162	\$553	\$249

(\$ values in 2010 millions)

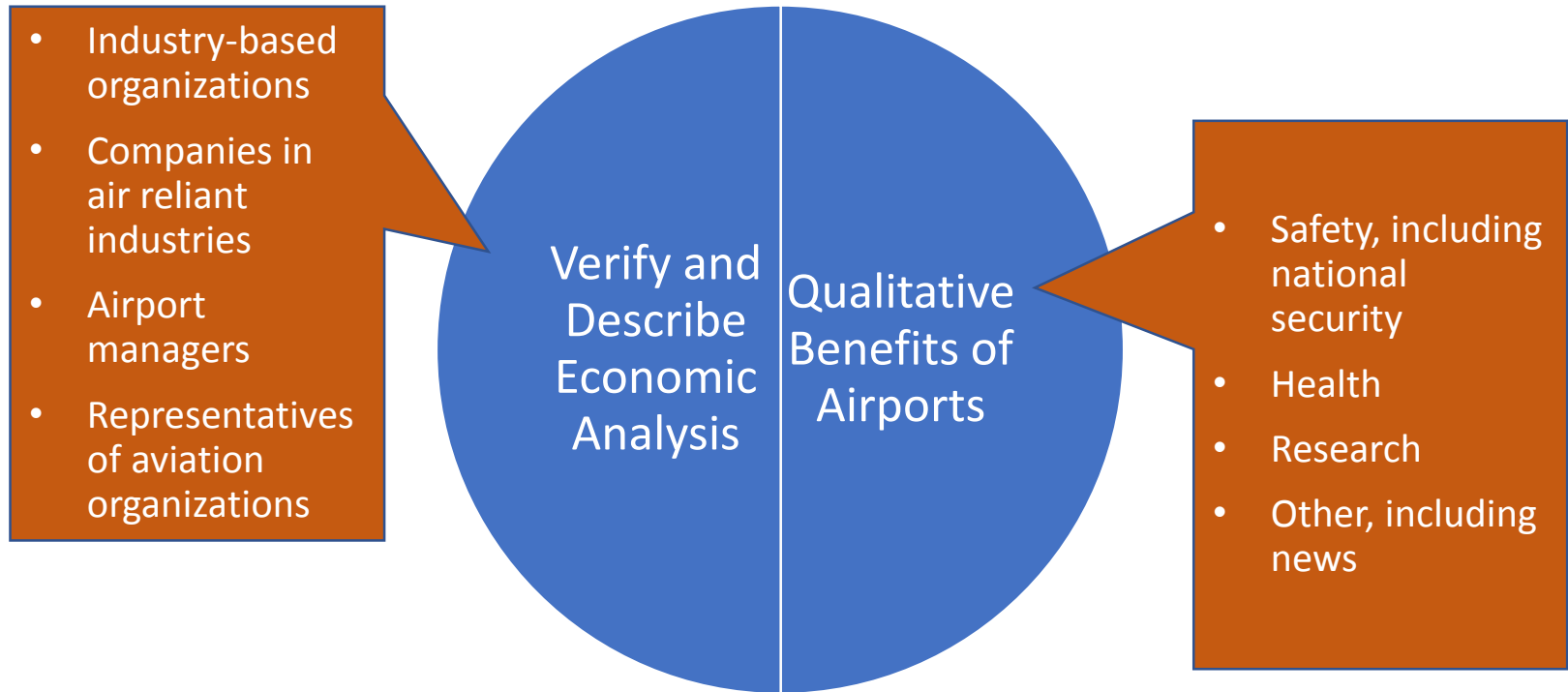
Notes: Direct impacts of connectivity reflect the mean average of all 11 connectivity variables
All dollars are in \$2010 value. Jobs are rounded to the nearest hundred.

Multiple Approaches

The multiple approaches carried out in ACRP 03-28 are complementary in understanding the economic impacts of airports to the national economy:

- The economic impact analysis is a snapshot of the economic contribution of airports at a given moment
- The dynamic analyses estimate how national economic impacts of airports will change if connectivity between airports and regions change.

76 Interviews



Conclusions - Quant and Qual

Factors equal to, or more important than, air transport:

- The availability of highly trained skilled labor
- The price of energy or resources required
- Location of suppliers and capital markets
- Macro-economic conditions impacting demand

But for sectors including...

Manufacturers; professional, scientific, and technical services; finance; and the importers/exporters of perishable food

- For heavily air reliant businesses, the addition or loss of direct air service affects the cost of doing business and the opportunities for market expansion within the U.S. and in other countries.

Thank You

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