

# **An Economic Assessment** of the **Impact** of the **Memphis International Airport**

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**Prepared for the  
Memphis-Shelby County Airport Authority**

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## TABLE OF CONTENTS

|  | Page |
|--|------|
| List of Tables . . . . .   | iii  |
| List of Figures . . . . .  | v    |
| Executive Summary . . . . .  | vi   |
| Introduction . . . . .   | 1    |
| Hubs, Mergers, and the Economic Environment . . . . .  | 4    |
| Memphis International Airport, FY2007-2015 . . . . .   | 6    |
| The Economic Impact of Memphis International Airport . . . . .                                       | 12   |
| The Economic Impact of Tourism and Business<br>Visitors from Memphis International Airport . . . . . | 23   |
| Surveys of Area Businesses and Airport Tenants . . . . .   | 25   |
| Business Survey Highlights . . . . .   | 25   |
| Tenant Survey Highlights . . . . .   | 26   |
| Appendix . . . . .   | 28   |

## LIST OF TABLES

| Table   | Page |
|---|------|
| 1. MEM Aircraft Operations, FY2007-FY2015 .....   | 8    |
| 2. Domestic and International Passenger Enplanements,<br>FY2007-FY2015 .....                        | 9    |
| 3. Cargo Enplaned at MEM, FY2007-FY2015 .....   | 10   |
| 4. Passenger Enplanement and Cargo Volume Comparisons,<br>Selected Cities, Calendar Year 2015 ..... | 11   |
| 5. Top Ten Total Cargo Airports, 2014 and 2015 .....  | 13   |
| 6. Multiplier Impacts of Air Freight Operations at Memphis<br>International Airport, FY2015 .....   | 17   |
| 7. Top Ten Industries Affected by MEM Freight Operations,<br>Ranked by Employment, FY2015 .....     | 17   |
| 8. Estimated MEM Passenger Revenue/Sales, FY2015 .....  | 18   |
| 9. Summary of Impact of Passenger Operations at Memphis<br>International Airport, FY2015 .....      | 18   |
| 10. Top Ten Industries Affected by MEM Passenger Operations,<br>Ranked by Employment, FY2015 .....  | 19   |
| 11. Summary of Impacts of Construction at Memphis<br>International Airport, FY2015 .....            | 20   |
| 12. Top Ten Industries Affected by Construction at MEM,<br>Ranked by Employment, FY2015 .....       | 21   |
| 13. Total Impact of Memphis International Airport, FY2015 .....                                     | 21   |
| 14. Top Ten Industries Affected by MEM, All Operations,<br>Ranked by Employment, FY2015 .....       | 22   |

## LIST OF TABLES

| Table  | Page |
|--|------|
| 15. Total Spending by Visitors via MEM, FY2015 .....   | 23   |
| 16. Summary of Multiplier Impacts of MEM Visitor Spending,<br>FY2015 .....                     | 24   |
| 17. Top Ten Industries Affected by MEM Visitor Spending,<br>Ranked by Employment, FY2016 ..... | 24   |

## LIST OF CHARTS

| Chart   | Page |
|---|------|
| 1. MEM Passenger Origin and Destination Percentage,<br>FY2007-FY2015 .....    | 6    |
| 2. MEM Total Aircraft Operations, FY2007-FY2015 .....                         | 7    |
| 3. MEM Passenger Aircraft Operations, Major/Nationals,<br>FY2007-FY2015 ..... | 7    |
| 4. MEM Inflation-Adjusted Airfares, Q1 for Selected Calendar Years .....      | 8    |
| 5. MEM Cargo Aircraft Operations, FY2007-FY2015 .....                         | 10   |
| 6. MEM Total Cargo Enplaned, FY2007-FY2015 .....                              | 11   |
| 7. FedEx and MEM Freight Totals, FY2007-FY2015 .....                          | 14   |
| 8. FedEx Corporation EBITDA, FY2000-FY2015. ....                              | 14   |
| 9. FedEx Average Fuel Cost Per Gallon, FY2015-FY2016 .....                    | 15   |
| 10. FedEx Corporation EBITDA and Employment, FY1999-FY2014 .....              | 16   |
| 11. MEM Total Cargo Enplaned, FY2012-FY2015 .....                             | 16   |
| 12. MEM Construction Expenditures, FY2012-FY2016 .....                        | 20   |

## EXECUTIVE SUMMARY

Implementing a growth plan that builds on the strengths of the community and its asset base is an essential step for future economic growth. Memphis International Airport (MEM) continues to be the single-most important public infrastructure investment available to support economic activity in the Mid-South. MEM's runways are the community's gateway to domestic and international markets. Over the next 50 years, MEM will determine if the community is a winner in the competition for economic growth and prosperity.

Global demographic trends depict the rapid pace of change. "The global population stood at 7.3 billion in 2015, roughly three times the 1950 population of 2.5 billion. . . . The 17 percent of the population living in advanced economies in 2015 will decline to a bit less than 12 percent by 2099. The global population is expected to be 11.2 billion by the end of this century based on current trends, with essentially all of this growth occurring in the so-called developing regions of the world and none in the industrial regions (Europe, North America, Australia, New Zealand, and Japan)."<sup>1</sup>

The changing demographic and economic fabric of the world is both a challenge and an opportunity for Memphis. Meeting the needs of local markets is necessary but not sufficient for Memphis to prosper. If the community is going to accelerate its growth, it must interlock its future with the exchange of goods and services in national and international markets. Building a future using the changes taking place around the world as building blocks is essential if Memphis is to compete in the 21<sup>st</sup> century marketplace.

The groundwork has already been put in place for this initiative. MEM is the link between the current Memphis and the Memphis of the future. The impact of Memphis International Airport reflects a balance between the massive air cargo operation and a smaller but no less important passenger operation. MEM is primarily a cargo-driven airport because of the massive domestic and international operations of FedEx. The presence of FedEx at MEM makes MEM and FedEx major drivers of the local economy. MEM continues to be the largest air cargo airport in the U.S. and ranks second in the world, only slightly behind Hong Kong International Airport. Cargo operations at MEM provide opportunities for local businesses seeking to participate in the global economy. Passenger services allow people ample access to a wide range of domestic and international locations at increasingly competitive prices. Both cargo and passenger services generate positive economic activity for Memphis and the Mid-South.

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<sup>1</sup> Mark A. Wynne. "Global Demographic Trends Shape Policy Environment," *Economic Letter*, Federal Reserve Bank of Dallas, 11(7):1-4, 2016.

## **Total Economic Impact of MEM**

- In FY2015, MEM had an impact on total output (the value of goods and services produced) in the Memphis MSA of \$19.1 billion, value added of \$8.1 billion, and earnings of \$4.8 billion, while supporting 83,199 jobs. It is also estimated that operations at MEM in FY2015 directly and indirectly helped generate \$820.9 million in state and local taxes.
- The total economic impact at MEM is comprised of three parts:
  - Cargo Operations
  - Passenger Operations
  - Construction Operations

### **Cargo Operations Impact**

For more than two decades, MEM has ranked either 1<sup>st</sup> or 2<sup>nd</sup> in terms of total cargo handled globally and ranked a very close 2<sup>nd</sup> to the leader, Hong Kong, in calendar year 2015.

- Most of the cargo volume at MEM is due primarily to the operation of FedEx Super Hub which handled an average of 98.6 percent of all cargo at MEM during FY2007-FY2015.
- As of FY2015, total pounds of cargo enplaned had increased 8.0 percent over FY2012, from just less than 4.5 billion pounds in FY2012 to 4.8 billion pounds in FY2015. MEM had nearly 4.5 billion pounds of cargo enplaned during FY2012.
- In FY2015, MEM's total cargo economic impact from 4.8 billion pounds of cargo enplaned is estimated to have been \$18.8 billion in output (the production of goods and services), \$4.7 billion in labor income, 82,049 full- and part-time jobs, and approximately \$805.5 million in state and local taxes.

### **Passenger Operations Impact**

The passenger side of Memphis International Airport has changed considerably over the last few years, going from a predominantly connector/feeder role with a Northwest/Delta Airlines passenger hub in the first decade of the 2000s to nearly a 100.0 percent origin and destination (O&D) role in the absence of the hub by FY2015. As a result of losing passenger capacity with the decrease in passenger service available, gone is the dominance of a hub carrier and its influence on prices as MEM adds additional carriers. In real terms, airfare peaked at \$539.80 in Q1 of calendar year 2012 and fell 26.1 percent to \$398.98 in Q1 of 2016.

- In 2012, Delta Airlines announced that it would close its Memphis passenger hub. Passenger enplanements dropped from approximately 3.9 million annually to 1.8 million by FY2015.

- Passenger operations at MEM in FY2015 were estimated to have resulted in \$216.2 million in output (the production of goods and services), labor income of \$54.1 million, 942 full- and part-time jobs, \$92.0 million in value added, and \$12.3 million in state and local taxes.

## **Construction Impact**

Memphis International Airport is almost always undergoing improvements or expansions that bring about another large impact via construction expenditures. Whether funding for capital improvements comes from federal and state grants or is self-funded via landing fees, these expenditures would occur somewhere else in the absence of MEM—taking the economic benefit with them.

- Construction expenditures made by MEM over the past five fiscal years (FY2012–FY2016) totaled over \$262.3 million.
- Construction expenditures at MEM in FY2015 totaled approximately \$39.6 million. Through the economic multiplier process, these expenditures are estimated to have resulted in approximately 207 full- and part-time jobs, \$11.9 million in labor income, value added of \$39.6 million, and \$52.2 million in output (the total value of goods and services produced because of construction expenditures at MEM).

## **Historical Comparison**

The passenger side of Memphis International Airport changed considerably between FY2007 and FY2015, going from a predominantly connector/feeder role with a Northwest/Delta Airlines passenger hub in FY2007 to nearly a 100.0 percent origin and destination role in the absence of the hub by FY2015. While passenger volume fell substantially during this transition, it appears to have stabilized and should grow during the next few years as MEM adds more carriers.

In contrast to passenger volume, cargo volume increased during the same time frame. Total cargo volume was up 8.0 percent in FY2015 over FY2012. This is attributable to a substantial increase in domestic cargo volume during the period (10.0%), as well as growth in air mail (1,231.9%).

## **Tourism Impact**

While the airport in and of itself is not necessarily a tourist destination or a reason to come to the Memphis area, MEM does provide a way to get to Memphis. Without this connection, many of the area's would-be tourists and business visitors might not come to the



area, especially international tourists and visitors from more than a day's drive away. To this extent, MEM can claim to have an impact on bringing tourists and their revenue influx to the Memphis area.

- Of the 1,769,000 O&D passengers to/from MEM in FY2015, 819,047 were destination passengers. It is estimated that these destination passengers who came to the Memphis area via MEM spent nearly \$751.9 million.
- Visitors to the Memphis area who came via MEM in FY2015 had a total impact of over \$982.7 million on output (the production and sales of goods and services), \$393.2 million on labor income, and supported an estimated 11,093 full- and part-time jobs.
- While not directly responsible for attracting visitors to the area, MEM does provide an important means of getting to the area. If air service grows, so too will the impact from visitors and tourists. Similarly, if air service declines, so too will dollars from tourism.

## **Surveys of Area Businesses and Airport Tenants**

As part of this economic impact study, the Sparks Bureau of Business and Economic Research (SBBER) conducted two online surveys of airport tenants and businesses in the Memphis area. With the assistance of the Economic Club of Memphis, the SBBER contacted 210 local business leaders and received 58 completed surveys. Similarly, the SBBER also attempted to contact all MEM tenants.

### **Business Survey Highlights**

- Of the 58 survey respondents (a 25.0% response rate), a large majority (89.7%) used the airport (commercial or general aviation) for business purposes. All of the respondents used the commercial airline services, and nearly 20.0 percent used some form of air charter or company aircraft.
- The most frequently cited domestic destinations were New York City, Atlanta, and Washington. Chicago and Los Angeles were also mentioned as frequently visited locations by the business respondents. The most frequently cited international travel was to Europe, especially the United Kingdom.
- The most widely supported aspect of the airport is the Aerotropolis concept. Over 88.0 percent of the respondents strongly agreed, agreed, or somewhat agreed that developing the Aerotropolis was important to the future of Memphis.

## **Tenant Survey Highlights**

- Because of the small number of respondents, only limited information could be developed from the survey results. The majority of respondents were either retail or food service providers. The basic information regarding length of time at the airport indicates that most of the tenants have been at the airport for over 10 years—a sign of a strong commitment to the airport and to providing air-related services.
- The tenant respondents reported that the three biggest factors at MEM that impacted their businesses were as follows: Most important—the cost of flights, the ease of enplanements, lower passenger traffic, and the high cost of real estate and buildout costs. Next most important—weather, gate locations, TSA security changes that cause passengers to miss their business locations, and the lack of incentives. Other important factors—flight destinations, TSA checkpoints, and the overall reduction in flights.

## INTRODUCTION

*Memphis International Airport (MEM) continues to be the single most important public infrastructure investment available to support economic activity in the Mid-South. While roads, rail, and river provide important transportation linkages essential to the movement of goods and services across the nation, MEM's runways are the community's global economic connection.*

*An Economic Assessment of the Impact of the Memphis International Airport,*  
Sparks Bureau of Business & Economic Research, The University of Memphis,  
April 2013.

Business and residential connections to the rest of world depend on Memphis International Airport (MEM). Modern globally-competitive companies depend on the national and international exchange of goods and services and the movement of personnel. Interlocked economic growth patterns drive the Memphis economy—up and down. Meeting the needs of local markets is necessary but not sufficient for Memphis to grow and prosper. Memphis must be linked to markets around the world, and the airport is the key to building those relationships.

The purpose of this research was to conduct an economic impact study for Memphis International Airport. This report is one of a series of reports on the economic impact of MEM on the Memphis economy. While the airport has undergone numerous changes, it continues to be a powerful economic engine for the region. The loss of hub status changed the way people traveled to some destinations, but it did not change the importance of that travel. The loss of hub status forced MEM to compete for key air routes and search for new service providers.

Similar reductions in freight shipment revenues have not diminished their importance for Memphis. In fact, the changes taking place at MEM focus more attention on serving the businesses that depend on the airport. FedEx and other employers compete in global markets and rely heavily on a continuous stream of improvements at the airport. This report focuses attention on the economic impact of MEM, its importance as a major economic growth engine, and its role in defining the future of Memphis.

Memphis is a community that depends on work. Creating employment and income opportunities is the single-most important thing that can improve the Memphis community.

While education gains, crime reduction, housing improvements, protecting the environment, and other issues are important, growing the economy is the most important factor in determining the community's success in addressing other economic and social problems. Without economic growth, tax revenues will continue to be insufficient to support other initiatives.

Economic development activities depend heavily on the availability of a strong and vibrant airport. The rush of global competition has forced our employers to think outside the box. The airport opens the box for everyone to participate in the domestic and global markets of the future.

**MEM is an Economic Engine for the Community.** Communities cannot sit still. They either outgrow or lag behind other communities. Stronger economic and demographic growth is the result of powerful efforts to create employment and income opportunities. Growing existing businesses and recruiting employers from around the world should be the community's top goal. A commitment to a strong and demanding growth plan is an essential step in making Memphis more than it is today. MEM is an essential ingredient in any growth plan. Memphis International Airport contributes to both the economic viability of existing employers and the success of efforts to recruit new employers to Memphis.

Memphis International Airport is self-financed and does not receive support from public tax sources. MEM is a powerful generator of jobs, income, and economic activity for the community. Memphis International Airport is an equally powerful tax generator. Every job and every family that depends on that job pays taxes and participates in the growth and prosperity of the community. Tax generators like our major employers—FedEx, AutoZone, International Paper, St. Jude, and many others—are the foundation of the local area's economy.

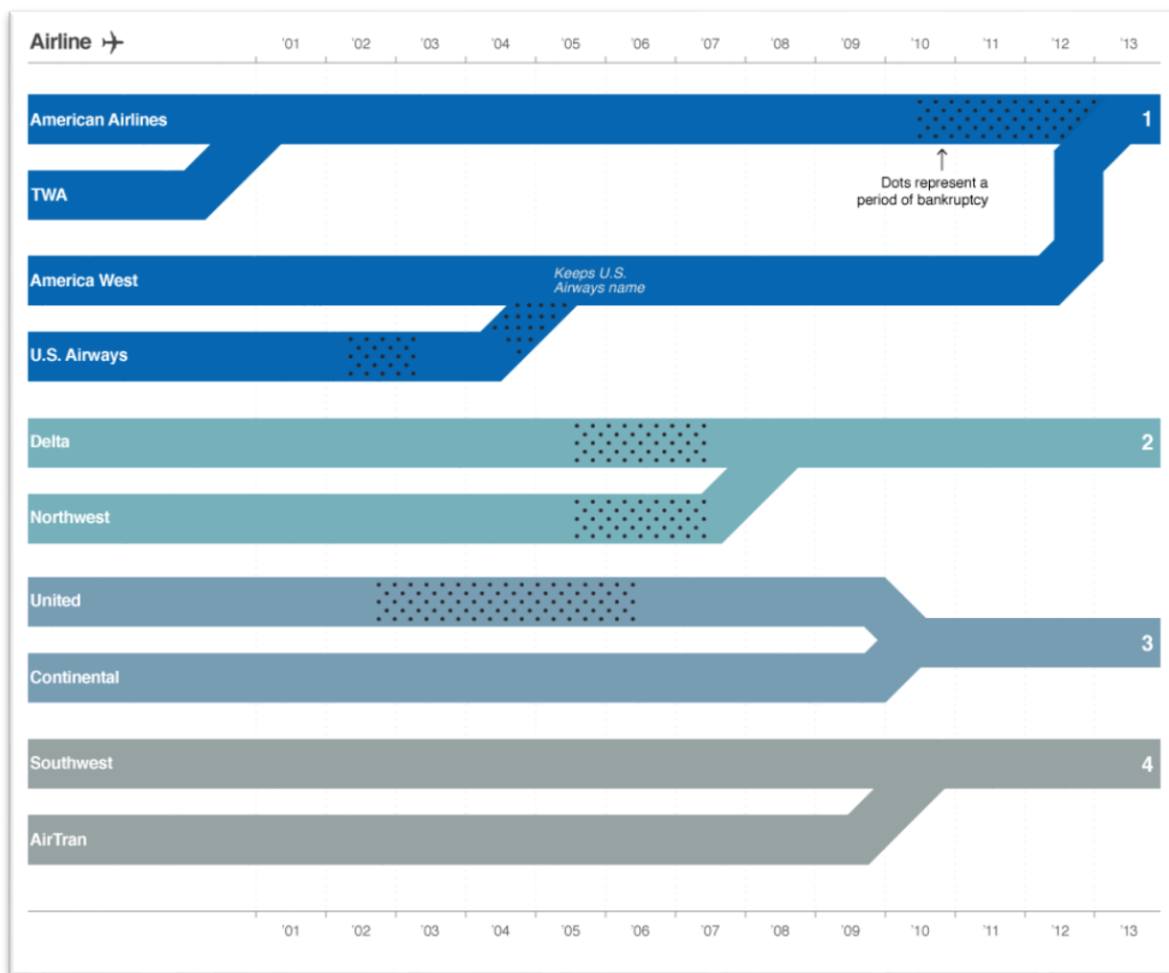
Employment and income levels in Memphis increase and decrease over time. During the high growth years of the 90s, employment in Memphis grew by 16.6 percent. But, those employment gains ended with the post-2000 jobless recovery and disappeared with the devastating impact of the Great Recession. Employment gains fell to 0.6 percent for the next decade and continued to decline to 0.1 percent growth for the period 2010-2015. By all measures, the Memphis community has found it difficult to grow since 2000. Ninety-five

percent of the employment gains over the last 25 years occurred in the 90s. Virtually no net employment gains have occurred since 2000.

MEM is a big part of the solution to the community's need for much more rapid economic expansion. When times are toughest, it is time to double down on our community's investments in economic infrastructure. Growth, jobs, and income creation cannot occur without investing in our future. Implementing a growth plan that builds on the strengths of the community and its asset base is an essential step toward future growth.

## HUBS, MERGERS, AND THE ECONOMIC ENVIRONMENT

Over the last 15 years, the airline industry has been reshaped dramatically by two primary events: September 11, 2001, and the Great Recession. In response to these events, the industry has experienced a number of bankruptcies and mergers. As a result, many airports have lost their hub status as airlines eliminated excess capacity and trimmed costs. Where there had been ten major U.S. airlines, only four mega-carriers remain to dominate the U.S. market.<sup>2</sup>



Source: cnn.com.

<sup>2</sup> <http://money.cnn.com/infographic/news/companies/airline-merger/>.

Newly-hubless airports typically experience a decrease in passenger flights, which negatively affects the financial stability of the airport or the surrounding region.<sup>3</sup> For example in 2012, Chiquita Brands moved its headquarters to Charlotte, North Carolina, a US Airways hub, after Delta cut flights at the fruit company's former base in Cincinnati. Chiquita said the importance of air connections contributed to its decision. Before the turn of the century, Pittsburgh International Airport operated more than 500 flights per day on average, but today this airport has 25 empty gates and an entire jet terminal that was transformed into a parking lot.<sup>4</sup>

After losing hub status, the Lambert St. Louis International Airport had to find new ways to attract airlines. Airport officials studied passenger travel patterns and worked with Boeing Co. and other local employers to identify cities that most needed connections after American announced the closure of that hub in 2009. The effort paid off. In 2010, Alaska Airlines launched nonstop flights to Seattle after Lambert officials showed that 260 local people traveled to the Pacific Northwest daily. Lambert also leased unused land for a compressed natural gas fueling station, bringing in rent and pumping fees. Operating revenue rose 6.0 percent in 2013 and 5.0 percent in 2012.<sup>5</sup> American's hub closure in Nashville pushed political, business, and tourism leaders into action. The airport lobbied airlines, and city leaders launched marketing campaigns that played up Nashville as a desirable place to live and operate a business since there is no state income tax. The expanding entertainment options and growing economy have attracted low-cost carriers, making Nashville a travel destination.

In 2012, Delta Airlines announced that it would close its Memphis passenger hub. Passenger enplanements dropped from approximately 3.9 million annually to 1.8 million by FY2015. Learning from other airports that have struggled with the loss of hub status should guide Memphis in moving forward.

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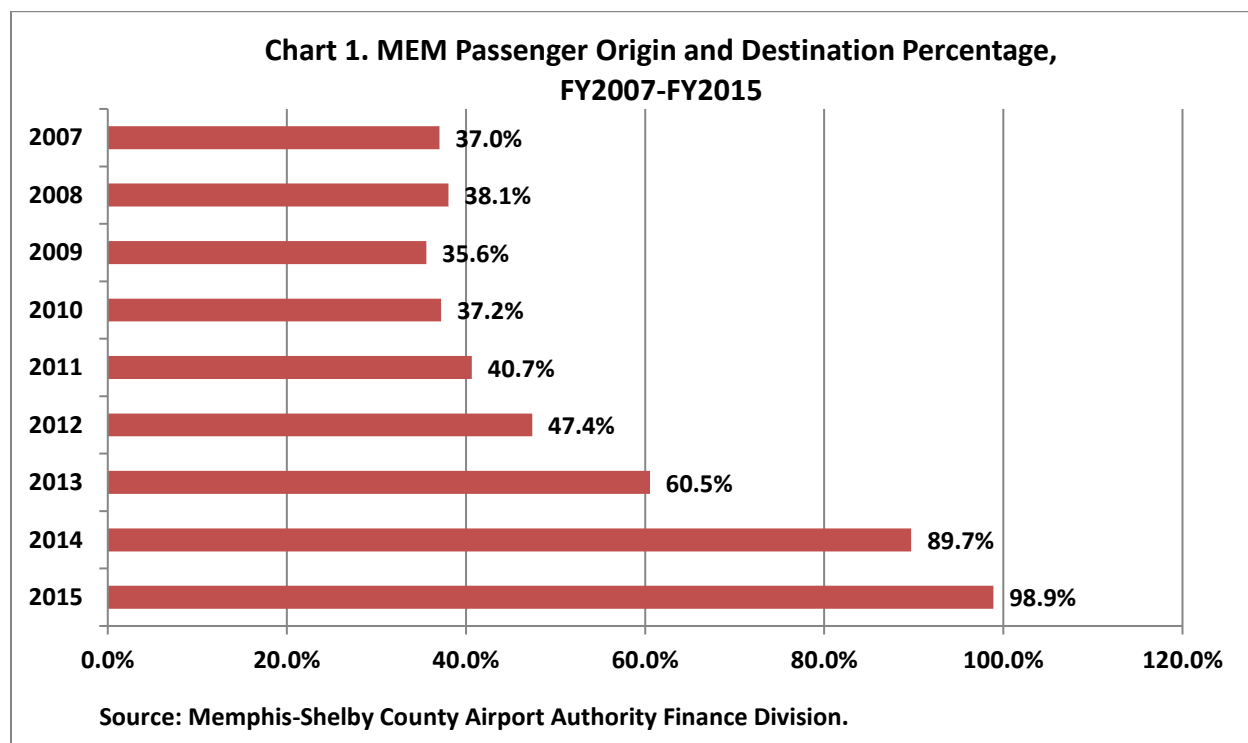
<sup>3</sup> <http://www.therichest.com/business/companies-business/7-american-airports-that-are-struggling-after-losing-hub-status>.

<sup>4</sup> <http://www.citiesobserver.com/these-american-airports-are-struggling-to-survive-after-losing-hub-status/>.

<sup>5</sup> <http://www.reuters.com/article/us-airlines-hubs-analysis-idUSKBN0F80AO20140703>.

## Memphis International Airport, FY2007–FY2015

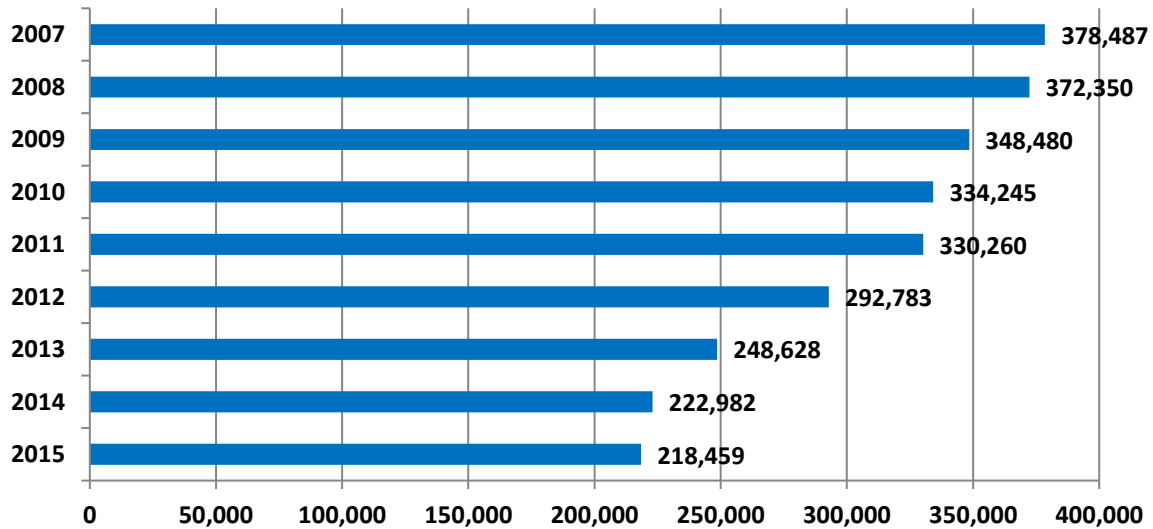
**Passengers.** The passenger side of Memphis International Airport (MEM) changed considerably between FY2007 and FY2015, going from a predominantly connector/feeder role with a Northwest/Delta Airlines passenger hub in FY2007 to nearly a 100.0 percent origin and destination (O&D) role in the absence of the hub by FY2015 (Chart 1). The loss of passenger hub status also affected the number of aircraft movements (defined as takeoffs and landings), decreasing from 378,487 in FY2007 to 218,459 by FY2015—a 41.3 percent decline (Chart 2).



There has been a sharp downward trend in movements/flights by major/national passenger airlines (-71.7%), reflecting Delta Airlines' long process of eliminating its hub at MEM, which finally ended in FY2013 (Chart 3). As a result of losing passenger capacity with the decrease in passenger service available, gone is the dominance of a hub carrier and its influence on prices. In real terms, airfare peaked at \$539.80 in Q1 of calendar year 2012 and fell 26.1 percent to \$398.98 in Q1 of 2016 (Chart 4).



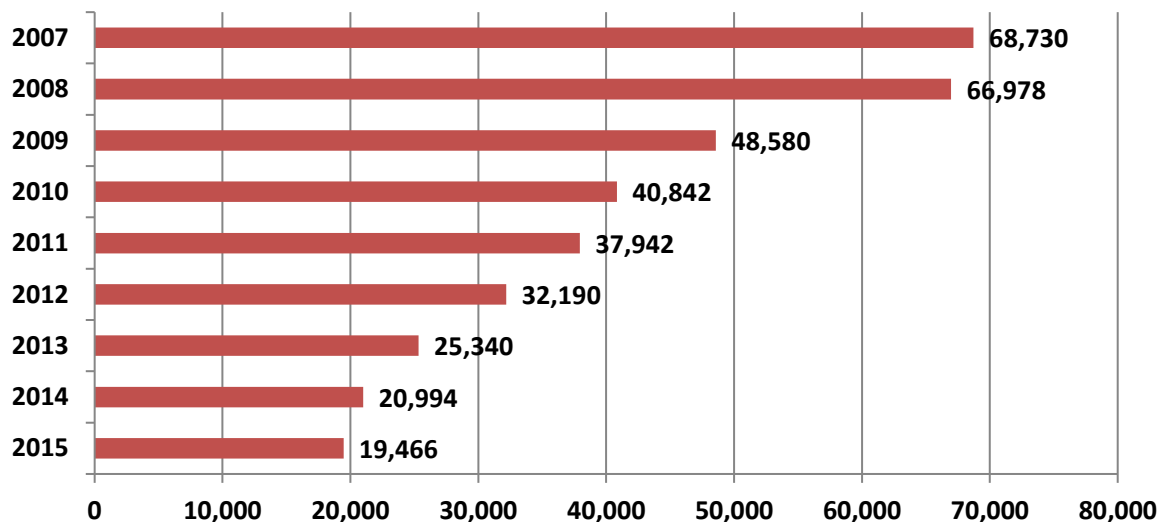
**Chart 2. MEM Total Aircraft Operations,\* FY2007-FY2015**



\*Takeoffs and landings.

Source: Memphis-Shelby County Airport Authority, Comprehensive Annual Financial Reports.

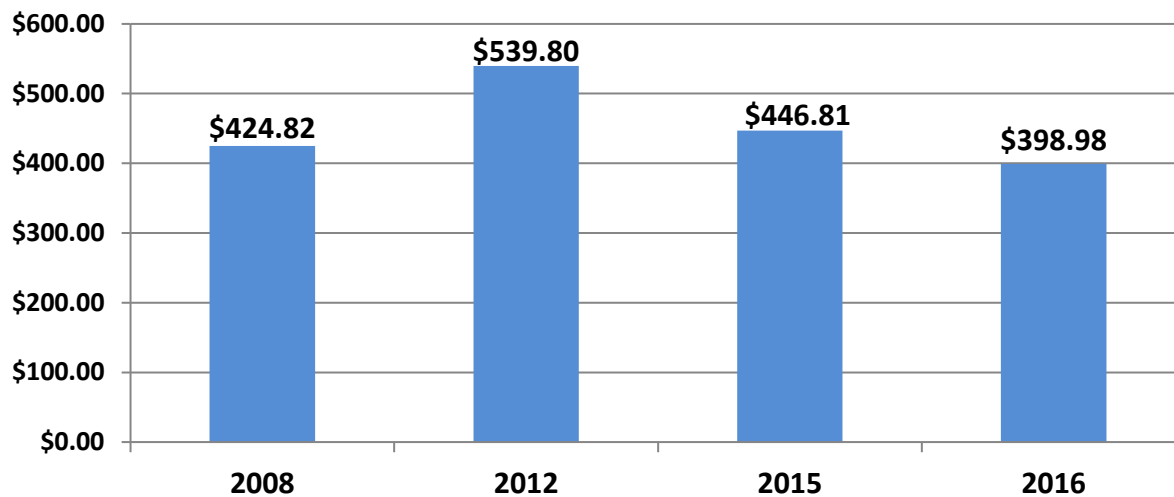
**Chart 3. MEM Passenger Aircraft Operations,\* Major/Nationals, FY2007-FY2015**



\*Takeoffs and landings.

Source: Memphis-Shelby County Airport Authority, Comprehensive Annual Financial Reports.

**Chart 4. MEM Inflation-Adjusted Airfares, Q1 for Selected Calendar Years**



Note: Inflation-Adjusted air fares are calculated using dollars for the year of the most recent fare release.

**Military.** While movements by major/national and regional airlines have decreased significantly, military operations have increased substantially over FY2007, rising 48.8 percent from 1,622 in FY2007 to 2,413 in FY2015 (Table 1). Flying mostly in support operations, airmen from the 164<sup>th</sup> Airlift Wing have flown on six continents in support of Operations Iraqi Freedom, New Dawn, and Enduring Freedom.<sup>6</sup>

**Table 1. MEM Aircraft Operations,\* FY2007-FY2015**

| Fiscal Year | Major/Nationals | Regional | Cargo   | General Aviation | Military | Total   | Total Percent Change |
|-------------|-----------------|----------|---------|------------------|----------|---------|----------------------|
| 2015        | 19,466          | 35,306   | 131,102 | 30,172           | 2,413    | 218,459 | -2.0%                |
| 2014        | 20,994          | 42,634   | 128,746 | 28,683           | 1,925    | 222,982 | -10.3%               |
| 2013        | 25,340          | 70,396   | 125,364 | 26,236           | 1,292    | 248,628 | -15.1%               |
| 2012        | 32,190          | 106,014  | 125,526 | 27,491           | 1,562    | 292,783 | -11.3%               |
| 2011        | 37,942          | 139,370  | 125,438 | 25,968           | 1,542    | 330,260 | -1.2%                |
| 2010        | 40,842          | 144,704  | 122,222 | 25,193           | 1,284    | 334,245 | -4.1%                |
| 2009        | 48,580          | 146,026  | 124,564 | 27,897           | 1,413    | 348,480 | -6.4%                |
| 2008        | 66,978          | 132,242  | 131,006 | 40,583           | 1,541    | 372,350 | -1.6%                |
| 2007        | 68,730          | 129,254  | 135,882 | 42,999           | 1,622    | 378,487 | -                    |

\*Takeoffs and landings.

Source: Memphis-Shelby County Airport Authority, Activity Reports.

<sup>6</sup> See <http://www.164aw.ang.af.mil/history/index.asp>.

Coinciding with Delta Airlines' elimination of its Memphis hub operations and the change to a primarily O&D airport on the passenger side, passenger enplanements also decreased, with the largest drop in absolute terms occurring between FY2012 and FY2013 (Table 2). Overall, passenger enplanements decreased 54.4 percent between FY2012 and FY2015. International enplanements experienced the largest percentage decrease, declining 97.8 percent due to the elimination of the Memphis-Amsterdam route.

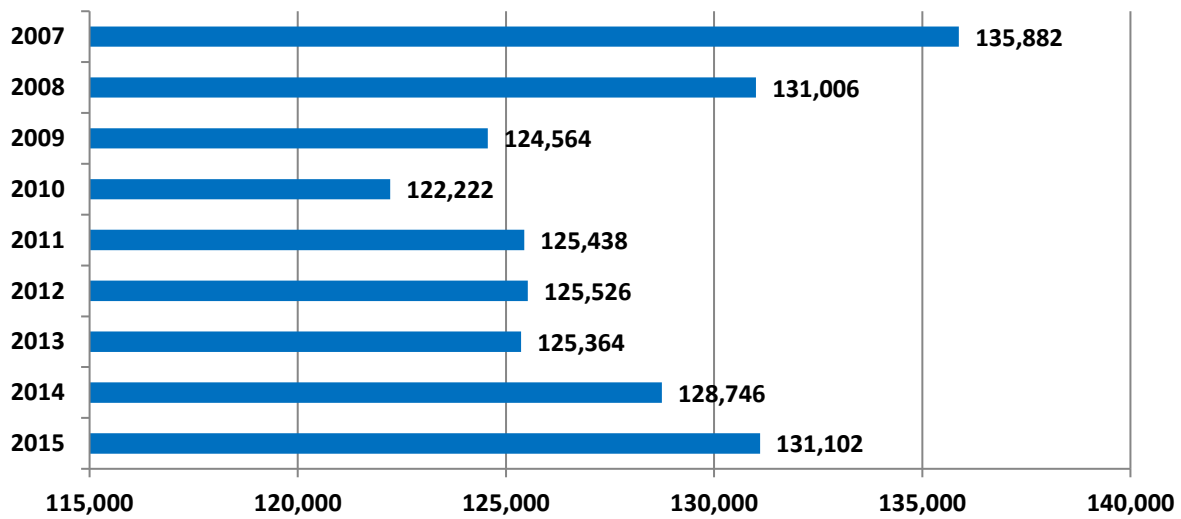
**Table 2. Domestic and International Passenger Enplanements, FY2007-FY2015**

| Fiscal Year | Domestic Enplanements | Domestic Percent Change | International Enplanements | International Percent Change | Total     | Total Percent Change |
|-------------|-----------------------|-------------------------|----------------------------|------------------------------|-----------|----------------------|
| 2015        | 1,784,652             | -8.7%                   | 4,153                      | 266.9%                       | 1,788,805 | -8.5%                |
| 2014        | 1,953,733             | -29.4%                  | 1,132                      | -87.7%                       | 1,954,865 | -29.6%               |
| 2013        | 2,767,763             | -28.6%                  | 9,195                      | -80.2%                       | 2,776,958 | -29.2%               |
| 2012        | 3,878,176             | -17.5%                  | 46,405                     | -39.4%                       | 3,924,581 | -17.8%               |
| 2011        | 4,699,355             | -2.8%                   | 76,630                     | -44.0%                       | 4,775,985 | -3.9%                |
| 2010        | 4,834,578             | -2.8%                   | 136,884                    | -26.6%                       | 4,971,462 | -3.6%                |
| 2009        | 4,971,728             | -7.4%                   | 186,393                    | -2.3%                        | 5,158,121 | -7.2%                |
| 2008        | 5,369,881             | 2.0%                    | 190,823                    | 6.0%                         | 5,560,704 | 2.2%                 |
| 2007        | 5,263,394             | —                       | 180,050                    | —                            | 5,443,444 | —                    |

Source: Memphis-Shelby County Airport Authority, FY2015 Comprehensive Annual Financial Report.

**Cargo.** Cargo movements at MEM initially decreased with the onset of the Great Recession but had fully recovered by FY 2015 (Chart 5 and Table 3). On the other hand, pounds of cargo enplaned increased every year between FY2007 and FY2015, except FY2008 and FY2009. As of FY2015, total pounds of cargo enplaned had increased 8.0 percent over FY2012, from just under 4.5 billion pounds in FY2012 to 4.8 billion pounds in FY2015 (Chart 6). Domestic freight enplaned increased 10.0 percent between FY2012 and FY2015, while international freight fell 23.0 percent during the same period. However, international freight was up by 11.0 percent in FY2015 versus FY2007.

**Chart 5. MEM Cargo Aircraft Operations,\* FY2007-FY2015**



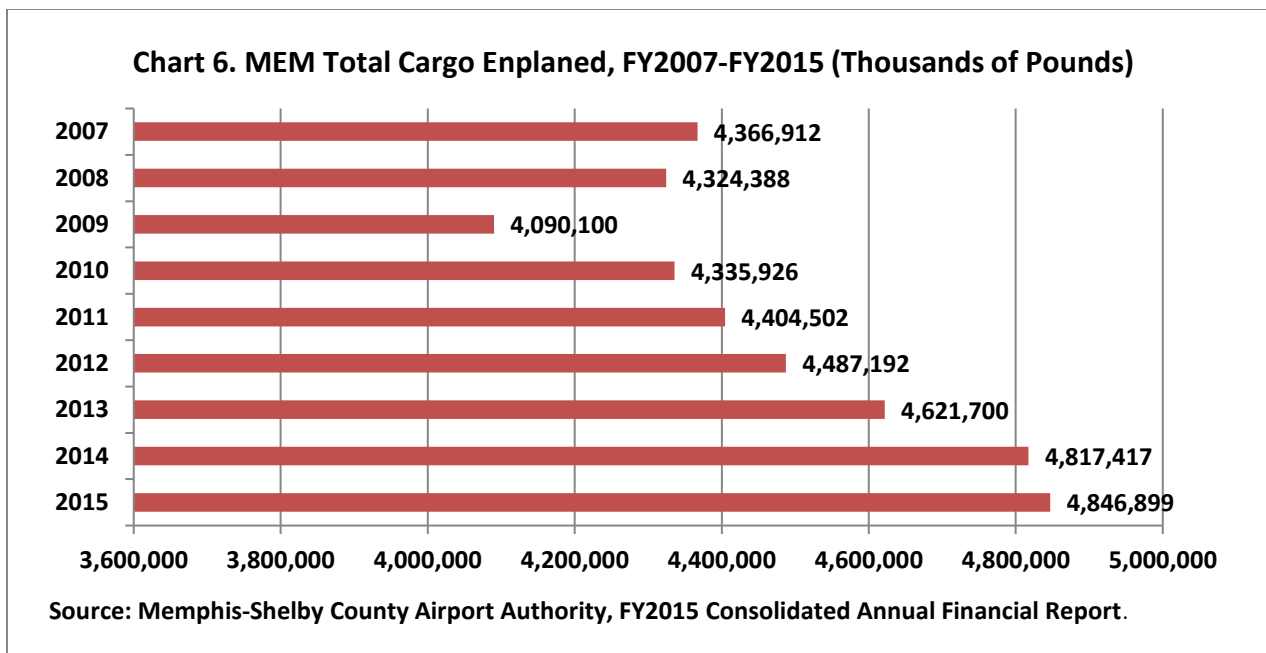
\*Takeoffs and landings.

Source: Memphis-Shelby County Airport Authority, Comprehensive Annual Financial Reports.

**Table 3. Cargo Enplaned at MEM, FY2007–FY2015 (Thousands of Pounds)**

| Fiscal Year | Domestic Freight | Domestic Percent Change | International Freight | International Percent Change | Air Mail | Air Mail Percent Change | Total     | Total Percent Change |
|-------------|------------------|-------------------------|-----------------------|------------------------------|----------|-------------------------|-----------|----------------------|
| 2015        | 4,617,425        | 1.4%                    | 222,282               | -14.5%                       | 7,192    | 74.1%                   | 4,846,899 | 0.6%                 |
| 2014        | 4,553,243        | 4.0%                    | 260,044               | 7.8%                         | 4,130    | 666.2%                  | 4,817,417 | 4.2%                 |
| 2013        | 4,379,905        | 4.3%                    | 241,256               | -16.5%                       | 539      | -0.2%                   | 4,621,700 | 3.0%                 |
| 2012        | 4,197,787        | 1.1%                    | 288,865               | 14.4%                        | 540      | -8.5%                   | 4,487,192 | 1.9%                 |
| 2011        | 4,151,373        | 0.9%                    | 252,539               | 14.9%                        | 590      | -76.7%                  | 4,404,502 | 1.6%                 |
| 2010        | 4,113,590        | 5.6%                    | 219,809               | 14.2%                        | 2,527    | -25.3%                  | 4,335,926 | 6.0%                 |
| 2009        | 3,894,212        | -5.8%                   | 192,506               | 3.9%                         | 3,382    | -34.3%                  | 4,090,100 | -5.4%                |
| 2008        | 4,133,907        | -1.0%                   | 185,332               | 2.3%                         | 5,149    | -52.9%                  | 4,324,388 | -1.0%                |
| 2007        | 4,174,759        | —                       | 181,219               | —                            | 10,934   | —                       | 4,366,912 | —                    |

Source: Memphis-Shelby County Airport Authority, FY2015 Consolidated Annual Financial Report.



**Comparisons.** Table 4 shows calendar year comparisons of MEM passenger enplanements and cargo volume with those of other selected cities. While MEM ranked 62<sup>nd</sup> of all U.S. airports in passenger enplanements, it ranked 1<sup>st</sup> in cargo volume. While MEM ranks low on passenger volume, in terms of cargo volume even the next closest in the list (Louisville) has only just over half the cargo volume of MEM at 53.5 percent. Indianapolis, a FedEx hub center, ranks 7<sup>th</sup> nationally but has less than one-quarter the cargo volume of MEM at 23.6 percent.

**Table 4. Passenger Enplanement and Cargo Volume Comparisons, Selected Cities, Calendar Year 2015\***

| Airport                 | Passenger Enplanements (Departures, in 000) | U.S. Rank | Percent of Memphis | Cargo (000,000 of Lbs.) | U.S. Rank | Percent of Memphis |
|-------------------------|---|-----------|--------------------|-------------------------|-----------|--------------------|
| Memphis (MEM)           | 1,873                                       | 62        | 100.0%             | 22,548                  | 1         | 100.0%             |
| Atlanta (ATL)           | 49,340                                      | 1         | 2,634.3%           | 2,457                   | 14        | 10.9%              |
| Birmingham (BHM)        | 1,325                                       | 78        | 70.7%              | 177                     | 92        | 0.8%               |
| Charlotte (CLT)         | 21,913                                      | 8         | 1,169.9%           | 378                     | 60        | 1.7%               |
| Dallas/Fort Worth (DFW) | 31,589                                      | 4         | 1,686.5%           | 3,328                   | 8         | 14.8%              |
| Indianapolis (IND)      | 5,708                                       | 48        | 304.8%             | 5,324                   | 7         | 23.6%              |
| Louisville (SDF)        | 1,640                                       | 68        | 87.6%              | 12,057                  | 3         | 53.5%              |
| Nashville (BNA)         | 5,708                                       | 35        | 304.8%             | 311                     | 71        | 1.4%               |

\*Preliminary data.

Source: U.S. Bureau of Transportation Statistics, Research and Innovative Technology Administration.

## The Economic Impact of Memphis International Airport

Like other public and private investments, one measure of a successful major airport is its contribution to the local economy as a result of its operation. Like many other major airports, MEM generates measurable, positive economic returns, including employment, earnings, economic output, and tax revenue. As will be shown, these benefits are widespread and considerable. The remainder of this report focuses on developing quantitative estimates of the economic impact of MEM.

. For this analysis, a combination of expert opinion, self-reported data from MEM, and secondary data where available were utilized. Using the IMPLAN<sup>®</sup> (Impact Analysis for PLANning) model and data for similar industrial categories, total economic contributions from MEM were calculated.

The IMPLAN<sup>®</sup> methodology was used to provide estimates of the economic effects on the community of MEM-introduced economic changes. These changes included such factors as normal MEM operations, construction of new facilities at MEM, expansion of existing services, or the introduction of new services.

IMPLAN<sup>®7</sup> was developed by MIG, Inc., in cooperation with the USDA Forest Service, the Federal Emergency Management Agency, and the U.S. Bureau of Land Management. Its data and accounts closely follow the accounting conventions used in the *Input-Output Study of the U.S. Economy* by the Bureau of Economic Analysis. The IMPLAN<sup>®</sup> model is used by a variety of public and private entities including, but not limited to:

- U.S. Army Corps of Engineers
- Booz, Allen, Hamilton, Inc.
- Ernst & Young
- Bureau of Economic Analysis
- Bureau of Land Management
- Economic Research Services
- Environmental Protection Agency
- Fish & Wildlife Service

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<sup>7</sup> For more information on IMPLAN<sup>®</sup>, see <http://implan.com>.

Specifically, the IMPLAN<sup>®</sup> methodology provides estimates of changes in output (the dollar value of changes in the production of goods and services), earnings, and employment brought about because of an economic change in the industry being considered. The methodology examines the link between the industry in question and other local industries, in addition to the impact on local households.

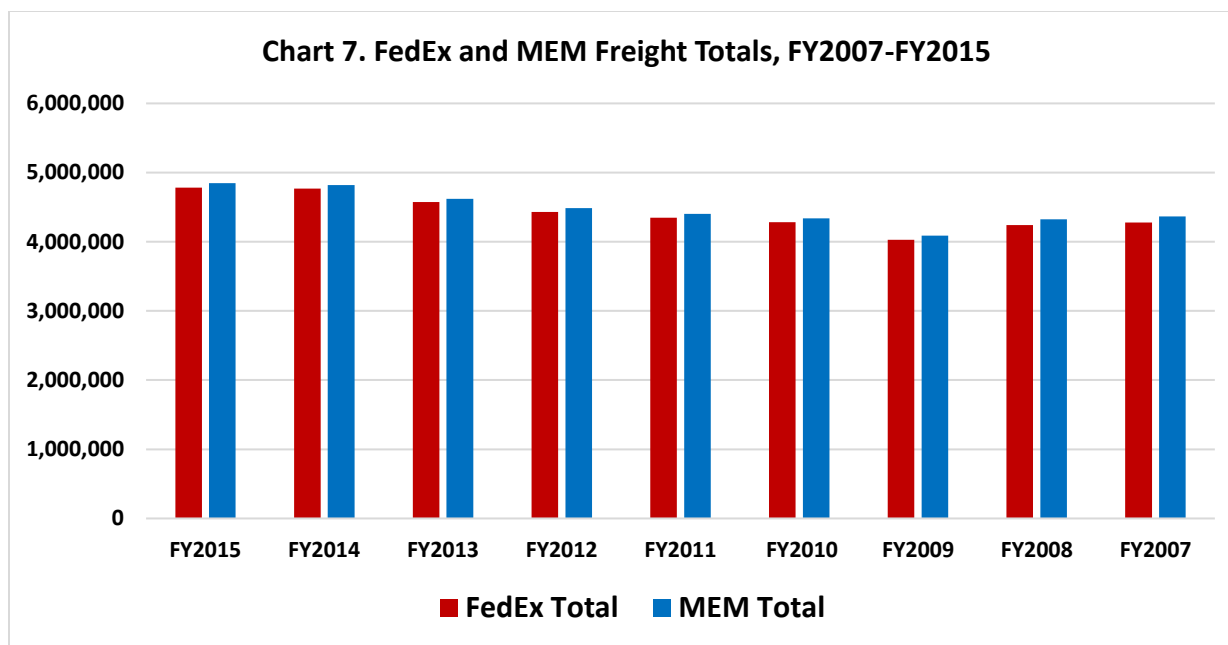
## The Impact of Air Cargo

For more than two decades, MEM has ranked either 1<sup>st</sup> or 2<sup>nd</sup> in terms of total cargo handled globally and ranked a very close 2<sup>nd</sup> to Hong Kong in calendar year 2015 (Table 5). As shown in Chart 7, most of the cargo volume at MEM is due primarily to the operation of FedEx Super Hub which handled an average of 98.6 percent of all cargo at MEM during FY2007-FY2015.

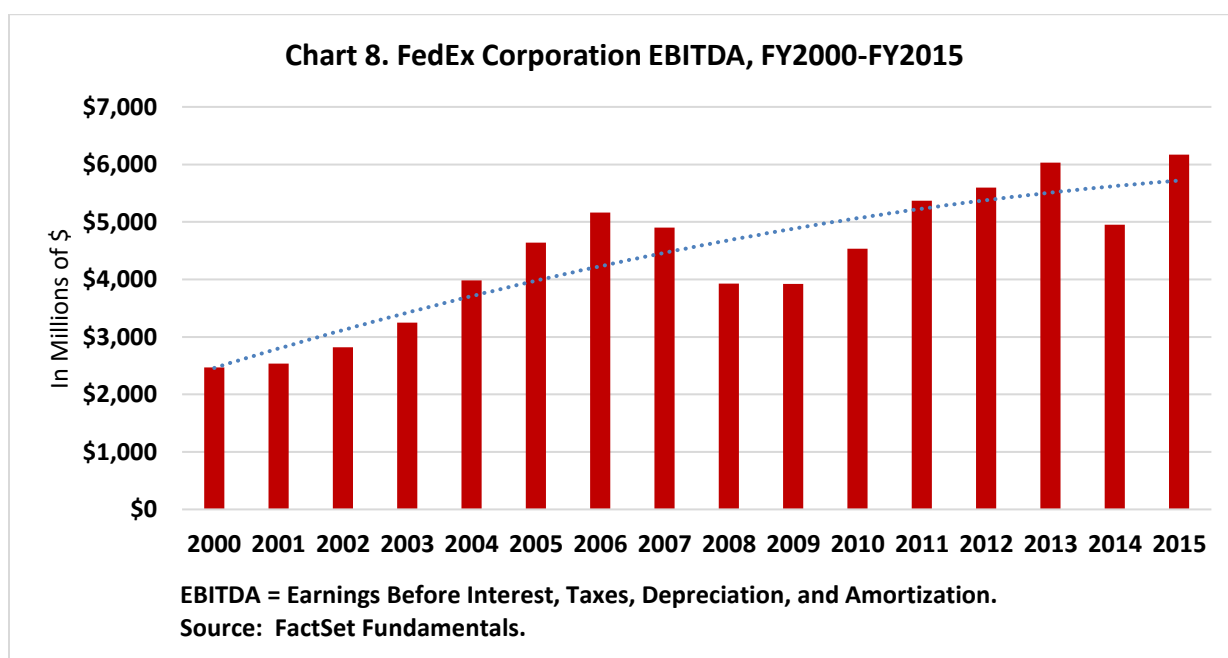
**Table 5. Top Ten Total Cargo Airports, 2014 and 2015**

| Rank 2015 | Rank 2014 | City               | Code | Total Cargo | 2015/2014 % Change |
|-----------|-----------|--------------------|------|-------------|--------------------|
| 1         | 1         | Hong Kong, China   | HKG  | 4,460,065   | 0.4%               |
| 2         | 2         | Memphis, TN        | MEM  | 4,290,065   | 0.8%               |
| 3         | 3         | Shanghai, China    | PVG  | 3,275,231   | 2.9%               |
| 4         | 5         | Anchorage, AK      | ANC  | 2,630,701   | 5.5%               |
| 5         | 5         | Incheon, Korea     | ICN  | 2,595,678   | 1.5%               |
| 6         | 6         | Dubai, UAE         | DXB  | 2,506,092   | 3.4%               |
| 7         | 7         | Louisville, KY     | SDF  | 2,350,656   | 2.5%               |
| 8         | 8         | Tokyo, Japan       | NRT  | 2,122,314   | -0.6%              |
| 9         | 11        | Paris, France      | CDG  | 2,090,795   | 0.2%               |
| 10        | 9         | Frankfurt, Germany | FRA  | 2,076,734   | -2.6%              |

Source: Airports Council International at [www.aci.aero/Data-Centre](http://www.aci.aero/Data-Centre). Data in metric tons.



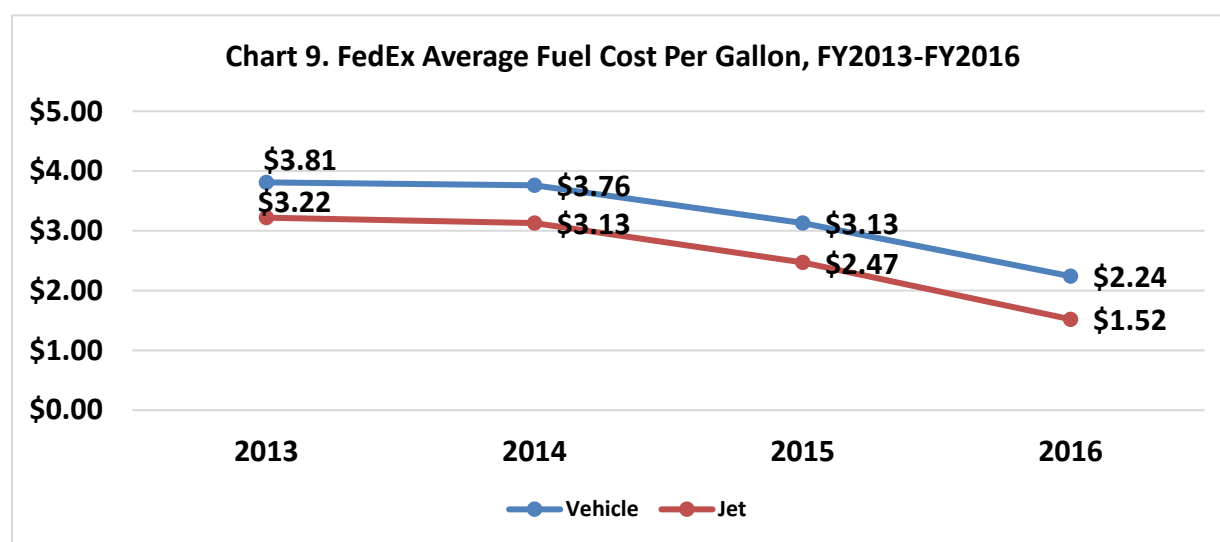
[Air Cargo, MEM and FDX Effects.](#) Because FedEx (FDX) accounts for a lion's share of MEM's economic impact, anything that substantially impacts FedEx also impacts MEM. The recent Great Recession is an example of this. As shown in Chart 8, FDX earnings before interest, taxes, depreciation, and amortization (EBITDA) reflect global and national economic circumstances.





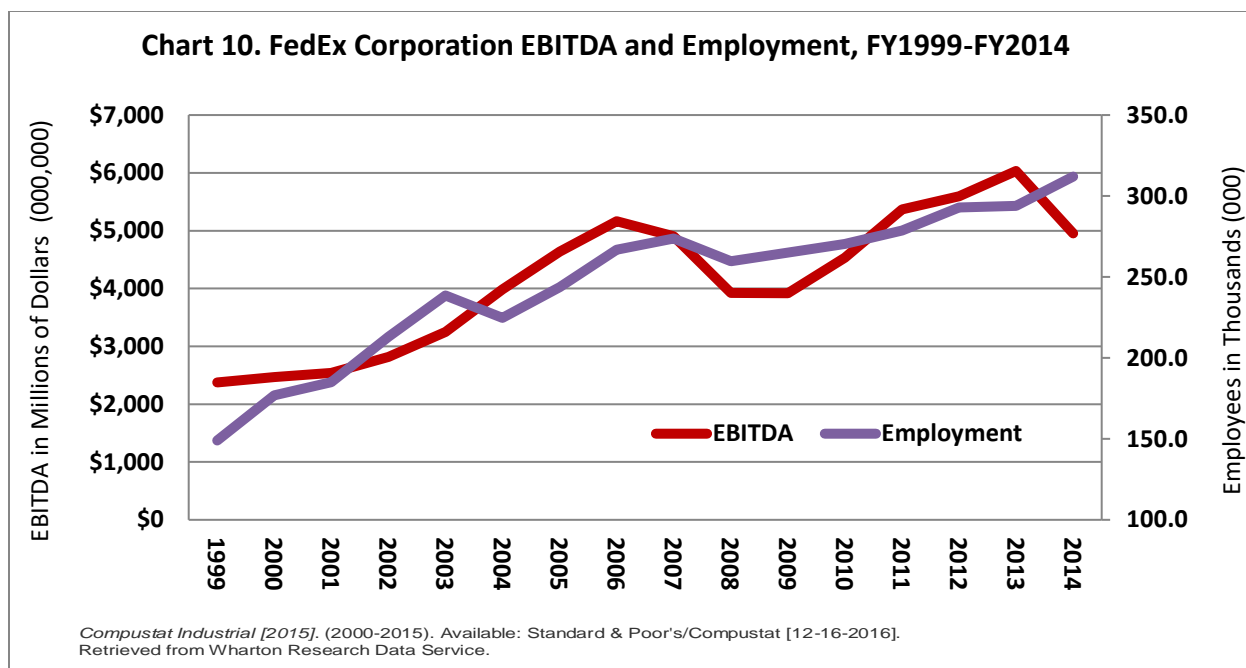
The housing bubble began to burst in 2006, the same year as an FDX peak in EBITDA. Similarly, FDX's EBITDA bottomed out during the Great Recession in its 2009 fiscal year, followed by recovery and growth in subsequent years. Growth in EBITDA in part reflects efficiency measures implemented by FDX, such as replacing older aircraft with newer, more efficient equipment. According to FDX, "every aircraft we replace with a new Boeing 767-300 Freighter adds millions of dollars annually to profits because the new planes use 30 percent less fuel, are more reliable and require less maintenance expense than the older planes they replace."

Declining fuel costs have also helped the FedEx bottom line. As shown in Chart 9, FedEx vehicle fuel costs fell 41.2 percent between FY2013 and FY2016, while jet fuel costs fell 52.8 percent during the same period. Declining fuel costs are generally related to falling fuel costs globally during the same time frame. Accordingly, falling fuel costs add to FedEx's profitability, thereby serving to strengthen its (and MEM's) contributions to the local economy.



Source: FedEx Annual Report 2016.

Chart 10 shows a strong relation between FDX's EBITDA and employment. From FY1999 through FY2014, FDX total employment grew from 149,000 to 312,000, or 109.4 percent. Because FDX generates most of MEM's economic impact, FDX's performance during this period should also be reflective of MEM's performance. Because FDX's performance has been growing, so too should have MEM's performance.



A proxy for both FDX's and MEM's performance is cargo enplaned. EBITDA is a better measure of FDX's performance because it includes national and global operations in addition to MEM-based operations. But, cargo enplaned at MEM is specific to MEM. As shown in Chart 11, total cargo enplaned at MEM increased 8.0 percent between FY2012 and FY2015. Data in MEM's FY2015 Consolidated Annual Financial Report show that FDX was responsible for 98.7 percent of total cargo enplaned at MEM. Thus, inflation adjustments, cargo growth adjustments, and IMPLAN modeling were used to measure growth in MEM's cargo economic impact.

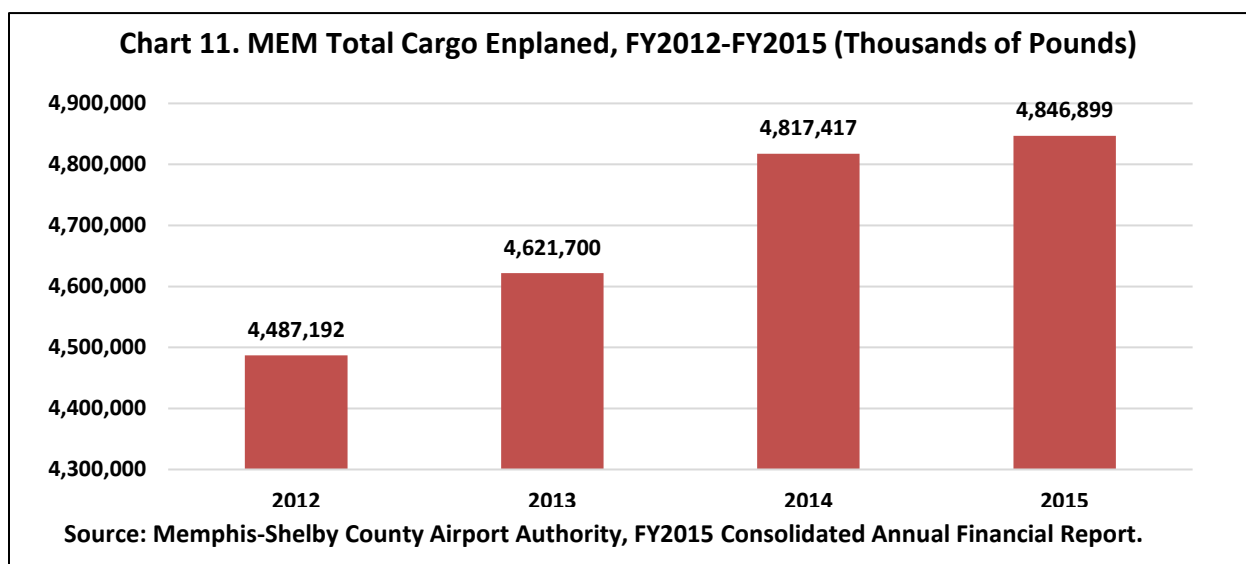


Table 6 shows estimates of the economic impact of cargo operations at MEM. As shown, MEM air cargo had an impact on output in the Memphis MSA (the production and sales of goods and services) of \$18.8 billion, value added of \$8.0 billion, and earnings of \$4.7 billion, while supporting 82,049 jobs. It is also estimated that MEM operations in FY2015 directly and indirectly helped generate \$805.5 million in state and local taxes.

**Table 6. Multiplier Impacts of Air Freight Operations at Memphis International Airport, FY2015**

| Impact Type         | Employment      | Labor Income           | Value Added            | Output                  |
|---------------------|-----------------|------------------------|------------------------|-------------------------|
| Direct Effect       | 41,729.5        | \$2,848,894,556        | \$4,884,677,398        | \$12,606,331,292        |
| Indirect Effect     | 19,028.2        | \$871,328,014          | \$1,457,858,804        | \$3,543,816,748         |
| Induced Effect      | 21,291.7        | \$988,108,601          | \$1,671,314,157        | \$2,677,484,779         |
| <b>Total Effect</b> | <b>82,049.4</b> | <b>\$4,708,331,170</b> | <b>\$8,013,850,359</b> | <b>\$18,827,632,818</b> |

The economic impact of MEM extends throughout the local economy. The top ten industrial sectors directly and indirectly affected by MEM are shown in Table 7 and indicate what the local economy would lose if MEM suddenly ceased to exist. The economic impact on each sector occurs not only due to direct spending, but also due to MEM and its tenants buying supplies and services from local vendors and from MEM employees and tenants spending their earnings generated from air cargo operations.

**Table 7. Top Ten Industries Affected by MEM Freight Operations, Ranked by Employment, FY2015**

| Industry  | Employment | Labor Income    | Value Added     | Output           |
|---|------------|-----------------|-----------------|------------------|
| Transport by air  | 41,805.60  | \$2,854,091,984 | \$4,893,588,841 | \$12,629,329,862 |
| Food services and drinking places   | 8,875.90   | \$217,599,558   | \$293,469,889   | \$546,150,150    |
| Real estate establishments  | 2,579.30   | \$47,416,472    | \$276,855,319   | \$361,577,857    |
| Scenic and sightseeing transportation and support activities for transportation | 2,193.00   | \$43,501,503    | \$45,178,118    | \$156,844,651    |
| Wholesale trade businesses  | 1,427.10   | \$117,512,194   | \$208,321,501   | \$300,335,293    |
| Private hospitals   | 1,341.60   | \$103,180,776   | \$112,068,868   | \$201,164,775    |
| Employment services   | 1,241.60   | \$32,341,616    | \$35,396,083    | \$44,874,432     |
| Offices of physicians, dentists, and other health practitioners                 | 1,120.50   | \$111,121,915   | \$112,584,246   | \$166,427,147    |
| Nursing and residential care facilities   | 785.10     | \$27,400,268    | \$31,222,827    | \$48,223,370     |
| Commercial and industrial machinery and equipment rental and leasing            | 773.50     | \$77,018,298    | \$116,496,341   | \$218,290,363    |

**The Impact of Passenger Operations.** As mentioned previously, passenger operations declined considerably after the loss of the Delta hub. However, there are signs of recovery in MEM's passenger volume, with strong year-to-date (calendar) growth at 8.4 percent as of August 2016.

As with the previously mentioned cargo operations, it was necessary to estimate a dollar value of MEM passenger operations. Combining data from the U.S. Bureau of Transportation Statistics (T-100 Market and Segment data) and MEM's total revenue passenger miles (RevPaxMiles) for FY2015, an estimate of total passenger revenue/sales is presented in Table 8. Multiplying RevPaxMiles by the estimated \$0.143 revenue per passenger mile yields estimated MEM passenger revenue/sales of approximately \$144.8 million.

**Table 8. Estimated MEM Passenger Revenue/Sales, FY2015**

| Fiscal Year | MEM RevPaxMiles<br>(000) | Rev Per PaxMile | Estimated MEM Passenger<br>Revenue/Sales |
|-------------|--------------------------|-----------------|--|
| 2015        | 1,012,274                | \$0.143         | \$144,755,182                            |

Source: Data for RevPaxMiles is from U.S. Department Of Transportation Form 41 via U.S. Bureau of Transportation Statistics, Schedule T2 & P12.

Estimated MEM passenger revenue from Table 8 was used in the IMPLAN economic impact modeling process to generate the estimated passenger economic impact presented in Table 9. Thus, in FY2015, total passenger revenue is estimated to have resulted in \$216.2 million in output (the production of goods and services), labor income of \$54.1 million, 942 full- and part-time jobs, \$92.0 million in value added, and \$12.3 million in state and local taxes.

**Table 9. Summary of Impact of Passenger Operations at Memphis International Airport, FY2015**

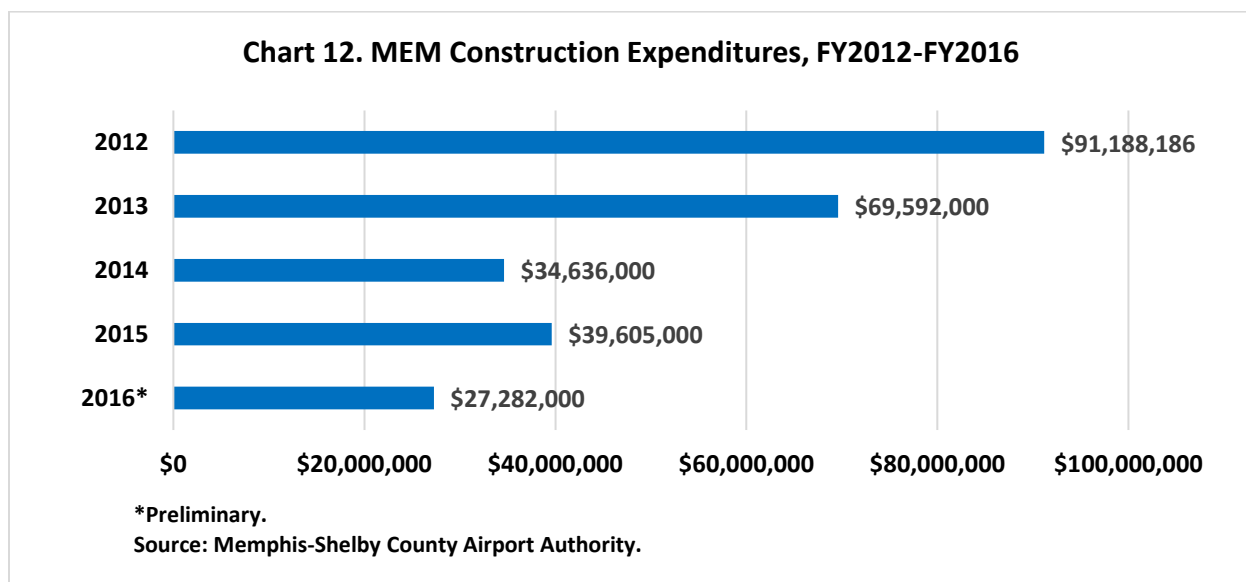
| Impact Type         | Employment   | Labor<br>Income     | Value Added         | Output               |
|---------------------|--------------|---------------------|---------------------|----------------------|
| Direct Effect       | 479.2        | \$32,713,105        | \$56,089,462        | \$144,755,182        |
| Indirect Effect     | 218.5        | \$10,005,230        | \$16,740,208        | \$40,692,713         |
| Induced Effect      | 244.5        | \$11,346,190        | \$19,191,260        | \$30,744,851         |
| <b>Total Effect</b> | <b>942.2</b> | <b>\$54,064,525</b> | <b>\$92,020,930</b> | <b>\$216,192,746</b> |

As was the case with MEM's air cargo operations, the economic impact of passenger operations at MEM extends throughout the local economy. The top ten industrial sectors directly and indirectly affected by passenger operations at MEM are shown in Table 10 and indicate what the local economy would lose if MEM suddenly ceased to exist. The economic impact on each sector occurs not only due to direct passenger spending, but also due to MEM's air carriers and other airport tenants buying supplies and services from local vendors and from MEM employees and tenants spending their earnings generated from passenger operations.

**Table 10. Top Ten Industries Affected by MEM Passenger Operations, by Employment, FY2015**

| <b>Industry</b>   | <b>Employment</b> | <b>Labor Income</b> | <b>Value Added</b> | <b>Output</b> |
|---|-------------------|---------------------|--------------------|---------------|
| Transport by air  | 480.0             | \$32,772,785        | \$56,191,790       | \$145,019,263 |
| Food services and drinking places   | 101.9             | \$2,498,638         | \$3,369,837        | \$6,271,298   |
| Real estate establishments  | 29.6              | \$544,471           | \$3,179,057        | \$4,151,903   |
| Scenic and sightseeing transportation and support activities for transportation | 25.2              | \$499,516           | \$518,768          | \$1,801,006   |
| Wholesale trade businesses  | 16.4              | \$1,349,362         | \$2,392,101        | \$3,448,671   |
| Private hospitals   | 15.4              | \$1,184,798         | \$1,286,857        | \$2,309,922   |
| Employment services   | 14.3              | \$371,370           | \$406,444          | \$515,281     |
| Offices of physicians, dentists, and other health practitioners                 | 12.9              | \$1,275,984         | \$1,292,775        | \$1,911,039   |
| Nursing and residential care facilities   | 9.0               | \$314,630           | \$358,523          | \$553,736     |
| Commercial and industrial machinery and equipment rental and leasing            | 8.9               | \$884,381           | \$1,337,697        | \$2,506,571   |

**The Impact of Construction at MEM.** Memphis International Airport is almost always undergoing improvements or expansions that bring about another large impact via construction expenditures. Whether funding for capital improvements comes from federal and state grants or is self-funded via landing fees, these expenditures would occur somewhere else in the absence of MEM—taking the economic benefit with them. Chart 12 shows that construction expenditures made by MEM over the past five fiscal years (FY2012–FY2016) have totaled over \$262.3 million. Projects have included everything from taxiway improvements to passenger facility improvements and changes.



In FY2015, construction expenditures at MEM totaled approximately \$39.6 million (Table 11). Through the economic multiplier process, these expenditures are estimated to have resulted in approximately 207 full- and part-time jobs, \$11.9 million in labor income, and \$52.2 million in output (the total value of goods and services produced because of construction expenditures at MEM). In addition, as shown in Table 12, the impact is spread across the Memphis economy.

**Table 11. Summary of Impacts of Construction at Memphis International Airport, FY2015**

| Impact Type         | Employment   | Labor Income        | Value Added         | Output              |
|---------------------|--------------|---------------------|---------------------|---------------------|
| Direct Effect       | 116.8        | \$7,195,511         | \$32,214,914        | \$39,605,000        |
| Indirect Effect     | 37.3         | \$2,241,969         | \$3,220,161         | \$5,974,106         |
| Induced Effect      | 53.1         | \$2,460,038         | \$4,157,553         | \$6,662,208         |
| <b>Total Effect</b> | <b>207.2</b> | <b>\$11,897,518</b> | <b>\$39,592,628</b> | <b>\$52,241,314</b> |

**Table 12. Top Ten Industries Affected by Construction at MEM, Ranked by Employment, FY2015**

| Industry  | Employment | Labor Income | Value Added  | Output       |
|---|------------|--------------|--------------|--------------|
| Construction of other new non-residential structures            | 116.8      | \$7,195,511  | \$32,214,914 | \$39,605,000 |
| Architectural, engineering, and related services                | 8.0        | \$607,293    | \$611,530    | \$1,000,562  |
| Food services and drinking places                               | 7.3        | \$179,474    | \$242,051    | \$450,459    |
| Employment services   | 4.7        | \$123,289    | \$134,933    | \$171,065    |
| Real estate establishments                                      | 4.1        | \$76,103     | \$444,348    | \$580,327    |
| Wholesale trade businesses                                      | 4.0        | \$330,389    | \$585,702    | \$844,401    |
| Private hospitals   | 3.3        | \$255,278    | \$277,268    | \$497,699    |
| Offices of physicians, dentists, and other health practitioners | 2.8        | \$274,925    | \$278,543    | \$411,754    |
| Retail Stores - General merchandise                             | 2.4        | \$71,155     | \$104,158    | \$141,075    |
| Retail Stores - Food and beverage                               | 2.1        | \$75,217     | \$95,536     | \$134,199    |

**Total Impact of Memphis International Airport.** Table 13 shows that the combined impact MEM had on total output in the Memphis MSA (the production and sales of goods and services) was almost \$19.1 billion, value added was \$8.1 billion, and earnings was \$4.8 billion, while supporting 83,199 jobs. It is also estimated that MEM operations in FY2015 directly and indirectly helped generate approximately \$820.9 million in state and local taxes.<sup>8</sup>

**Table 13. Total Impact of Memphis International Airport, FY2015**

| Category                  | Employment      | Labor Income           | Value Added            | Output                  |
|---------------------------|-----------------|------------------------|------------------------|-------------------------|
| Cargo Operations          | 82,049.4        | \$4,708,331,170        | \$8,013,850,359        | \$18,827,632,818        |
| Passenger Operations      | 942.2           | \$54,064,525           | \$92,020,930           | \$216,192,746           |
| Construction Expenditures | 207.2           | \$11,897,518           | \$39,592,628           | \$52,241,314            |
| <b>Total</b>              | <b>83,198.8</b> | <b>\$4,774,293,213</b> | <b>\$8,145,463,917</b> | <b>\$19,096,066,878</b> |

Table 14 presents a list of the top 10 industries affected by MEM and shows that the economic effects are spread across a broad spectrum of the local economy. While air transport is the largest beneficiary (largely due to the FedEx Hub), benefits resulting from MEM operations are spread across the Memphis economy.

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<sup>8</sup> The results from the prior FY2012 impact are not included in this study as they are not directly comparable. Changes in methodologies (IMPLAN for FY2015 vs. RIMS II for FY2012), changes in technology, and the passage of time have rendered an apples to oranges comparison.

**Table 14. Top Ten Industries Affected by MEM, All Operations, Ranked by Employment, FY2015**

| Industry  | Employment | Labor Income    | Value Added     | Output           |
|---|------------|-----------------|-----------------|------------------|
| Transport by air  | 42,285.6   | \$2,886,864,769 | \$4,949,780,631 | \$12,774,349,125 |
| Food services and drinking places   | 8,985.1    | \$220,281,398   | \$297,086,804   | \$552,882,484    |
| Real estate establishments  | 2,613.0    | \$48,038,626    | \$280,487,954   | \$366,326,171    |
| Scenic and sightseeing transportation and support activities for transportation | 2,218.2    | \$44,001,019    | \$45,696,886    | \$158,645,657    |
| Wholesale trade businesses  | 1,447.5    | \$119,198,807   | \$211,311,469   | \$304,634,879    |
| Private hospitals   | 1,360.3    | \$104,626,155   | \$113,638,752   | \$203,988,339    |
| Employment services   | 1,260.6    | \$32,838,836    | \$35,940,262    | \$45,564,840     |
| Offices of physicians, dentists, and other health practitioners                 | 1,136.2    | \$112,678,534   | \$114,161,349   | \$168,762,490    |
| Nursing and residential care facilities   | 794.1      | \$27,714,898    | \$31,581,350    | \$48,777,106     |
| Commercial and industrial machinery and equipment rental and leasing            | 782.4      | \$77,902,679    | \$117,834,038   | \$220,796,934    |



## The Economic Impact of Tourism and Business Visitors from Memphis International Airport

Regarding the role of MEM and tourism/visitor impacts on the Memphis economy, the Sparks Bureau of Business & Economic Research (SBBER) at the University of Memphis wrote in the FY2012 version of this economic impact study:

While the Airport in and of itself is not necessarily a tourist destination or a reason to come to the Memphis area, MEM does provide a way to get to Memphis. Without this connection, many of the area's would-be tourists and business visitors might not come to the area, especially international tourists and visitors from more than a day's drive away. To this extent, MEM can claim to have an impact on bringing tourists and their revenue influx to the Memphis area. Again, while it is local businesses and the area's tourist attractions, such as Graceland, Beale Street, and Tunica, that spark interest in coming to Memphis, MEM provides a way for a substantial number of visitors to get to the area.

The ideas set forth by the SBBER still hold true. Without the passenger service provided by MEM, many potential visitors would simply choose not to come to the Memphis area. Conversely, increasing passenger volume will increase tourism and visitor expenditures.

Data from the Airline Origin and Destination Survey (the DB1B database from the Office of Airline Information of the Bureau of Transportation Statistics) indicate that approximately 46.3 percent of passengers to MEM in FY2015 were destination passengers—that is, they came explicitly to Memphis. Accordingly, of the 1,769,000 O&D passengers to/from MEM in 2015, 819,047 were destination passengers. In Table 15, this figure is combined with data on visitor spending from the Memphis Convention and Visitors Bureau (CVB). Thus, it is estimated that visitors who came to the Memphis area via MEM in 2015 spent nearly \$751.9 million.

**Table 15. Total Spending by Visitors via MEM, FY2015**

| Category                          | Daily Average Per Guest | Total for 819,047 Visitors, 2.7 Days Each |
|-----------------------------------|-------------------------|---|
| Food Services and Drinking Places | \$105                   | \$233,084,395                             |
| Hotels, Motels, and Other Lodging | \$59                    | \$130,828,015                             |
| Transportation                    | \$103                   | \$228,573,084                             |
| Shopping                          | \$36                    | \$78,947,940                              |
| Entertainment and Recreation      | \$36                    | \$80,451,711                              |
| <b>Total</b>                      | <b>\$340</b>            | <b>\$751,885,146</b>                      |

Source: Distribution is an average for all visitors to Tennessee from *Tennessee Vacation 2013*, page 12 (see [www.tnvacation.com](http://www.tnvacation.com)). Total daily average per guest and days stayed are from Memphis Convention and Visitors Bureau (CVB) Economic Impact Study (July 2016). Note that other estimates of visitor spending are higher than the CVB's. For instance, the U.S. Travel Association's 2015 estimate of per person daily spending is \$382.82.

As shown in Table 16, it is estimated that visitors to the Memphis area in FY2015 who came via MEM had a total impact of \$982.7 million on output (the production and sale of goods and services), \$393.2 million on labor income, \$588.4 million on value added, and supported nearly 11,100 jobs. The economic impact of MEM visitor spending also generated an estimated \$63.5 million in state and local taxes.

**Table 16. Summary of Economic Impacts of MEM Visitor Spending, FY2015**

| Impact Type         | Employment      | Labor Income         | Value Added          | Output               |
|---------------------|-----------------|----------------------|----------------------|----------------------|
| Direct Effect       | 8,117.2         | \$251,760,889        | \$350,220,996        | \$593,126,108        |
| Indirect Effect     | 1,215.8         | \$59,851,220         | \$100,189,145        | \$168,427,672        |
| Induced Effect      | 1,759.6         | \$81,628,677         | \$138,031,855        | \$221,150,926        |
| <b>Total Effect</b> | <b>11,092.5</b> | <b>\$393,240,786</b> | <b>\$588,441,995</b> | <b>\$982,704,706</b> |

The top ten industries affected by MEM visitor spending are presented in Table 17. As expected, eating and drinking establishments, hotels, transit and ground transportation, and typical tourism sites received the greatest impact from MEM visitors. The remainder of the impact was spread across a full spectrum of the Memphis area economy. Bottom line: increasing passenger volume at MEM benefits the entire Memphis economy.

**Table 17. Top Ten Industries Affected by MEM Visitor Spending, Ranked by Employment, FY2015**

| Industry                                    | Employment | Labor Income  | Value Added   | Output        |
|---|------------|---------------|---------------|---------------|
| Food services and drinking places           | 4,079.3    | \$100,006,757 | \$134,876,065 | \$251,005,591 |
| Transit and ground passenger transportation | 2,169.2    | \$76,714,845  | \$68,318,539  | \$115,066,204 |
| Hotels and motels, including casino hotels  | 1,052.0    | \$41,842,467  | \$85,076,441  | \$131,458,028 |
| Museums, historical sites, zoos, and parks  | 588.8      | \$23,976,877  | \$47,857,936  | \$80,834,090  |
| Retail stores - General merchandise         | 430.0      | \$12,931,818  | \$18,929,867  | \$25,639,275  |
| Real estate establishments                  | 246.1      | \$4,523,338   | \$26,410,868  | \$34,493,053  |
| Retail stores - Gasoline stations           | 195.4      | \$6,879,635   | \$9,682,451   | \$14,067,829  |
| Employment services                         | 182.0      | \$4,741,857   | \$5,189,696   | \$6,579,391   |
| Services to buildings and dwellings         | 114.0      | \$3,540,426   | \$4,189,779   | \$7,285,057   |
| Private hospitals                           | 110.6      | \$8,507,056   | \$9,239,863   | \$16,585,649  |

## **Surveys of Area Businesses and Airport Tenants**

Two online surveys (local businesses and airport tenants) were conducted for this study. The purpose of the 2016 surveys was to generate additional information about the airport and its role in serving the local business community and airport users.

In prior years, results from similar surveys pointed out how both airport users and airport tenants viewed MEM. Some of the 2012 survey findings included:

1. Over 70.0 percent of tenant and business respondents used MEM to transport customers and business associates, while almost 90.0 percent of businesses and 64.0 percent of tenants used MEM to transport company employees.
2. Both tenant and business respondents indicated that MEM was somewhat to very important in its impact on their level of business activity, with almost 70.0 percent of the tenants indicating that MEM was very important.
3. Fifty percent of the tenants and almost 58.0 percent of the area business respondents indicated that they felt the quality of passenger air service was low or very low at Memphis International.

The 2016 surveys were conducted of airport tenants (Tenant Survey) and members of the Economic Club of Memphis (Business Survey). Economic Club membership primarily consists of top business leaders within the Memphis MSA and was considered an ideal population for the Business Survey. The number of respondents to the Tenant Survey was 16 out of a possible 19, while the number of Business Survey respondents was 58 out of a population of 210. In prior business user surveys, the SBBER relied upon the assistance of the Memphis Area Chamber of Commerce. Detailed results of both surveys are included in the tables in the Appendix.

### **Business Survey Highlights**

1. Of the 58 survey respondents (a 25.0% response rate), a large majority (89.7%) used the airport (commercial or general aviation) for business purposes. All of the respondents used the commercial airline services, and nearly 20.0 percent used some form of air charter or company aircraft.
2. The most frequently cited domestic destinations were New York City, Atlanta, and Washington. Chicago and Los Angeles were also mentioned as frequently visited locations by the business respondents. The most frequently cited international travel was to Europe, especially the United Kingdom.

3. Thirty-nine percent of the respondents expected to increase their use of the airport, while over half (56.5%) expected no usage change.
4. Eighty-eight percent of the respondents indicated that the economic impact of the airport had an extremely important, very important, or moderately important effect on the overall level of business activity experienced by their company. The single-most important reason for the strong level of support was employee travel.
5. Approximately 60.0 percent of the respondents indicated the airport was only slightly important or not important at all for shipping products or receiving supplies.
6. Of the six questions in the survey about the future impact of the airport, by far the most widely supported aspect of the airport is the Aerotropolis. Over 88.0 percent of the respondents strongly agreed, agreed, or somewhat agreed that developing the Aerotropolis was important to the future of Memphis.
7. Over 68.0 percent of the respondents strongly agreed, agreed, or somewhat agreed that improved facilities at the airport were important to their business.
8. Slightly over half of the respondents strongly agreed, agreed, or somewhat agreed that growth at the airport would automatically cause their business to grow. By comparison, 36.3 percent of the respondents reported that growth in international flights would cause their business to grow.
9. Finally, 43.1 percent of the respondents reported that MEM services would impact their decisions to invest in their Memphis facilities. In addition, 34.1 percent of the respondents strongly agreed, agreed, or somewhat agreed that a growing airport would provide incentive for their company to move more activities to Memphis.

In general, the business survey responses were highly supportive of MEM. These results were consistent with previous survey results and indicate that although the airport is important to current operations (especially the movement of personnel), the future of Memphis is closely linked to improvements at MEM. The potential for the Aerotropolis is highly supported by the business respondents. While the Aerotropolis remains in pre-development phases, it is seen as an important determinant of the future of Memphis.

## **Tenant Survey Highlights**

1. Because of the small number of tenant respondents, only limited information could be developed from the survey results. The majority of respondents were either retail or food service providers. The basic information regarding length of time at the airport indicates that most of the tenants have been at the airport for over 10 years—a sign of a strong commitment to the airport and to providing air-related services.

2. While most tenant employees worked full-time annually, over 40.0 percent of the total workers were employed only part-time (half-time) for most of the year. The employment numbers primarily reflect the continuous nature of airport tenant operations and the general mix of both full- and part-time employees.
3. The tenants also reported using contract employees for some jobs—a seeming response to fluctuations in demand and the need for temporary workers.
4. The tenant respondents reported that the major factors at MEM that impacted their businesses were as follows: Most important—the cost of flights, the ease of enplanements, less passenger traffic, and the high cost of real estate and buildout costs. Next in importance—weather, gate locations, TSA security changes that cause passengers to miss their business locations, and the lack of incentives. Other important factors—flight destinations, TSA checkpoints, and the overall reduction in flights.

In summary, the tenants all have a vested interest in growing the airport, flights, and passenger traffic. Improving the flow of traffic past food and retail establishments should add to the viability of the tenants. Because of the investments required to be a tenant, most tenants have a long-term commitment to the airport. Improvements in airport operations will have a positive impact on the tenants.

## **APPENDIX**

## Economic Impact Notes and Terms

The economic impacts in this report were calculated using a well-established input/output model known as IMPLAN<sup>®</sup>.<sup>9</sup> IMPLAN<sup>®</sup> (IMpact Analysis for PLANning) was developed by MIG, Inc., in cooperation with the USDA Forest Service, the Federal Emergency Management Agency, and the U.S. Bureau of Land Management. Its data and accounts closely follow the accounting conventions used in the *Input-Output Study of the U.S. Economy* by the Bureau of Economic Analysis.

### Definitions

**Indirect and Induced Effects.** In the process of modeling the economic impact of expenditures with a business entity, input/output models measure four economic impacts, which are:

- Direct Effect
- Indirect Effect
- Induced Effect
- Total Effect

The **direct effect** measures the impact (e.g., change in employment or output) as a result of the initial expenditures. The **indirect effect** represents the impact (e.g., change in employment or output) caused by the iteration of industries purchasing from industries as a result of the initial expenditures—the subsequent purchases by the businesses that supply goods and services to the entity/industry being analyzed.

The **induced effect** represents the impact (e.g., change in employment or output) on all local industries caused by the expenditures of new household income generated by the direct and indirect effects of the initial expenditures. This money is recirculated through household spending patterns causing further local economic activity. The **total effect** is the sum of the direct, indirect, and induced effects.

**Output.** Output represents the value of the economic entity's total services or production.

**Employment.** Employment is the estimated number of jobs for each economic entity modeled and includes both full-time and part-time workers in its estimate of total jobs. Therefore, this estimate will be higher than the number of full-time equivalent employees (FTEs) associated with the economic activity of a business entity.

**Labor Income.** All forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income of the business entity in the region or county being modeled.

**Value Added.** Value added is a measure of the contribution to Gross Domestic Product made by an individual producer, industry, or sector and is approximately equal to the difference between an industry's or an establishment's total output and the cost of its intermediate inputs.

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<sup>8</sup> For more information on IMPLAN<sup>®</sup>, see <http://implan.com>.

## Business User Survey Results

| Q1: This business is:         |        |         |
|-------------------------------|--------|---------|
|                               | Number | Percent |
| Directly Involved in Aviation | 3      | 5.2%    |
| Not Involved in Aviation      | 55     | 94.8%   |
| Total N                       | 58     |         |

| Q2: Does your company use air travel (commercial or general aviation)? Check all that apply. |        |         |
|--|--------|---------|
|  | Number | Percent |
| Yes (Company)  | 52     | 89.7%   |
| Yes (Clientele)  | 13     | 22.4%   |
| No   | 4      | 6.9%    |
| Total N  | 58     |         |

| Q3: What type of air travel? Check all that apply. |        |         |
|--|--------|---------|
|  | Number | Percent |
| Commercial Airline                                 | 46     | 100.0%  |
| Air Charter  | 5      | 10.9%   |
| Company Aircraft                                   | 4      | 8.7%    |
| Total N  | 46     |         |



| <b>Q4: What are the most frequent destinations to and from Memphis International Airport?<br/>(Ranked by number of responses)</b> |                            |                               |                            |
|---|----------------------------|-------------------------------|----------------------------|
| <b>Domestic (N = 44)</b>  | <b>Number of Responses</b> | <b>International (N = 14)</b> | <b>Number of Responses</b> |
| New York City   | 15                         | United Kingdom                | 5                          |
| Atlanta   | 13                         | Europe                        | 4                          |
| Washington, DC  | 13                         | China                         | 2                          |
| Chicago   | 8                          | Canada                        | 2                          |
| Los Angeles   | 5                          | Mexico                        | 2                          |
| Dallas  | 3                          | Columbia                      | 1                          |
| Salt Lake City  | 3                          | Hong Kong                     | 1                          |
| Tampa   | 3                          |                               |                            |
| San Francisco   | 3                          |                               |                            |
| Charlotte   | 2                          |                               |                            |
| Houston   | 2                          |                               |                            |
| Knoxville   | 2                          |                               |                            |
| Nashville   | 2                          |                               |                            |
| Chattanooga   | 1                          |                               |                            |
| Cleveland   | 1                          |                               |                            |
| Jacksonville  | 1                          |                               |                            |
| Johnson City  | 1                          |                               |                            |
| Kansas City   | 1                          |                               |                            |
| Las Vegas   | 1                          |                               |                            |
| Lubbock   | 1                          |                               |                            |
| Minneapolis-St. Paul  | 1                          |                               |                            |
| New Orleans   | 1                          |                               |                            |
| Palm Beach  | 1                          |                               |                            |
| Raleigh-Durham  | 1                          |                               |                            |
| San Diego   | 1                          |                               |                            |
| Tulsa   | 1                          |                               |                            |

| <b>Q5: What is the projected future business-related use of Memphis International Airport?</b> |               |                |
|--|---------------|----------------|
|  | <b>Number</b> | <b>Percent</b> |
| Increase   | 18            | 39.1%          |
| Decrease   | 2             | 4.3%           |
| Remain the Same  | 26            | 56.5%          |
| Total N  | 46            |                |

**Q6: Please rate the economic impact of Memphis International Airport on you company in the following areas:**

|   | <u>Extremely Important</u> |         | <u>Very Important</u> |         | <u>Moderately Important</u> |         | <u>Slightly Important</u> |         | <u>Not Important at All</u> |         | Total N |
|---|----------------------------|---------|-----------------------|---------|-----------------------------|---------|---------------------------|---------|-----------------------------|---------|---------|
|   | Number                     | Percent | Number                | Percent | Number                      | Percent | Number                    | Percent | Number                      | Percent |         |
| Overall level of business activity        | 12                         | 27.3%   | 14                    | 31.8%   | 13                          | 29.5%   | 3                         | 6.8%    | 2                           | 4.5%    | 44      |
| Obtaining supplies for your company       | 3                          | 6.8%    | 4                     | 9.1%    | 11                          | 25.0%   | 8                         | 18.2%   | 18                          | 40.9%   | 44      |
| Selling your business' product or service | 5                          | 11.4%   | 10                    | 22.7%   | 7                           | 15.9%   | 10                        | 22.7%   | 12                          | 27.3%   | 44      |
| Employee travel                           | 15                         | 34.1%   | 19                    | 43.2%   | 4                           | 9.1%    | 4                         | 9.1%    | 2                           | 4.5%    | 44      |
| Shipping                                  | 4                          | 9.1%    | 5                     | 11.4%   | 6                           | 13.6%   | 11                        | 25.0%   | 18                          | 40.9%   | 44      |

**Q7: To what extent do you agree with the following statements about the future impact of Memphis International Airport?**

|   | <u>Strongly Agree</u> |         | <u>Agree</u> |         | <u>Somewhat Agree</u> |         | <u>Neither Agree Nor Disagree</u> |         | <u>Somewhat Disagree</u> |         | <u>Disagree</u> |         | <u>Strongly Disagree</u> |         | <b>Total N</b> |
|---|-----------------------|---------|--------------|---------|-----------------------|---------|-----------------------------------|---------|--------------------------|---------|-----------------|---------|--------------------------|---------|----------------|
|   | Number                | Percent | Number       | Percent | Number                | Percent | Number                            | Percent | Number                   | Percent | Number          | Percent | Number                   | Percent |                |
| Growth at Memphis International Airport would automatically cause your business to grow.  | 8                     | 18.2%   | 9            | 20.5%   | 5                     | 11.4%   | 16                                | 36.4%   | 4                        | 9.1%    | 2               | 4.5%    | 0                        | 0.0%    | 44             |
| Your company's future decisions to invest in your Memphis facilities will be partially based upon the services offered by Memphis International Airport | 6                     | 13.6%   | 3            | 6.8%    | 10                    | 22.7%   | 15                                | 34.1%   | 1                        | 2.3%    | 7               | 15.9%   | 2                        | 4.5%    | 44             |
| A growing airport facility could provide an incentive for your company to move more activities to Memphis   | 5                     | 11.4%   | 3            | 6.8%    | 7                     | 15.9%   | 19                                | 43.2%   | 1                        | 2.3%    | 6               | 13.6%   | 3                        | 6.8%    | 44             |

**Q7: To what extent do you agree with the following statements about the future impact of Memphis International Airport? (Continued)**

|   | <u>Strongly Agree</u> |         | <u>Agree</u> |         | <u>Somewhat Agree</u> |         | <u>Neither Agree Nor Disagree</u> |         | <u>Somewhat Disagree</u> |         | <u>Disagree</u> |         | <u>Strongly Disagree</u> |         | Total<br>N |
|---|-----------------------|---------|--------------|---------|-----------------------|---------|-----------------------------------|---------|--------------------------|---------|-----------------|---------|--------------------------|---------|------------|
|   | Number                | Percent | Number       | Percent | Number                | Percent | Number                            | Percent | Number                   | Percent | Number          | Percent | Number                   | Percent |            |
| Growth in international flights would cause your business to grow                   | 3                     | 6.8%    | 3            | 6.8%    | 10                    | 22.7%   | 14                                | 31.8%   | 3                        | 6.8%    | 8               | 18.2%   | 3                        | 6.8%    | 44         |
| Improved facilities at Memphis International Airport are important to your business | 10                    | 22.7%   | 9            | 20.5%   | 11                    | 25.0%   | 8                                 | 18.2%   | 2                        | 4.5%    | 3               | 6.8%    | 1                        | 2.3%    | 44         |
| Developing the Aerotropolis is important to the future of Memphis                   | 25                    | 56.8%   | 8            | 18.2%   | 6                     | 13.6%   | 3                                 | 6.8%    | 0                        | 0.0%    | 2               | 4.5%    | 0                        | 0.0%    | 44         |

## Airport Tenant Survey Results

| Q1: Type of Business  |        |         |
|---|--------|---------|
|   | Number | Percent |
| Air Carrier - Scheduled   | 2      | 12.5%   |
| Air Carrier - Charter/Air Taxi                                    | 2      | 12.5%   |
| Air Cargo - Courier   | 0      | 0.0%    |
| Airport Operations  | 0      | 0.0%    |
| Freight Forwarder/Customs Broker                                  | 0      | 0.0%    |
| Ground Transportation (taxi/limo/public transport/public parking) | 2      | 12.5%   |
| Food Service  | 4      | 25.0%   |
| Retail  | 6      | 37.5%   |
| Total N   | 16     |         |

| Q2: How long have you been a tenant at the airport? |        |         |
|---|--------|---------|
|   | Number | Percent |
| Less than 1 year                                    | 1      | 6.3%    |
| 1-5 years   | 2      | 12.5%   |
| 6-10 years  | 1      | 6.3%    |
| Greater than 10 years                               | 12     | 75.0%   |
| Total N   | 16     |         |

| Q3: Average Number of Payroll Employees |        |
|---|--------|
|   | Number |
| Full-time (N = 12)                      | 26     |
| Part-time (N = 14)                      | 19     |

| Q4: Average Number of Weeks Worked per Year |        |
|---|--------|
|   | Number |
| Full-time (N = 12)                          | 51.9   |
| Part-time (N = 11)                          | 44.8   |

**Q5: What are the 3 biggest impacts of Memphis International Airport on your business?**

Total N = 5

| 1st                                  | 2nd   | 3rd                                |
|--------------------------------------|---|------------------------------------|
| Cost of Flights                      | Weather Issues  | Flight Destinations                |
| Ease of Use for the Traveling Public | Partnerships  | n/a*                               |
| Enplanements                         | Gate locations  | TSA Checkpoints                    |
| Lower Passenger Traffic              | Changing of the TSA Security, Passengers Missing My Locations | Decrease in Flights Near My Stores |
| Higher Cost of Real Estate/Buildout  | No Incentives   | Waived PFC                         |

\*Not Answered.