















THE Economic Impact OF THE **Dante B. Fascell Port** of **Miami-Dade County**

Port of Miami

Economic Impact Study

May 10, 2006

Prepared for the Dante B. Fascel Port of Miami-Dade

Prepared by The Four Gates Company In association with Dr. Nicolas Rockler, Economist TYG Marketing, Inc. Out There Productions

Reviewed by Dr. Karen R. Polenske, Massachusetts Institute of Technology

Note: Portions of this study were completed by The Curtis & Kimball Company, which is no longer doing business

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Cambridge Massachusetts 02139 USA

Mr. Charles Towsley 02139 Director USA Port of Miami-Dade 1015 N. America Way, 2nd floor Miami, Florida 33132 RE: Port of Miami Economic Study

Dear Mr. Towsley:

I have reviewed carefully the *Port of Miami Economic Study*, as prepared by The Four Gates Company in association with Dr. Nicolas Rocker. I find the study to be very informative. Moreover, I believe it will be a valuable tool for understanding the role of the Port in the community, region, and state. As far as I can tell, the report appears to meet the objectives set forth in the Scope of Work by providing estimates of the economic impacts of the Port on the region, and it was conducted in accordance with accepted practice in this field.

The study's estimates are based on sound primary and secondary data, and their use within the REMI Model enhances the credibility of the results. I think that the estimates accurately reflect the economic importance of the Port of Miami to the region, which is shown to be substantial.

Thank you for the opportunity to review this work.

Sincerely yours,

R. Colembe

Karen R. Polenske Professor of Regional Political Economy and Planning

1 Overview



The Port of Miami's growth into an international shipping hub is intricately related to Miami-Dade County's evolution into a thriving, multi-cultural and world-renowned metropolis. Few regions can claim an economy as vital, diverse and robust.

The Port of Miami has become the world's most important cruise port and among the top container ports in the U.S., and an economic engine for the 2.3 million people who live in Miami-Dade County.

The Port handles more multi-day cruise ship passengers than any other port in the world. It also plays a growing role as a port-of-call as more North American passengers choose to cruise close to home. In 2005, Miami home-ported 15 cruise ships and carrying 3.6 million passengers.

The fifth largest container port on the Eastern Seaboard, the Port is also the largest container port in Florida. Each year since 2003, the volume of cargo moving through the Port has surpassed 1,000,000 TEUs, placing it among the most active container ports in the world.

While the Port of Miami remains the cornerstone of US trade with Latin America and the Caribbean, it has also continued to outpace many other US ports in a wider market area, experiencing record growth in the European and Asian trade.

The Port of Miami commissioned this Economic Impact Report to better understand its vital role as an economic force in the community, and to learn more about the off-island characteristics of passengers and goods.



"If Miami had the best technology systems in the world and the most literate bilingual people here, and it did not have the Port, the business wouldn't be there. Miami-Dade County has the infrastructure, the international reputation, and the experts – the lawyers, the bankers, logistics providers and insurance companies – to facilitate trade. Miami doesn't just speak the language of international trade; it has the culture which supports the business also." *John Abisch, Econocaribe*





"Miami is the gateway and hub for Latin America and the conduit for Europe and Asia trade. Our customers want to move closer to the market and there is no place like Miami for freight movement capacity."

Christian Finnern,

Schenker International



"We are positioned in all the key ports of the world and Miami is one of our most competitive locations: I have access to the market, information, and people who are connected." Corrine Baez, Hellmann Worldwide



"Without the Port, there would be no outof-season fresh fruit and vegetables. We need our connection to Central America." Michael Alvarez, Port of Miami Cold Storage This report quantifies the impacts of the Port on the County and the South Florida Region, in terms of job creation, personal income and economic output. For the first time, important aspects of the Port's impact are detailed, including:

- The types of jobs created by the Port, their location and associated wage rates
- The Port's impact on the South Florida Region and the State
- The types of cargo imported and destinations once it enters or departs the Miami-Dade County market
- Cruise passenger and crew spending and recreation habits while in Miami-Dade County
- Cruise passenger satisfaction with the Port of Miami and the greater Miami area

Findings

The Port of Miami is a huge economic generator for Miami-Dade County.

- The Port of Miami accounts for more than 24,000 direct jobs in Miami-Dade County and is responsible for almost 82,000 jobs (direct and Port-related) in the County.
- The Port of Miami generates \$4.4 billion in total personal income and \$12.2 billion in economic output in Miami-Dade County.

The Port is a regional facility that has a significant impact on *all* of South Florida and the State.

- Port-related job creation is critical to the entire South Florida region, creating over 98,000 total jobs in Miami-Dade, Broward and Palm Beach Counties.
- The Port generates \$5.4 billion in personal income in the Tri-County area and \$14.7 billion in output.
- The Port of Miami and the Miami International Airport have a synergistic and beneficial relationship. The Port and Airport are closely linked: the Port draws 6% of the airport's passengers through Miami to take cruises, and freight forwarding companies count on the synergies between air and waterborne freight to promote their location in Miami.
- Within the State of Florida, the Port creates over 102,000 jobs, \$5.6 billion in personal income, and \$15.4 in total output, making it one of the State's most important economic forces.





"The Port is a lifeline to our community; a lot of jobs are based here. Thank goodness for the Port." Lawrence Beck, Miami-Dade County Firefighter



"I love what I do. I love having a positive impact on the community. I've been working in the import and export business since I was 17 years old." Eduardo Molina, ILA



"People and businesses want to do business in Miami... culture is key. We move everything from auto parts to zebra skins. Miami is a hub for consolidation of imports and exports, and we serve a large local market." Christian Meister, Kuehne & Nagel

Port jobs are diverse.

- The impacts of the Port are broad-based and occur virtually throughout all local economic sectors. They are most highly concentrated in transportation (maritime, air and ground), retail and wholesale trade, and business services (most notably finance, accounting, insurance, and legal services.)
- The vast majority of directly created Port jobs, as well as Port-related jobs, occur off-island, in businesses that are located on the mainland of Miami-Dade County. Activities linked to the Port form the basis of a Port-related economic complex, the size of which is nearly five times larger than the water transportation services produced on-Port.
- Although Miami-Dade County is the largest employer in the County, public employment at the Port constitutes less than 3% of the total direct employment generated by the facility in the County. General Port administration and security, construction and ship repair activity account for less than 1% of the total Port-complex output, even when combined, making the Port highly cost effective relative to the size of output that it generates.

Port jobs are good jobs.

- Port jobs tend to be good jobs, outpacing those as a whole in Miami-Dade County. Individuals with jobs directly related to the Port have an average salary of \$34,370 vs. the county average of \$33,571. Jobs directly associated with the Port generate 16% more output than the county average.
- Median wages reported through surveys of Port-related businesses showed an even larger difference: median wages for Port jobs in Miami-Dade County are \$17.25, whereas median wages for county jobs as a whole are \$12.83.
- When compared to wages for service-sector jobs created by tourism (the other large economic generator in the county), Port jobs are significantly better: median wages for sales and related occupations are \$11.40; food preparation and serving, \$7.61; and personal care and services, \$8.87. Median Port-related wages are \$17.25.

The Port of Miami is well regarded.

- Both cruise ship passengers and crew consistently rated the Port of Miami as excellent to good in seven major categories.
- Most passengers (88%) hope to return to Miami again for another vacation after their cruise.
- Businesses associated with the Port report that they rely directly on the Port for the growth and prosperity of their companies.



2 Introduction



Over recent years the image of the greater-Miami area has evolved from a pastel-hued snapshot of South Beach into a complex, multi-faceted collage that reflects the community's modern, sophisticated and multi-cultural presence. The Dante B. Fascell Port of Miami-Dade is featured prominently in this collage, and it appears in every television show, movie and magazine article that seeks to convey a sense of South Florida. The Port's night-lit bridge, its modern and evocative cruise terminals, and sky-full of container cranes are integral to the visual definition of Miami.

Underlying this dynamic visual of the Port of Miami is a world-class business. The Port's architecturally distinctive cruise terminals support more multi-day cruise passengers than any other port in the world and 15 of the industry's newest and largest cruise ships dock at the Port berths each year. The Port moves more than 3.6 million passengers through its portals, and at the same time handles over 9 million tons of containerized cargo across its bulkheads. The Port of Miami is Florida's largest container port and also the nation's twelfth largest. Businesses operating at the Port include some of the most significant financial forces in the world, and the movement of people and goods at the Port vibrates along a vast economic and cultural network.

Yet, despite its international importance, the Port of Miami's economic impact is not well understood. Prior studies have focused exclusively on overall job creation and economic impact figures within Miami-Dade County, but have neglected to convey the Port in the larger context of its true influence.



The Port of Miami is surrounded by dense urban development including downtown Miami, South Beach, and Brickell Avenue.



Further, the nature of jobs generating from the Port is largely unknown, as is the general location of residences occupied by people holding these jobs. While previous reports document available passenger and cargo volumes moving through the Port, they do not reveal what happens to people and goods as they leave the Port and enter into the greater region. As a consequence, not much is known about the individuals or businesses associated with the Port.

This study details the economic impact of the Port through a combination of surveys, sophisticated analysis of data, modeling and interviews. This information will enable the



The Port of Miami functions as a part of an increasingly economically integrated region.

community to better understand the industries and employment sectors impacted by the Port and, more importantly, understand those individuals and businesses whose livelihood depends on healthy trade and passenger movements. The datum can also help the Port conduct its business better by providing information on the ways in which the Port engages in the larger economic fabric of the county, region and state.

Study Goals and Scope

The goal of the Port of Miami Economic Impact Study is to document the economic relationships between the Port and the surrounding community. This study assesses impact at three levels:

- Miami-Dade County
- The South Florida Region (Miami-Dade, Broward and Palm Beach Counties)
- Florida

Data Collection and Analysis

Existing data from a variety of sources are used in the study. Of particular relevance are data from PIERS, which are based on customs data and includes import and export information on the cargoes moving through the Port. Due to changes in Customs reporting laws, information on container contents is now available for the first time in the Port's history. The acquisition of these data, as well as the accompanying analysis, provides extensive information about cargo imports and exports, including destinations in and out of the United States.



Analysis of secondary data sources and survey results are used to prepare economic impact estimates for the Port of Miami using the REMI model, an economic model developed by Regional Economic Models, Inc. This model is a hybrid, combining the behavioral and temporal characteristics of a multi-regional econometric model with the structural relationships found in an input-output framework.

The REMI model brings impact timing to regional analysis, something common to national econometric models, but typically absent in regional input-output models and their derivatives. Use of the REMI model provides rich detail and sophistication to the economic picture of the Port. The REMI methodology is detailed in Appendix A.

This study combines the collection and analysis of existing up-to-date sources with extensive new survey data, including:

- Home-Port and Port-of-Call
 Passenger Surveys
- Cruise ship Crewmember Surveys
- Cruise line Surveys
- Surveys of Representative Businesses Related to the Port



Surveyors intercept cruise passengers at the Port of Miami.

Passenger Surveys

Many of these surveys are the first of their kind conducted for the Port in a decade or more, and provide insight into how the Port is perceived by the larger community within which it operates.

Over 1900 cruise passengers were surveyed for this study, during peak season, off-season, and the fall shoulder season.

Crewmember Surveys

Over 500 cruise ship crewmembers were also surveyed. These surveys targeted spending amounts and habits, as well as overall satisfaction with the Port and the surrounding community, particularly downtown Miami.

Cruise Line and Business Surveys

Selective interviews with businesses related to the Port are included in the study. Since all three major cruise lines operating out of the Port have headquarters or corporate offices in Miami, data were collected to understand the economic impact of the business side of cruise operations; this offers an important insight to passenger spending data.

A sampling of all businesses related to the Port was also conducted, to determine the locations of employee residences as well as compile wage data for occupations associated with the Port. These survey data complement existing sources of county and regional wage rates.



More about the Port

The Port of Miami is a 518-acre island located within the City of Miami in Miami-Dade County, Florida. The Port is a landlord port owned by Miami-Dade County and managed by the Miami-Dade Seaport Department under the leadership of the Port Director, who reports to the County Manager.



The Port of Miami and adjacent areas.

The Port operates as an enterprise fund of the County and as such is selfsupporting, funding its expenditures through its rates and charges; it receives no income from ad-valorem taxes levied by the County.

In FY 2004/2005, Port revenues exceeded \$85 million and net assets increased to over \$673 million. The Port is engaged in a major ongoing capital improvement program and expects to spend approximately \$317 million between 2006 and 2010.¹

Businesses

The Port has two main types of business: passenger services (including multi-day cruise home-port and cruise port-of-call passengers) and containerized cargo shipments. The Port also handles a small amount of break bulk cargo such as oversized equipment, lumber, metal coils and vehicles.

Passenger numbers at the Port have increased dramatically over the last



Cargo vessels unloading at the wharf.



decade, despite the development of more U.S. homeports. The Port of Miami handles more multi-day cruise passengers than any other port in the world. Since 2003, the Port has also served as a port-of-call for cruise passengers, and it appears that port calls may increase as cruise lines continue to seek diverse itineraries for repeat passengers. Port-of-call activities represent a new set of opportunities and challenges for the Port as it reshapes itself as a destination.

As a result of the Port's leadership in the passenger market, Carnival Cruise Lines, Norwegian Cruise Lines and Royal Caribbean Cruise Lines have located their corporate offices in Miami-Dade County. The substantial economic impact generated by the Port's cruise activities include passenger and crew expenditures, passenger transportation, cruise ship provisioning and cruise line operations.

Cargo tonnage growth at the Port of Miami has been extremely strong, averaging over 7% a year since 1990. In fiscal year 2004, the volume of cargo moving through the Port of Miami surpassed 1,000,000 TEUs for the second year, placing the Port among the highest volume container ports in the world. While the Port of Miami remains the cornerstone of US trade with Latin American and the Caribbean, it has also continued to hold its own with other US ports in world markets, experiencing record growth in the European and Asian trade. Economic impacts associated with cargo activities at the Port of Miami include transportation, freight forwarding, warehousing and insurance/financial sectors. These linkages serve to diversify the factors that drive the Port's base business, a valuable feature in light of the potential volatility of passenger's willingness to travel.

The Port's Context

Miami-Dade County has an estimated population of 2.372.418 and over the last decade has grown by over 292,000 people at a rate of between 1.3 and 2.2% a year.² Population growth between 1995 and 2000 resulted in the development of suburban (southern and western) portions of the county and a general stabilization or decline in population growth in the traditional urban core of the area (which includes downtown Miami and the Port).³ However, the last several years have seen a significant shift in growth back towards the historic urban core along the coastal areas, and over 72,000 multifamily units - 40,000 of which are directly downtown are planned for construction.4



Top: The Port of Miami viewed from the east towards downtown Miami. Bottom: The Port viewed from the west towards Miami Beach.



The revitalization of Miami's urban core is leading to the Port area's first major population increase since it became a significant economic force in the 1980s. However, while new residential and commercial construction rates are high, the majority of industrial development in the County continues to be located near the Miami International Airport, and thousands of acres of warehouses have been developed in this area over the last decade. Downtown Miami, Airport West, and Coral Gables have consistently remained the three major job centers in the County, and growth patterns show continued concentration of offices in these areas.⁵

Like most ports in the United States, the Port of Miami both enjoys the benefits of a workforce located near the jobs it creates as well as the challenges inherent in continued urban growth adjacent to a major transportation facility. This study hopes to better demonstrate the economic and land use ties that the Port has to the community.

Although physically situated within the densest area of Miami-Dade County, the Port functions as part of a much larger region which includes the two counties to the north: Broward and Palm Beach.

Known as South Florida, this region is the most populous in the state, containing nearly a third of Florida's residents.⁶ In recognition of South Florida's regional importance, the U.S. Office of Management and Budget created a new metropolitan statistical area (MSA), which includes Miami-Dade, Broward and Palm Beach Counties. With approximately 5.2 million residents, this Miami-Fort Lauderdale-Miami Beach MSA is one of the nation's most populous. Population growth is expected to remain steady in this Tri-County area, with projected estimates from 2000 - 2020 showing increases in Miami-Dade County at 28%, Broward County at 37% and Palm Beach County at 48%.

Each of the counties in the Tri-County area supports a port. Port Everglades in Broward County has a strong cruise and containerized cargo business, and also handles the region's supply of fuel oil. The Port of Palm Beach serves as a bulk port for domestic agricultural shipments as well as a feeder port to the Caribbean and single-day cruises. Over time, each facility has developed distinct businesses





Top: The Tropic Atlantic loads containers at the Port of Palm Beach; some of the goods in these containers likely originated from containers imported through Miami (bottom).

and complex interrelationships. For example, cargo arriving from the Port of Miami and Port Everglades is repackaged at the Tropical Shipping warehouses in Miami-Dade County, and then exported to the Caribbean in container ships leaving the Port of Palm Beach. While cargo shippers and cruise lines may move business between the Port of Miami and Port Everglades, these regional facilities also support the overall trade infrastructure in Miami-Dade County.



The culturally diverse population of Miami appears to be a major attractor in the area. Over 60% of foreign immigrants to the state settle in Miami-Dade County. Over the last decade, more Hispanic immigrants lived in the Miami-metro area than anywhere else in the United States, except Los Angeles and New York.⁸

Geographic location and cultural affinity with Latin American markets have contributed to the description of Miami as the *Gateway of the Americas*; 46% of all US trade with Central America flows through Miami, as does 30% of the Caribbean trade and 20% of trade with South America.⁹ Trade with Europe through the Port of Miami has also been exceptionally strong, indicating that the preference for Miami extends well beyond the Latin market. Although statistics for purchases of housing units by foreign investors are not available, anecdotal information from experts knowledgeable in the real estate industry indicate that sale of units as vacation homes and for business housing is common, especially in condominium units close to Miami Beach and downtown Miami.¹⁰

The banking, finance and cultural infrastructure that supports trade activities in Miami-Dade County is substantial; 61 foreign consulates, 25 international trade offices, 38 foreign bank agencies and 13 Edge Act banks are located in the area.¹¹ South of New York, Miami-Dade County has the largest concentration of domestic and international banks on the East Coast. Roughly 20% of Miami-Dade deposits tracked in 1997 were with foreign bank agencies, and Miami ranks second (again, behind New York) in international assets and deposits.¹²

Miami also supports one of the nation's most important international airports. Miami International Airport is the United States' top-ranked freight airport and has more flights to Latin America and the Caribbean than all other US airports combined.¹³ Although the relationship between the Port and Airport is not well understood, no doubt exists that the two facilities support one another in important ways. The Airport handles most of Miami's cruise passengers, acts as a gateway for international business travelers, and has freight synergies with Port trade. The availability of both significant air and water freight services in Miami appears very important to the selection of the area as a site to do business.

As a whole, Miami-Dade County has a diverse labor force consisting of over a million individuals supporting a population of 2.3 million. The retail sector has the highest relative employment base, with healthcare second and hospitality third (see Table 2-1).

With an economy highly dependent upon tourism, Miami-Dade County has primarily lower-paying jobs related to the service sector. Median earnings in the county are \$18,497, well below the US median of \$21,587.¹⁴ Housing costs continue to rise and provision of workforce housing remains one of the County's (and regions) biggest challenges¹⁵. As a result, diversification of the economy and a focus on industries paying higher salaries is a primary economic goal of the County. Existing information suggests that Port-related jobs may be among the higher paying jobs available to large numbers of residents in Miami-Dade County.



Table 2-1

Employment by Industry, Miami-Dade County

Industry	Current Share
Agriculture, forestry, fishing and hunting, and mining	0.7%
Construction	6.9%
Manufacturing	7.1%
Wholesale trade	6.0%
Retail Trade	12.3%
Transportation, Warehousing and Utilities	7.5%
Information	3.1%
Finance, Insurance, Real Estate, and Rental and Leasing	8.0%
Professional, Scientific, Management, Administrative, and Waste Management Services	11.6%
Educational, Health and Social Services	18.0%
Arts, entertainment, recreation, accommodation and food services	9.1%
Other services (except public administration)	5.6%
Public administration	4.1%

Source: US Census Bureau, 2000 Census

Driving the Economy

While the Port of Miami is physically an island, its economic connections spread throughout Miami-Dade County and the South Florida region. The following sections of this study explore those connections and the value they bring to the community:

Section 3, Impact Assessment describes the direct, indirect and induced economic impacts of the Port of Miami on the County and region. It also discusses employment, occupations and wages related to Port jobs.

Section 4, Cruise Characteristics outlines the findings of the cruise surveys and interviews and includes discussions on the industry's economic impact, as well as qualitative data on how the Port and surrounding area is perceived.

Section 5, Cargo Characteristics discusses the cargo components of the Port's economic impacts and includes new information on types of imports and exports, as well as destination of cargo once it leaves the Port and enters the region.

Section 6, Report Findings summarizes the key findings of this study.

An **Executive Summary**, which synthesizes the highlights of the report, is provided as the first section of the report.





¹ Miami Dade County Seaport Department, 2004. Comprehensive Annual Financial Report for Fiscal Year ended September 30, 2004.

² Miami-Dade County Department of Planning and Zoning, 2005. Miami-Dade County Facts.

³ Miami-Dade County Department of Planning and Zoning, 2003, Evaluation and Appraisal Report, p.4.

⁴ Yeleny Suarez, April 14, 2005. Residential Development in Miami Continues to Grow. Miami Today.

⁵ Miami-Dade County Department of Planning and Zoning, 2003, Evaluation and Appraisal Report, p. 27.

⁶ Florida Atlantic University/Florida International University Joint Center for Urban and Environmental Problems, 2000. Imaging the Region: South Florida via Indicators and Public Opinions, p. 44.

⁷ State of Florida, Demographic Estimating Conference, updated July 2005.

⁸ Bureau of Economic and Business Research, 2004.

⁹ Beacon Council, 2005.

¹⁰ Charles E. Kimball, Real Estate Economist, 2005.

¹¹ Beacon Council, 2005.

¹² FAU p.33.

¹³ Miami-Dade County Department of Planning and Zoning, 2005, Miami Dade County Facts, p.42.

¹⁴ United States Census Bureau, 2000 Census, Miami-Dade County.

¹⁵ Miami-Dade County, State of the County, Economic Development.

3 Economic Impact of the Port of Miami on the Regional Economy



Approach

This section presents the economic impact of the Port of Miami on three regions:

- Miami-Dade County
- A combination of Broward and Palm Beach Counties
- The rest of Florida (an aggregation of all remaining counties in the state)

In an economy as large and dynamic as Miami-Dade County, attribution of overall economic importance to any single activity center – such as the Port – is a conceptual challenge. While it is not uncommon for economists to identify the significant activities that are (or were at one time) the underpinnings of a region's growth and development, it is another thing to separate the impact of a facility that forms a segment of a larger regional transportation system.

As with other networked infrastructures, a certain portion of Port activity is generated in conjunction with other transport modes, with the consequence that a clear-cut attribution of economic impacts linked to the different modes is nearly impossible.





It is difficult to separate the economic benefit generated by the Port from the overall economic impact of the regional intermodal network. For example, approximately 1.8 million cruise passengers travel through Miami International Airport on their way to a Port of Miami cruise every year. (Top: Passengers arriving for cruise. Bottom: cruise ships along Port docks.)



For this reason, estimates of the Port's impacts are derived from the complex of transport services generated within the tri-county region consisting of Miami-Dade, Broward, and Palm Beach Counties, and includes not only cruise and cargo services outputs, but also air and ground transportation activities that

function in unison when maritime shipping and cruise travel are produced.

Among the most easily identifiable jobs generated within the Portcomplex are those created by shipborne cargo and passenger handling. These jobs are comprised of diverse occupations such as crane and equipment operators, passenger service agents, public safety officers, cargo handling agents and administrators and mechanics, and are visibly linked to Port activity, leaving little ambiguity as to whether these jobs are Portrelated. However, limiting ourselves to these on-Port impacts, often termed direct impacts, would vastly understate the importance of the Port to the regional economy. For example, with nearly six percent of Miami International Airport's passenger volume attributed to persons arriving to or from a cruise departing from the Port, and three percent of Ft. Lauderdale Hollywood International revenue passenger attributed to Port cruisers, the importance of the Port of Miami is far





On-port jobs typically involve facilitating intermodal movements. Top: cruise ship provisioning at the Port of Miami. Bottom: cargo is checked after unloading from vessels prior to storage in container yards.

greater than simple observation of on-Port employment and its associated income. If these passengers' air travel (and related) expenditures are treated as an integral part of a cruise, then off-Port jobs and income related to a portion of the air travel become directly attributable to Port activities. In this instance, the Port gives rise to jobs at the airport.¹

A number of such jobs have close links to Port activity. As a large metropolitan area, Miami-Dade County and the surrounding region contains within its boundaries a significant number of businesses and public agencies closely linked to(i.e., dependent) the volume of on-Port activities for their own prosperity. These linked activities form the basis of a Port-related economic complex, the size of which is nearly five times larger than water transportation services produced on-Port.

The methodology for the REMI model results presented in this section is included in Appendix A (Methodology).



Impact Concepts

Economists often refer to the impact of facilities and their associated activities on an economy in terms of *direct*, *indirect*, and *induced* impacts:

Direct impacts, measured as employment, personal income, gross regional product or value of output, are those of the industry or industries (or economic complex) being analyzed, such as the maritime cargo and cruise transportation industry. Direct economic activity gives rise to indirect and induced impacts. Some examples of the Port of Miami's direct employment complex include stevedores, gantry crane operators, freight forwarders, customs brokers and truck drivers.

By convention, **indirect impacts** are those derived from intermediate goods and service production, i.e., the things needed to support direct activity such as material inputs, fuel and services. As an example, when the impact of cruise transportation is analyzed, purchases of goods and services such as food and beverages, cabin furnishings, fuel, fresh water, tug services, ship maintenance and maritime insurance are deemed indirect, in that they are needed to support the direct (cruise) outputs.

Induced impacts are those that arise from consumption expenditures supported by income earned in both direct and indirect activities. Because in the United States, consumption accounts nearly two-thirds of overall economic activity, it is not unusual to find that induced effects are often equal in magnitude to those of the direct and indirect impacts combined. This becomes less significant as region sizes decline, as both indirect and induced expenditures flow out of an area with only minimal return business in later time periods.

The sum of the impacts, i.e., the total derived by adding the direct, indirect, and induced impacts is usually referred to as the total impact, with the ratio of the total to the direct resulting in a total impact multiplier.² Multiplier values for moderately large regions such as Miami-Dade County are generally two to three times the direct impact estimates, and in this specific case, the value is approximately 2.8 for the output multiplier.

Impacts are often measured in terms of employment, income and output, concepts that are widely understood. In addition to these, the





Port related-jobs touch on a broad diversity of occupations, ranging from jobs in management, engineering, law, manufacturing, construction, administrative support, and transportation.

REMI model also creates estimates for demographic impacts (migration and labor force), fiscal impacts (e.g., state and local tax revenues) and a number of other economic variables related to productivity and prices. A number of these are incorporated in the discussion of the following impacts.



Estimates of the direct impacts and total impacts (the combination of direct, indirect and induced) related to the Port of Miami are provided in the following sections.

Direct Impacts

Identification of relevant industry sectors is critical in estimating the impacts of the complex of related activities centered on the Port and its operation. The complex of activities (or sectors) used for this study include:

- Water transportation linked to on-Port activity in Miami-Dade County, including longshoremen and terminal operators, and excluding water transportation on the Miami River
- On-Port Administration,
 Security, and Public Safety,
 including Port of Miami
 administrators, Department of
 Homeland Security
 immigration and customs
 personnel, and Miami-Dade
 County law enforcement
 personnel
- Maritime cargo freight forwarding and customs brokerage activities
- Cruise passenger and cruise ship crew expenditures on food and beverages, other goods and services, utilities, housing/hotels, medical care and local transportation
- Air travel expenditures made in conjunction with cruise travel, purchased separately or as part of a travel package
- Ship building and repair in Miami-Dade County, excluding all boat building in the County and all repairs that are performed on the Miami River



The Port of Miami directly creates 24,626 jobs, \$1.2 billion in personal income, and \$3.9 billion in output within Miami-Dade County. Cargo impacts are concentrated in traditional transportation and freight forwarding industries, while the cruise portion of the impact touches a larger variety of industries due to passenger and crew activities and corporate headquarter activities. Top: cruise passenger activity involves similar industries to tourism (lodging, retail, local transportation, travel services and utilities). Bottom: the distribution of cargo is primarily a transportation activity.

- Hotel and motel expenditures made in conjunction with cruise travel, purchased separately or as part of a travel package
- Travel agency services and fees in conjunction with cruise travel
- Construction activity as part of Port-related capital improvements

Further descriptions of each category are included in Appendix B (Explanation of Terms).



The estimated value of direct employment, income, and output, are shown in Table 3-1. Impacts from water transportation services (cruise and cargo combined), account for nearly one-half of both direct employment and personal income, and more than two-thirds the total direct output. Following water transportation in importance are eating and drinking places and air transportation linked to cruise passengers. Food and beverage service, as well as travel agency services, are also sizeable categories linked to the Port through expenditures linked to cruise travel. Overall, the combined direct employment of the Port and linked activities accounts for approximately 2% of total county employment (by place of work) and about 1.5% of personal income. Average output and incomes for Port and related activities are shown in Table 3-2.

Even with industry knowledge and survey data used to supplement and refine the modeling done for this study, it is difficult to fully separate economic impacts associated with cargo from those associated with cruise activities. Both involve significant associated activities with the water transportation



Above: Capital expenditures for Port improvement are a continuous economic generator in the construction industry.

industry, including the physical movement of people and goods, and many of these activities are synergistic and indistinguishable in the model output. However, there are distinct characteristics of each industry as well, and these have led to the development of distinguishing categories included in Table 3-1, as an indicator of economic impact. The table shows that both cruise and cargo sectors generate jobs and impacts from the water transportation industry, although the cargo share is significantly higher due to the labor-intensive movements included in this industry. From an industry standpoint, however, the remainder of cargo impacts fall into the ground transportation sector, which includes freight movement aspects as well. Cruise activities touch on more industries, primarily due to passenger and crew activities including travel, retail purchases, lodging, transportation and utility use. As a result, the Port's cruise activity creates more jobs, income and output than the cargo industry. This confirms that the diversity offered by both cargo and cruise activities is crucial to the overall economic stability of the Port.

General operations at the Port are those that are not attributable to either the cruise or cargo activities, but are important to the overall operation of the facility for all Port activities. Port administration, security and safety sectors are responsible for significant job creation, as are ongoing construction activities at the Port. Because the Port is continuously improving facilities to maintain its competitive edge in the industry, capital construction expenditures remain an overall constant in the economic impact, although year to year amounts may fluctuate.



Table 3-1Port of Miami Direct Economic ImpactsCruise, Cargo and General Operations Impacts, 2005

Sector/Activity	Employment	Personal Income (\$ millions)	Output (\$ millions)	
CRUISE RELATED				
Water Transportation	4,552	214	1,285	
Personal Consumption (restaurants, entertainment, etc.)	3,549	139	178	
Housing/Lodging	1,671	77	111	
Local Transportation	1061	44	50	
Air Transportation	2,158	168	267	
Travel Agency Services	1,549	74	169	
Utilities	12	1	6	
Subtotal	14,552	717	2,066	
CARGO RELATED				
Water Transportation	6,535	381	1,472	
Ground Transportation and Maritime Freight Forwarding	1,712	69	192	
Subtotal	8,247	450	1,664	
	GENERAL OPERATIONS			
Shipbuilding and Repair	128	7	21	
Port Administration, Security and Safety	729	41	43	
Port Construction	970	45	116	
Subtotal	1,827	93	180	
PORT TOTAL	24,626	1,260	3,910	

All dollar values are in 2005 dollars

Sources: The Four Gates Company; Dr. Nicolas Rockler, Economist; Port of Miami, the REMI Model; Bureau of the Census; and Bureau of Economic Analysis

Table 3-2

Port of Miami Direct Economic Impacts Comparison of Wage Rates and Outputs, 2005

Region	Avg. Annual Wage per Employee (\$)	Avg. Output per Employee (\$)
Port of Miami	34,370	153,294
Miami-Dade County	33,571	132,389
Port of Miami as % of Miami-Dade	102	116

All dollar values are in 2005 dollars

Sources: The Four Gates Company; Dr. Nicolas Rockler, Economist; The Port of Miami; REMI Model; Bureau of the Census; and Bureau of Economic Analysis



Results from the model shown in Table 3-2 validate the notion that, in a broad sense, the Port and related activities generate *good jobs at good wages*. The average wage of Port and related workers is \$34,369 for 2005, compared with \$33,571 per worker for the county at large. Not surprisingly, Port productivity per worker exceeds that of the county as a whole by 16%, with output per Port and related activity worker of \$153,000 compared to \$132,000 for the county. These figures, though they pertain to largely service industries (port construction and shipbuilding being the exceptions), have wage rates and productivity that belie the notion that service-industry jobs are dominated by low-wage, low-skill employment. While this is often the case for highly visible retailing and food service businesses, such an assumption would be misleading in the case of the Port.

Employment characteristics for the Port can be further elaborated by data developed specifically for this study:

- Analysis of residence zip code data for over 8,000 individuals with active Port Identification Badges (individuals who need regular access to the Port)
- **Port-Related Businesses Employment Profile Survey.** Port-related businesses were randomly selected from two data sources: the Port Directory and the Florida Shipper. Every tenth business was contacted and surveys were transmitted to each business with a cover letter from the Port of Miami. Due to the sensitive nature of the questions, some businesses did not respond or provided incomplete information. To ensure a representative sampling, additional businesses were selected to replace nonrespondents by contacting the business listed in the data source immediately after the nonrespondent. A total of 150 businesses were contacted and 63 responded.



On-Port improvements are required to remain competitive in a perpetually evolving industry. Above, goods imported to Miami are unpacked and redistributed at warehousing facilities, most of which are located in the vast industrial area surrounding the Airport.

 Cruise Line surveys. Two of the three major cruise lines based in Miami responded to surveys and provided information on where their employees reside, as well as where they make purchases used for operations.

Data from all three sources –totaling 16,143 records--were combined by zip code to determine the representative geographic distribution of jobs in Miami-Dade County. The number of records represents roughly half of the estimated direct employment related to the Port of Miami. Figure III-1 shows the relative density of areas supporting individuals earning their living from Port-related activities.



Figure 3-1 reveals that the highest density of jobs are proximate to the geographic clusters of industrial and business activity associated with international trade – the Airport West area, downtown Miami and the Brickell Avenue area. Over 75% of surveyed employees live in Miami-Dade County. Of these, most live in unincorporated Miami-Dade County (44%) or in the City of Miami (27.5%); see Table 3-3. Many of Miami-Dade County's municipalities are home to persons with jobs associated with the Port.

Table 3-3Port of Miami Direct ImpactCity of Residence of Surveyed Employees in Miami-Dade County

Location in Miami-Dade County	% Miami-Dade County Total
Hialeah	17.2
Homestead	1.4
Key Biscayne	0.3
Miami	27.5
Miami Beach	3.0
North Miami Beach	0.9
Opa Locka	5.6
Unincorporated	44.1
TOTAL	100.0

Source: The Four Gates Company; Dr. Nicolas Rockler, Economist

Information from the Employment Survey was also used to correlate wage information for Port-related employment with Bureau of Labor Statistics occupational wage data for the Miami MSA. This information allows the Port to illustrate specific wage ranges for jobs created in the future. Occupational and wage data from this effort are shown in Table 3-4.

This survey-based wage data substantiates output from the REMI model showing that *Port jobs are good jobs*. Median wages for Port-related employment are 26% higher than employment as a whole in the MSA; median wages for Port jobs was reported at \$17.25, while the MSA median wage is \$12.83. The Table also provides detail on the broad range of occupations that support Port activities in the community. Although a significant percentage of jobs are in the transportation and moving category, the second largest percentage are in the administrative support occupations; these office and warehouse jobs enable freight forwarders, insurance agents, lawyers, manufacturers and customs brokers to conduct their business.



Figure 3-1 Highest Density of Jobs Proximate to Geographic Clusters





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Table 3-4

Survey Sample of Reported Occupation and Wage Rates for Port Jobs by Standard Occupational Classification (SOC) Numbers

Desition	BLS Miami MSA	Median Hourly	Surveyed Employees in
Position Executive Chiefe	11 1011 Total	wage (\$)	Position (%)
Ceneral Operations Managers	11-1021 Total	/1.03	1.8
Advertising and Promotions Managers	11-2011 Total	41.93	0.1
Sales Managers	11-2022 Total	49.20	0.1
	11-2022 Total	32 30	0.2
Administrative Services Managers	11-2031 Total	36.71	0.0
Transportation Storage and Distribution Managers	11-3071 Total	31.44	0.1
Mechanical Engineers	17-2141 Total	17 19	0.0
	17-3022 Total	19.78	0.1
Chemical Technicians	19-4031 Total	13.66	2.3
	23-1011 Total	42.16	1.0
Law Clerks	23-2092 Total	19.25	0.2
Editors	27-3041 Total	19.31	0.1
Insurance Sales Agents	41-3021 Total	16.34	0.2
Sales and Related Workers, all Others	41-9099 Total	17.64	2.8
Supervisors and Managers of Offices	43-1011 Total	20.62	2.3
Communications Equipment Operators	43-2099 Total	14.50	1.1
Bookkeeping, Accounting and Auditing Clerks	43-3031 Total	13.40	2.4
Customer Service Representative	43-4051 Total	12.50	5.3
Clerical	43-4121 Total	10.48	2.0
Receptionists and Information Clerks	43-4171 Total	9.50	0.5
Reservation and Transportation Ticket Agents	43-4181 Total	11.73	0.2
Couriers and Messengers	43-5021 Total	10.37	0.7
Production, Planning and Expediting Clerks	43-5061 Total	17.13	0.9
Shipping, Receiving and Traffic Clerks	43-5071 Total	10.28	4.8
Legal Secretaries	43-6012 Total	16.99	3.1
Secretaries	43-6014 Total	12.09	1.8
Data Entry Workers	43-9021 Total	10.47	1.6
Office Clerks, General	43-9061 Total	10.10	0.3
Office and Administrative Support	43-9199 Total	10.47	5.1
Supervisors and Managers of Construction Trades	47-1011 Total	25.09	0.1
Electrical and Electronics Repairs, Commercial and Industrial	49-2094 Total	15.50	0.9
Bus and Truck Mechanics and Diesel Engine Specialists	49-3031 Total	16.81	1.1
Industrial Machinery Mechanics	49-9041 Total	16.09	3.4
Electrical and Electronic Equipment Assemblers	51-2022 Total	10.14	0.3



Plating and Coating Machine Setters	51-4193 Total	9.55	1.2
Supervisors and Manager of Transportation and Moving Operations	53-1021 Total	16.97	2.1
Supervisors and Managers of Machine and Vehicle Operations	53-1031 Total	22.73	1.7
Bus Drivers, Transit and Intercity	53-3021 Total	10.19	17.0
Driver/Sales Workers	53-3031 Total	7.68	6.2
Truck Drivers, Heavy and Tracker Trailer	53-3032 Total	14.98	10.4
Sailors and Marine Oilers	53-5011 Total	13.14	0.3
Parking Lot Attendants	53-5021 Total	23.54	0.6
Transportation Inspectors	53-6051 Total	34.78	0.5
Transportation Workers	53-6099 Total	10.13	0.1
Crane and Tower Operators	53-7021 Total	23.39	0.6
Labors and Freight, Stock and Material Movers, Hand	53-7062 Total	8.34	8.4
TOTAL SURVEY		15.81	100.0
Miami Dade MSA from BLS	All Occupations	\$12.83	\$17.25

Source: The Four Gates Company, Bureau of Labor and Statistics, 2005

Total Impacts

Total impacts include the direct impacts described above, as well as indirect and induced impacts. Based on the direct impact figures generated for the Port and related activities shown in Table 3-1, the REMI model was used to estimate the impact of these levels of employment or output on three regions: Miami-Dade County: Broward, and Palm Beach Counties; and, the rest of Florida. These impacts are summarized in Table 3-5.

Table 3-5

Port of Miami Total Economic Impacts in 2005 Employment, Personal Income and Output in Miami-Dade County, Broward and Palm Beach Counties, and Remainder of Florida

Variable	Port-Related Employment (000)	Personal Income (billions)	Total Output (billions)
Miami-Dade County	81.8	4.4	12.2
Broward and Palm Beach Counties	16.3	1.0	2.5
Remainder of Florida	4.2	0.2	0.7
Total State	102.3	5.6	15.4

Note: All dollar values are in 2005 dollars. Source: Dr. Nicolas Rockler, Economist

When all indirect and induced impacts (those derived from all inter-industry purchases and expenditures on personal consumption and investment) are included, the direct employment impact of 24,626 gives rise to total employment of 81,800 in Miami-Dade County, 16,300 in Broward and Palm Beach counties, and 4,200 jobs in the remainder of the state. In total, the Port creates 102,300 jobs in Florida.³



Personal income generated through the Port and related activities consists of wages, benefits paid to workers, social insurance paid by employees (deducted from gross personal income) and employers (social security, federal and state unemployment compensations, and federal and state Worker's Compensation Insurance), proprietors income, dividends, interest, rent, and transfer payments. Total personal income in the state due to Port and related activities averaged \$5.6 billion, with two-thirds (\$4.4 m) going to individuals in Miami-Dade County and most of the rest (1.0) to residents of Broward and Palm Beach counties. \$400 million of personal income is located outside of the South Florida region. Some of the personal income attributed to Port Activity is a product of intercounty commuting, with a sizeable outflow of funds occurring when persons working at business establishments in Miami-Dade live in nearby Broward County and the somewhat more distant Palm Beach County. Total output impacts amount to an average of \$15.4 billion per year over the entire state, a figure that represents the value of sales of goods and services ultimately attributable to the Port over all firms in each region.⁴ Geographically, output is distributed identically to employment, with 80% (\$12.2 billion) of the total concentrated in Miami-Dade County, 15% (\$2.5 billion) in Broward and Palm Beach Counties, and 4% (\$.7 billion) in the rest of the state.

Characteristics of Total Employment Impacts

The 2005 Miami-Dade economy shows a pronounced concentration in retail trade and services, with 16% and 38% of total employment in these two sectors, respectively. Other important sectors include transportation/public utilities, finance/insurance/real estate, and state/local government, as shown in Table 3-6. Together, the five largest sectors account for 80% of total employment.

Port-related employment has a very different composition than County employment as a whole. Sectors with high job concentrations are limited to transportation/public utilities, services, and retail trade. Of the 81,000 Portrelated jobs, nearly 29,000 (35%) are tied to the transportation industry. This is to be expected in view of close linkages between on-port and off-port transportation related to both cruise and cargo activity. What is surprising is that transportation gives rise to nearly an equal number of service sector jobs with 24,000 jobs or about 30 percent of the Port-related total employment in services such as lodging places, business services, repair, amusement, health, legal, engineering, and educational services. These industries are important in supporting both tourism and corporate operations (the latter including the cruise lines), and are significant functions in which the Port plays an integral role, both directly and indirectly, in the local economy. Categories used in Table 3-6 and subsequent Tables are more fully explained in Appendix B.



Table 3-6Port of Miami Total Economic Impacts, Miami-Dade County2005 Employment

Variable	Miami-Dade County Employment (000)	Percent of Total	Port-Related Employment (000)	Percent of Port-Related Total
Total Employment	1,353.3	100.0	81.8	100.0
Farm	6.7	0.5	0.0	0.0
Agriculture, Forestry and Fisheries Services	14.6	1.1	0.5	0.6
Mining	0.7	0.1	0.0	0.0
Construction	60.8	4.5	5.2	6.4
Manufacturing	74.4	5.5	3.0	3.7
Transportation and Public Utilities	112.7	8.3	28.7	35.1
Finance, Insurance and Real Estate	106.8	7.9	2.6	3.1
Retail Trade	218.2	16.1	10.7	13.1
Wholesale Trade	86.3	6.4	1.9	2.4
Services	518.8	38.3	24.3	29.7
State and Local	123.7	9.1	4.5	5.5
Federal Civilian	19.4	1.4	0.4	0.4
Federal Military	10.2	0.8	0.0	0.0

Source: Dr. Nicolas Rockler, Economist; REMI Model, 2005

Survey data from the cruise lines was assembled to provide a highly detailed purchasing data set for cruise operations. This data is consolidated into two-digit Standard Industrial Classification (SIC) industries, shown in Table 3-7. Total estimated expenditures of Miami-based cruise lines is \$795.7 million annually. The diversity of cruise line purchases demonstrates the many sectors of the local economy that benefit from Port-related activity. The largest categories of inputs are in sectors located in close physical proximity to the Port. Such clustering is often seen in regions with specialized industries, such as that represented by the cruise lines. Among the largest supplying sectors are nondurable goods wholesalers, retailers, transportation firms and building construction firms. Supply of their products or services by more distant suppliers is made difficult for transport cost and distance reasons, which affect timely and reliable product and service delivery. For this reason, local firms are somewhat insulated from competition by distant suppliers, and long as the cruise market remains stable, these firms will benefit from a locational advantage that precludes "off-shoring" by outside competitors.

Table 3-7

Miami-Based Cruise Lines Purchases within Miami-Dade County

2-Digit SIC	Percent of Total
Major Group 51: Wholesale Trade-Nondurable Goods	31.6
Major Group 59: Miscellaneous Retail	16.4
Major Group 73: Business Services	11.9



Major Group 47: Transportation Services	8.9
Major Group 44: Water Transportation	5.8
Major Group 79: Amusement and Recreation Services	5.0
Major Group 93: Public Finance, Taxation and Monetary Policy	4.0
Major Group 87: Engineering, Accounting, Research, Management, and Related Services	2.8
Major Group 99: Non-Classifiable Establishments	2.4
Major Group 50: Wholesale Trade-Durable Goods	2.1
Major Group 81: Legal Services	1.5
Major Group 70: Hotels, Rooming Houses, Camps and other Lodging Places	1.4
Major Group 27: Printing, Publishing and Allied Industries	1.3
Major Group 17: Construction Special Trade Contractors	0.7
Major Group 83: Social Services	0.7
Major Group 45: Transportation By Air	0.5
Major Group 49: Electric, Gas, and Sanitary Services	0.5
Major Group 42: Motor Freight Transportation and Warehousing	0.4
Major Group 62: Security And Commodity Brokers, Dealers, Exchanges, and Services	0.4
Major Group 35: Industrial and Commercial Machinery And Computer Equipment	0.4
Major Group 15: Building Construction General Contractors and Operative Builders	0.3
Major Group 78: Motion Pictures	0.2
Other	0.7
Total	100.0

Source: The Four Gates Company; Dr. Nicolas Rockler, Economist

Another feature regarding the composition of employment generated by the Port (see Table 3-6) is the relatively low proportion of government employment generated, compared to the County as a whole. For the numbers of jobs created at the Port, public personnel requirements of 4,900 jobs (civilian federal, state and local combined) represent only 5.5% of the jobs created. When compared to the 9.1% of all County civilian government jobs, this indicates that Port and related activities require a disproportionately low share of public labor, a characteristic that may change in the near future as security requirements imposed on passenger and cargo movements evolve.

Tables 3-8 and Table 3-9 show the employment characteristics of the jobs created by Port activities in Broward and Palm Beach Counties and the rest of Florida, respectively. With the exception of the construction, manufacturing, transportation, and state/local government, job growth associated with the Port mirrors the proportions found in the general economy. As growing employment in Miami-Dade County causes spillovers in the form of new commuters who choose to live outside the County, construction growth is expected to meet the ongoing demands of both residential and nonresidential construction. Manufacturing growth in the rest of the state, while small in absolute terms at approximately 600 persons per year, represents a large share of growth, again a product of housing and construction demand. A similar sized increase in the number of state and local government employees also appears to be linked to commuting and housing demand growth.



Table 3-8Port of Miami Total Economic Impacts, Broward and Palm Beach Counties2005 Employment

Variable	2005 Employment (000)	Percent of Total	Port-Related Employment (000)	Percent of Port-Related Total
Total Employment	1,537.2	100.0	16.3	100.0
Farm	8.1	0.5	0.0	0.0
Agriculture, Forestry and Fisheries Services	31.6	2.1	0.2	1.5
Mining	1.2	0.1	0.0	0.0
Construction	88.6	5.8	1.5	9.3
Manufacturing	70.7	4.6	1.0	5.8
Transportation and Public Utilities	59.4	3.9	1.2	7.6
Finance, Insurance and Real Estate	161.5	10.5	1.5	9.3
Retail Trade	274.1	17.8	3.1	19.2
Wholesale Trade	72.3	4.7	0.5	3.3
Services	610.3	39.7	6.0	36.7
State and Local	137.1	8.9	1.2	7.3
Federal Civilian	13.7	0.9	0.0	0.0
Federal Military	8.7	0.6	0.0	0.0

Source: Dr. Nicolas Rockler, Economist; REMI Model, 2005



Table 3-9Port of Miami Total Economic Impacts, Florida Employment Excluding Tri-County Area2005 Employment

			Port-Related Employment	
Variable	Employment (000)	Total	(000)	Total
Total Employment	6,555.1	100.0	4.2	100.0
Farm	78.4	1.2	0.0	0.0
Agriculture, Forestry and Fisheries Services	162.6	2.5	0.1	1.5
Mining	8.1	0.1	0.0	0.2
Construction	370.7	5.7	0.4	8.8
Manufacturing	348.7	5.3	0.5	12.9
Transportation and Public Utilities	266.0	4.1	0.2	6.0
Finance, Insurance and Real Estate	537.7	8.2	0.3	8.0
Retail Trade	1,189.8	18.2	0.7	16.3
Wholesale Trade	234.2	3.6	0.1	3.5
Services	2,515.5	38.4	1.2	29.7
State and Local	627.3	9.6	0.5	13.1
Federal Civilian	92.5	1.4	0.0	0.0
Federal Military	123.7	1.9	0.0	0.0

Source: Dr. Nicolas Rockler, Economist; REMI Model, 2005

Characteristics of Total Income Impacts

Income resulting from Port and related activity are largely attributable to wages and salaries received from employment. Because they are recorded on a placeof-residence basis, there are significant spillovers of Port-related earnings going from Miami-Dade County to Broward/Palm Beach and the rest of the State. As shown in Table 3-10 (Miami-Dade County Personnel Income), Miami-Dade County gains an average personal income of \$5.4 billion (in 2005 dollars) which is net of residence adjustments of \$-0.9 billion, or 16% of that generated by the Port. Transfer payments stimulated by Port activity are very low. These are payments made to individuals by governments independent of services rendered, and are composed primarily of payments for unemployment, disability, Medicare and supplemental security. They are low because, as a general rule, employed persons (such as those at the Port), are not eligible to receive such payments.

For the Broward and Palm Beach county region, the proportion of income derived from the Port and related activity is higher than might be expected and is due to a significant commuting factor. Nearly 5% of the region's income stems from the accounting adjustment for net commuting. Port-related commuting accounts for nearly one-third of the region's Port-related income, as shown in Table 3-11. The rest is generated by business in Broward and Palm Beach counties with ties to the Port. Overall, Broward and Palm Beach Counties averaged an additional \$2.3 billion per year in total due to Port-related activity, with a high proportion being wage and salary income and a very low proportion being transfer payment or dividend/interest/rent income. At some point in the future, this income may



contract due to congestion constraints on growth, a factor not accounted for in the REMI model estimates.

Table 3-10

Port of Miami Total Economic Impact, Miami-Dade County Personal Income in 2005

	Total Miami-Dade County Personal (\$ billions)	Percent of Total Personal Income	Port-Related Income (\$ billions)	Percent of Port- Related Total
Wage and Salary Income	49.1	60.2	4.4	81.5
Proprietor's and other Labor Income	11.7	14.3	1.1	19.8
Dividend, Interest and Rent Income	13.8	16.9	0.5	9.4
Transfer Payments	13.4	16.4	0.3	5.5
Net Residence Adjustment	-6.3	-7.8	-0.9	-16.2
Total Personal Income*	81.6	100.0	5.4	100.0
Tax Payments	10.7	13.1	0.6	11.7
Social Insurance Contributions	3.7	4.5	0.3	6.1
Disposable Income	67.2	82.4	4.5	82.2

Note: All dollar values are in 2005 dollars Source: Dr. Nicolas Rockler, Economist; REMI, 2005

Table 3-11

Port of Miami Total Economic Impact, Broward and Palm Beach Counties Personal Income in 2005

	Total Personal Income by Source (\$ billions)	Percent of Total Personal Income	Port-Related Income (\$ billions)	Percent of Port- Related Total
Wage and Salary Income	56.3	43.0	1.0	42.2
Proprietor's and other Labor Income	13.3	10.1	0.2	8.9
Dividend, Interest and Rent Income	39.3	30.1	0.3	15.2
Transfer Payments	16.1	12.3	0.0	1.7
Net Residence Adjustment	5.9	4.5	0.7	32.0
Total Personal Income*	130.8	100.0	2.3	100.0
Tax Payments	17.4	13.3	0.3	11.9
Social Insurance Contributions	4.5	3.4	0.1	3.4
Disposable Income	109.0	83.3	1.9	84.7

Note: All dollar values are in 2005 dollars

Source: Dr. Nicolas Rockler, Economist; REMI, 2005

The rest of Florida gains an average of approximately \$400 million per year through Port-related activity, with the gains being largely in the form of wages/salaries and the residence adjustment for commuting, as shown in Table 3-12. Consistent with the Broward/Palm Beach County region, the rest of the state sees little growth in the dividends/interest/rent and transfer payment, as the gains are virtually all attributable to employed migrants as commuters.



Table 3-12

Port of Miami Total Economic Impact, Florida Personal Income Excluding Tri-County Area in 2005

	Total Personal Income(\$ billions)	Percent of Total Personal Income	Port-Related Income (\$ billions)	Percent of Port- Related Total
Wage and Salary Income	201.7	49.3	0.2	57.3
Proprietor's and other Labor Income	47.0	11.5	0.0	10.5
Dividend, Interest and Rent Income	94.3	23.1	0.0	8.9
Transfer Payments	64.1	15.7	0.0	0.2
Net Residence Adjustment	1.8	0.4	0.1	23.1
Total Personal Income*	408.9	100.0	0.4	100.0
Tax Payments	53.9	13.2	0.0	12.4
Social Insurance Contributions	15.5	3.8	0.0	4.4
Disposable Income	339.4	83.0	0.3	83.1

Note: All dollar values are in 2005 dollars Source: Dr. Nicolas Rockler, Economist; REMI, 2005

> Florida has a distinct composition of income owing to its large retired population, which receives nearly one-quarter of its total income in the form of dividends, interest and rent. In contrast, both the US as a whole, and Miami-Dade County. see only 17% of total income in this form.

Characteristics of Total Output Impacts

If wage rates and productivity were uniform across all industries, output and employment impacts would appear to be mirror images of one another. But as shown in Tables 3-11 through 3-13, this is clearly not the case. The three sectors in Miami-Dade County experiencing the highest output growth linked to Port activities are transportation/public utilities, services, and manufacturing, as shown in Table 3-13. The latter sector, which accounted for only 4% of county employment in 2005 (see Table 3-5), accounts for nearly 12% of output growth. driven by nondurable goods manufacturing linked to cruise activity, as well as machinery used to support those industries. Services and retail trade also generate comparatively high employment, owing to the lower wage rates relative to the value of output. In total, Miami-Dade County gains approximately \$12 billion per year in total output linked to Port activity, about 8% of the County's total output of \$147 billion.

The Broward-Palm Beach output impacts are highly concentrated in services, manufacturing, finance/insurance/real estate, transportation and construction. Of the \$2.5 billion added by the Port per year, much of this is due to commuters and in-migrants pushing demand for housing and the commercial real estate, as shown in Table 3-14.



Table 3-13 Port of Miami Total Economic Impact Total Output in 2005, Miami-Dade County

Variable	Total Output (\$billions)	Share (% of Total Private Output)	Port-Related Output (\$ billions)	Share (% of Port- Related Total)
Agriculture, Forestry and Fisheries Services	0.6	0.4	0.0	0.2
Mining	0.3	0.2	0.0	0.0
Construction	7.8	5.3	0.7	6.0
Manufacturing	21.9	14.9	1.5	12.0
Transportation and Public Utilities	22.9	15.6	5.9	48.4
Finance, Insurance and Real Estate	32.2	21.9	0.8	6.2
Retail Trade	13.6	9.3	0.7	6.1
Wholesale Trade	16.1	11.0	0.5	3.9
Services	31.3	21.3	2.1	17.2
TOTAL	146.8	100.0	12.2	100.0

Note: All dollar values are in 2005 dollars Source: Dr. Nicolas Rockler, Economist; REMI, 2005

Table 3-14

Port of Miami Total Economic Impact Total Output in 2005, Broward and Palm Beach Counties

Variable	Total Output (\$billions)	Share (% of Total Private Output)	Port-Related Output (\$ billions)	Share (% of Port- Related Total)
Agriculture, Forestry and Fisheries Services	1.2	0.7	0.0	0.4
Mining	0.5	0.3	0.0	0.1
Construction	11.5	6.8	0.2	9.0
Manufacturing	26.1	15.4	0.6	24.6
Transportation and Public Utilities	14.4	8.5	0.3	12.6
Finance, Insurance and Real Estate	47.9	28.3	0.4	17.7
Retail Trade	17.2	10.1	0.2	9.2
Wholesale Trade	13.7	8.1	0.1	5.4
Services	37.0	21.8	0.5	21.1
TOTAL	169.4	100.0	2.5	100.0

Note: All dollar values are in 2005 dollars

Source: Dr. Nicolas Rockler, Economist; REMI, 2005



The output impacts on the rest of the state are comparatively small at \$800 million per year, with a high concentration in manufacturing, finance/insurance/real estate, and services. Again, this is driven by demand for housing and by commuters to Miami-Dade and Broward/Palm Beach Counties, as shown in Table 3-15.

Table 3-15

Port of Miami Total Economic Impact

Total Output in 2005, Florida without Tri-County Area

Variable	Total Output (\$billions)	Share (% of Total Private Output)	Port-Related Output (\$ billions)	Share (% of Port- Related Total)
Agriculture, Forestry and Fisheries Services	6.2	0.9	0.0	0.3
Mining	3.5	0.5	0.0	0.6
Construction	48.2	7.2	0.1	7.1
Manufacturing	128.2	19.1	0.4	48.2
Transportation and Public Utilities	63.3	9.4	0.1	8.3
Finance, Insurance and	152.0	20.7	0.1	12.0
Real Estate	152.0	22.7	0.1	5.0
	13.0	11.0	0.0	5.9
	43.9	C.0	0.0	4.0
Services	151.0	22.5	0.1	13.1
TOTAL	670.1	100.0	0.7	100.0

Note: All dollar values are in 2005 dollars

Source: Dr. Nicolas Rockler, Economist; REMI, 2005



¹ This study assumes that the significant number of jobs at the airport are a consequence of Port's cruise activities and not the other way around, i.e., that a demand for air travel gives rise to a demand for cruising. We recognize that the growth of the Port's cruise services are premised on availability of timely and efficient air transport services and, as such, could not have attained its status as the world's largest homeport for cruise vessels without the services of the nearby airports.

² In the REMI model used for this analysis (described in Appendix A), total impact estimates also include impacts generated through the demographic and labor force responses that can cause changes in regional in- or out-migration rates, in response to growing or shrinking job-opportunities. The impact estimates include such impacts with the consequence that our multiplier values will differ that much more from models that assume a static demographic framework, as in the case of models such as Implan or RIMS II, both commonly used for impact estimation.

³ All employment and output data are estimated for each region on a <u>"place-of-work"</u> basis. Personal income however, is reported on a "place-of-residence" basis by adjusting for net commuting flows into and out of any given county or metro area.

Output is not the same as Gross Regional Product (GRP). Output is effectively recorded as value of goods and services sales by all firms. GRP represents the sum total of value added estimated by computing the change in value of all intermediate sales of goods and services at each processing stage, not counting the value of purchased inputs. The essential difference is that the estimates for output may include recounting of the value of intermediate goods as they move through the economy to reach the final consumer. As a general rule for the US, GRP is generally one-half the magnitude of output.
4 Cruise Characteristics



The Port of Miami is the world's largest cruise homeport (the departure and return point for cruise passengers) and also has a growing role as a cruise portof-call. It was one of the first ports to understand the growing importance of the cruise industry in the 1980's, and as a result was able to attract and develop cruise business in the early stages of the industry's evolution.

The Port's location relative to popular North American cruise itineraries, as well as its proximity to two major international airports (Miami International Airport and Fort Lauderdale International Airport), were also instrumental in the development of its home-porting business. Over time, other South Florida ports have developed cruise homeport facilities and, although Miami has maintained its position of world dominance, Port Everglades and Port Canaveral have also benefited from the cruise industry.

Since the events of September 11, 2001, the cruise industry has developed a series of other homeports on both the Gulf and Atlantic coasts to accommodate the *close to home* cruising needs of the American population.







Economic impacts generating directly from the cruise industry include passenger and crew spending, ship provisioning, and operation of corporate offices. Top: vessels docked at the Port. Middle: passengers arriving at the Port. Bottom: seafood being delivered for cruise ships.



Although the cruise industry recovered quickly from drops in travel caused by the September 11th terrorism attacks, the entire industry remains susceptible to negative repercussions from such events, as demonstrated in 1985 when a terrorist attack on the Achille Lauro reduced Mediterranean cruising for years. Further, although the cruise industry has proven itself to be recession-resistant compared to other forms of tourism (passengers generally take shorter or less expensive cruise vacations rather than eliminating cruises entirely), it is also susceptible to major economic downturns when individuals decide to eliminate vacations altogether.

Section 3 of this study demonstrates the economic impact of the cruise industry, and discusses the types of impacts created by the industry. This section provides more information on the cruise business as it relates to the Port of Miami.

Because Miami played such a prominent role in the historic development of the industry, and since it remains the world's leading multi-day cruise ship homeport, all major cruise companies have corporate offices in Miami-Dade County. Interviews with these cruise lines revealed that the corporate activities of cruise companies in Miami, although not fully attributable to the Port of Miami's economic impact, are significant in and of themselves. Other significant economic factors include:

- Passenger transportation to and from Miami and to and from the Port
- Passenger spending and pre- and post-cruise stays
- Crew spending
- Cruise ship provisioning

Industry Overview

The worldwide fleet of cruise vessels serves three major regions: North America, Europe, and Asia/South Pacific. The North American cruise market is the largest and least seasonally impacted. It comprises 76% of the worldwide market, consists of 134 vessels with a passenger capacity of 9.9 million, and has estimated sales revenues of \$13.4 billion.¹ The Port of Miami serves the North American market in the Caribbean/Bahamas, Mexico, and East Coast regions.



Passengers were intercepted and asked about their spending and experiences in Miami.

Three companies – Carnival Corporation, Royal Caribbean Cruises, and Star Group (Norwegian Cruise Line) – control 92% of the North American cruise market capacity, and operate 12 different cruise line products.² The Port of Miami conducts business with all three of the major companies.

Cruise lines are generally divided into four classes or product groups:

- Budget
- Contemporary
- Premium
- Luxury



Niche products constitute the remainder of the market. 95% of the North American Market falls into the Contemporary category; 4% is premium, and both budget and luxury categories have less than 1% of the remaining share. The Port of Miami home-ports primarily Contemporary category vessels, and in the last two years has also begun to attract premium class vessels. This is consistent with the overall market distribution of vessel classes in the North American market.

There are no recent published studies that assess differences in economic impacts relative to passengers in different vessel classes. However, preliminary analysis of survey data showing cruise passenger spending from the Port of Key West taken in 2004 suggests that premium class passengers may spend more (about \$5.00 per person) per port-of-call visit than contemporary class passengers.³ This information supports the importance of diversifying the type of cruise product groups using the Port of Miami.

Passenger Survey Summary

Home Passenger Survey Results

Over 1900 passengers were intercepted during the shoulder, winter, and summer seasons and asked to complete a survey as they embarked or disembarked from ten different cruise ships, including both short and long itinerary vessels in the Port of Miami. The primary purposes of the survey were:

- To assess passenger spending and spending habits while in Miami
- To independently determine the level of passenger satisfaction with their experience at the Port.

A detailed analysis of the survey findings is provided in Appendix C. Highlights of this survey are presented below.

- The average homeport per revenue passenger expenditure in Miami is \$83.48 (all homeport passengers are counted as "revenue" passengers, meaning that they are counted once at embarkation and again at debarkation).
- On a dollar value basis, the majority of homeport passenger expenditures are spent on hotels (33%), food and beverages (26%) and shopping (21%).
- Homeport passengers spend more money in Miami prior to their cruise than after their cruise, particularly for hotels, food and beverages, and shopping (see Figure 4-1).
- Passenger spending increases with every additional hour spent in Miami before and after the cruise. Even modest increases in length of stay increase economic impacts.
- The study identified a significant opportunity to increase economic benefits from cruise passengers by increasing pre- and post-cruise stays. Only 38% of passengers stayed overnight in Miami before their cruise and an even lower percentage -- 12% -- stayed overnight in Miami after their cruise. Perpassenger spending increases between \$60 and \$77 (before and after the cruise, respectively) on lodging alone with overnight stays; spending in nearly every category increases with overnight stays as well.



- Passengers cruising during the winter season spend almost double the amount before the voyage than those traveling during the shoulder season (\$56.20 vs. \$29.50 respectively).
- Eight in ten passengers said they would plan a future return vacation in Miami, indicating that passenger experiences in Miami-Dade County were good, especially for first-time cruisers out of the Port (6 out of 10 passengers surveyed had not previously cruised out of the Port of Miami).
- Half of the passengers (52%) flew into Miami International Airport for their cruise. Twenty percent drove a private vehicle, 16% flew into Ft. Lauderdale International Airport, 6% arrived by bus, 3% drove a rental car and 2% hired a limousine.
- The vast majority of passengers (88%) consistently rated their satisfaction levels as excellent or good with a range of Port-related experiences. A major transportation access road and cruise terminal improvement project is underway at the Port, and was initiated during the survey period. A review of comments indicates that construction may have lowered passenger satisfaction.
- Approximately 16% of home ported passengers originate from within Florida; of these, five percent were from the Miami-Dade County area. The study did not attempt to quantify vacation preparation spending (for example, purchases of clothing and other items before the traveling to Miami and the Port), but these expenditures are likely to occur and to some small degree, increase the economic benefit of the cruise industry in the state beyond what is estimated here.

Port-of-Call Survey Results

Over 400 interviews with port-of-call passengers were conducted for the survey. Highlights of the findings are provided below:

- Passengers appear pleased with their Miami experience: 84% of port-of-call passengers indicate they are 'very likely' or 'likely' to take another cruise because it included Miami in the itinerary.
- Cruises offer an important introduction to Miami as a tourism destination. Based on their cruise experience in Miami, 77% are 'very likely' or 'likely' to return to Miami for a land-based vacation in the future.
- In total, port-of-call passengers spent an average of \$40.62 in Miami per passenger, nearly midway between the high and shoulder season amounts.

Nearly half of port-of-call passengers (45%) took an organized excursion, of which 90% were purchased on the ship. One in five passengers (21%) took an excursion to South Beach or Bayside, 15% went to the Everglades, 14% took the B&B Hopper and 11% went on the Duck Tour.



Figure 4-1 Average Per Passenger Expenditure by Category



Figure 4-2 Average Port-of-Call Passenger Spending in Miami by Category



Crew Survey Summary

In order to gauge spending by cruise ship crews in Miami, 518 crewmembers were surveyed.

Crewmembers take care of most of their personal needs while their ship is docked in Miami. Not all crew are able to exit the vessel at any time, due to both security and duty requirements. Because crew are typically away from their family and friends for between three and four months at a time, communication (particularly by phone) is a key need. In addition, crewmembers tend to purchase goods in Miami due to easy access to a wide variety of reasonably priced goods.

- Crewmembers spend an average of \$190.57 per month in Miami for telephone costs, retail purchases, medical and health-related costs, restaurants, and entertainment and recreation. Twenty percent of crewmembers bank in Miami.
- Crew consistently cited the need for more and better services on-Port.



Cruise Line Contributions

The total value of cruise line expenditures in the three analysis regions was analyzed using survey data collected from the three major lines operating from the Port, and from annual corporate reports offering expenditure detail for wages and salaries, other operating expenses, taxes, profits, etc. Of the almost \$1.6 billion of Florida total output (not including profits attributable to in-state activities and for which no specific data are available⁴), approximately \$1.3 billion is linked to Miami-based cruise operators and is generated within Miami-Dade County. Of this, about \$220 million is paid in wages, salaries and fringe benefits

Almost \$1 billion (in 2005 dollars) are operating expenditures, including selling and administrative expenditures.

Table 4-1

Expenditures

ΤΟΤΑΙ

	Miami-Dade (\$)	Broward and Palm Beach Counties (\$)	Rest of Florida (\$)	Florida Total (\$)
Wages, Salaries, Fringe Benefits	278,793,838	192,118,490	5,102,357	476,014,675
Non-Labor Operating and Selling				

Cruise Line Expenditures by Region, 2005

Sources: Dr. Nicolas Rockler, Economist and The Four Gates Company

996.078.816

1,274,872,644

Almost one-quarter of the Port's total direct economic impact in Miami-Dade County is the result of cruise operator expenditures (see Table 3-1 for the direct impacts of the Port).

46.391.474

238,509,965

59.786.858

64,889,217

Table 4-2 shows the estimated cruise operator expenditures by major industry for Miami-Dade County, using the data obtained through our survey.⁵

While cruise operators' expenditures are highly diversified across supplying industries, they are almost exclusively non-manufacturing, with the exceptions being relatively small categories such as printing, industrial/commercial machinery/computers, chemicals and miscellaneous manufactured goods. The five largest supplying industries – nondurable goods wholesaling, miscellaneous retailing, business services, transportation services, and water transportation services - account for nearly 75% of all non-wage expenditures, or approximately \$740 million.

It is not surprising to find a large portion of expenditures on nondurable goods wholesaling, since this category comprises suppliers of food and beverages, linens and uniforms, fuel, and many of the items required for daily cleaning and care of shipboard facilities. These purchases, although made locally, represent demands for manufactured goods that flow throughout the entire country not just to Miami-Dade County (the trade margins, however, do remain largely local.)

Among the service categories where the specific function being performed is known, accounting, engineering, and legal services are among the larger supplying sectors, accounting for aggregate expenditures of nearly \$82 million.



1,102,257,148

1.578.271.825

This represents 8% of total operating expenditures, significantly higher than for these industries as a percentage of overall GDP, in which they account for approximately 5% of expenditures. The higher proportions are likely linked to headquarters functions centered on Miami. These activities give rise to a number of well-paid, productive jobs that account for relatively high incomes of Port and related activities workers.

Table 4-2

Cruise Operator Expenditures by Industry, 2005 Miami-Dade County

Code	Description	Miami-Dade	% of County
51	Wholesale Trade-Nondurable Goods	314,445.11	31.6
59	Miscellaneous Retail	163,837.18	16.4
73	Business Services	118,319.67	11.9
47	Transportation Services	88,856.10	8.9
44	Water Transportation	57,353.06	5.8
79	Amusement And Recreation Services	49,679.95	5.0
93	Public Finance, Taxation, And Monetary Policy	40,205.08	4.0
87	Engineering, Accounting, Research, Management, And Related Services	27,444.99	2.8
99	Non-classifiable Establishments	23,636.54	2.4
50	Wholesale Trade-Durable Goods	20,540.72	2.1
81	Legal Services	14,851.64	1.5
70	Hotels, Rooming Houses, Camps, And Other Lodging Places	14,070.17	1.4
27	Printing, Publishing, And Allied Industries	13,160.77	1.3
17	Construction Special Trade Contractors	7,449.41	0.7
83	Social Services	7,406.98	0.7
45	Transportation By Air	5,422.96	0.5
49	Electric, Gas, And Sanitary Services	4,933.15	0.5
42	Motor Freight Transportation And Warehousing	4,161.69	0.4
62	Security And Commodity Brokers, Dealers, Exchanges, And Services	3,750.37	0.4
35	Industrial And Commercial Machinery And Computer Equipment	3,705.31	0.4
15	Building Construction General Contractors And Operative Builders	3,330.53	0.3
78	Motion Pictures	2,056.00	0.2
28	Chemicals And Allied Products	1,251.62	0.1
39	Miscellaneous Manufacturing Industries	1,112.93	0.1
82	Educational Services	967.73	0.1
72	Personal Services	859.45	0.1
84	Museums, Art Galleries, And Botanical And Zoological Gardens	547.89	0.1
41	Local And Suburban Transit And Interurban Highway Passenger Transportation	536.63	0.1
37	Transportation Equipment	531.74	0.1



57	Home Furniture, Furnishings, And Equipment Stores	515.72	0.1
38	Measuring, Analyzing, And Controlling Instruments; Photographic, Medical And Optical Goods; Watches And Clocks	383.91	-
80	Health Services	329.34	-
48	Communications	211.05	-
86	Membership Organizations	63.84	-
43	United States Postal Service	46.44	-
63	Insurance Carriers	40.93	-
52	Building Materials, Hardware, Garden Supply, And Mobile Home Dealers	40.31	-
58	Eating And Drinking Places	17.40	-
54	Food Stores	4.26	-
	TOTAL	996,078.56	100.0

Source: Dr. Nicolas Rockler, Economist.

³ Cruise Industry News, International Guide to the Cruise Industry, 17th edition, 204, p.14.

⁴ *Ibid*, p.18.



Estimates for total Florida output related to cruise operations do not include profits because we are unable to geographically allocate income that accrues to stockholders. Thus, estimates for within-Florida impacts are downward biased. For reference, we estimate that 2003 gross profits generated by Miami-based US cruise industry worldwide amounted to \$1.2 billion of the total output of approximately \$7.8 billion, or 15% of the total. It is likely that a significant portion of these profits will be earned by Florida stockholders of these companies.

 ² To protect the confidentiality of the surveyed companies, we do not show the figures for Broward and Palm Beach counties or the rest of Florida.

⁵ Murray, Thomas. Data prepared for the Port of Key West and analyzed by the Four Gates Company.

5 Cargo Characteristics



Industry Overview

Over the last 30 years, maritime transportation has become a standardized service: manufactured goods are now typically shipped in containers, carried on vessels outfitted especially for these uniform units, and delivered to ports with

cranes and other infrastructure designed for rapid movement of containers on and off ships. Although bulk and oversized cargo have varying physical characteristics and are not containerized, the majority of goods flowing to and from Miami-Dade County through the Port are in containers.

The Port has seen growth not only by handling an increasing proportion of containerized cargo, but from growth in the regional economy, and from Miami's emergence as a center of cultural and business activity for Latin American and European trade. Today the Port of Miami is the largest container port in Florida, the fifth largest port on the Eastern Seaboard.





The Port of Miami serves a large regional (and possibly national) market for several goods shipped an average of more than 600 miles from the Port. These commodities include tobacco, chemical products, apparel and fabricated metal products. Top: unloading cargo at the gantry cranes. Bottom: containers on the FEC line.



The following points further describe the Port's cargo business:

- The total volume of cargo passing through the Port totaled 9.4 million tons in 2005, growing at a compound annual rate of 5.3% since 1996.
- Containerized cargo topped one million Twenty-foot Equivalent Units (TEUs) at 1,041,483 in 2005, and has been growing at a rate similar to tonnage (5.3% per year since 1996). Worldwide, one report offers a forecast of global container shipping volume at an even faster rate of 8.9% measured over the period rest of this decade¹.
- Overall, tonnage of imports exceeded exports by 56% and import growth has outpaced export growth at rates of 7% annually for imports, versus only 2.7% for exports.
- Among major regions internationally, nearly 60% of all trade flows from the Port to Central and South America, with Europe and East Asia representing nearly all of the remainder.
- Imports from Europe in 2005 constituted almost 30% of the Port's total imported tonnage, with imports from Asia following closely at 27%. However, imports from the Americas (South America, Central America, Mexico and the Caribbean together constitute 42% of total imported tonnage. The role of the Americas in receiving exported tonnage from the Port is more dramatic; close to 67% of exports go to that region.

Until recently, the contents of many containers were unknown, with contents appearing on bills of lading as "miscellaneous" or "not otherwise specified". However, with the events of September 11, 2001, worldwide changes to shipping now require container contents to be more specifically described. Thus, for the first time, cargo constituents are identified for all containers entering U.S. ports and this information is included as a portion of the economic impact analysis.²

Approach

The Port of Miami has experienced both consistent and moderate growth in the volume of cargo handled. While volume is the key measure of activity, it is also useful to look at the type of commodities moving through the Port and the origin of imports and destination of exports. The degree to which a port depends on specific commodities or geographic markets affects not only its current competitive position but its vulnerability to encroachment by other ports in the future. This section reviews the composition of goods entering and leaving the US via the Port, as well as the use of the Port as a transshipment point.

Table 5-1 shows the composition of trade through the Port, arranged by the 25 largest commodity groupings, based on data prepared by PIERS, Inc., for the Port of Miami. These data, taken from each vessel's bill of lading, report quantities of each shipment in detail, i.e. commodity code, weight, whether containerized or not, value, and origin/destination zip code.

The top ten commodities measured in tonnage account for one-half of the total tonnage, while the top 25 commodities account for nearly four-fifths of the total. From the list of dominant cargoes, it is evident that, with few exceptions, agricultural, forestry, mining products and nondurable manufactured products comprise the largest share of trade. This is due in part to the nature of maritime cargo, which favors low value-to-weight goods over high value-to-weight products such as pharmaceuticals and computer equipment. At the same time, this reflects the relationship of the US, particularly on the import side, with its



regional trading partners, in which primary products of relatively low value are mostly purchased.

At the highly aggregate level of product detail shown in Table 5-1, it is somewhat speculative to characterize the nature of the Port's product markets, but two features standout:

- First, the commodities shown are not generally ones that are part of timesensitive manufacturing supply chains; and,
- Second, because a great proportion of goods being shipped are also very low value and/or low density (e.g., paper and pulp, plant fiber, etc.), these commodities are likely to be sensitive to total transport costs.

Altogether, wood pulp, cotton textiles, woven plant fiber and wool products account for nearly one-half of total imports (see Appendix D for detailed import and export tonnage). The dominant exports generally have somewhat greater value added, being primarily manufactured goods such as paper products, miscellaneous goods, non-electrical machinery and trucks/buses, as well as some processed chemical and food items.

Table 5-1						
Total Cargo	Volume	Ranked	by	Metric	Tons,	2004

2-Digit Code	Description	Metric Tons	Percent
47	Pulp and Paper Products, including Scrap and Waste	876,567.2	12.2
53	Natural Fiber Fabrics, not including Cotton or Wool	616,515.8	8.5
16	Edible Preparations of Meat, Fish, Crustaceans etc.	537,470.3	7.5
14	Other Vegetable Products including Oils and Fats	420,979.5	5.8
00	Miscellaneous Goods including Household Goods	273,461.4	3.8
51	Wool and Animal Hair, including Yarn and Woven Fabric	265,985.0	3.7
38	Miscellaneous Chemical Products	235,930.6	3.3
52	Cotton, including Yarn and Woven Fabric Thereof	175,825.7	2.4
25	Salt, Sulfur, Earth & Stone; Lime ,Cement, and Plaster	167,169.1	2.3
62	Apparel from Non-knitted Fabric	167,130.1	2.3
73	Fabricated Metal Products	161,014.4	2.2
84	Non-electrical Machines	159,939.4	2.2
87	Trucks and Automobiles, including Parts	152,674.8	2.1
21	Miscellaneous Food Products	146,721.0	2.0
72	Ferrous Metal Products	143,519.7	2.0
08	Fruits and Nuts, Fresh or Preserved	133,710.4	1.9
79	Zinc and Zinc Products	133,636.1	1.9
37	Photographic or Cinematographic Goods	133,102.2	1.8
20	Prepared Plant-Based Products, including Food	131,488.2	1.8
11	Flour and Milled Grain Products	117,925.9	1.6
85	Electric Motors and Generators (no sets)	112,210.8	1.6
39	Chemical Products	111,071.0	1.5
64	Shoes and Footwear	93,467.5	1.3
48	Paper, Paperboard and Articles (including Paper Pulp)	88,435.8	1.2



18	Cocoa and Chocolate Products	84,689.3	1.2
	Total Top 25 Commodities	5,640,641.1	78.2
	All Other Commodities*	1,571,919.9	18.2
	TOTAL	7,212,561.0	96.5
* "All off	ar commodifica" consists of those which are not in the t	on 25: while mo	of

* "All other commodities" consists of those which are not in the top 25; while most commodities are specified, some were not clearly identified despite the 24-hour rule. Source: PIERS, Inc.

Market Area of Port

Distances traveled by each shipment to or from the Port were estimated using postal zip codes, to calculate either the straight-line distance between the shipper/exporter location to the Port (for exports), or the distance from the Port to the importers' or shippers' location (for imports). Coverage of each shipment is limited to the first destination point from the Port in the case of imports or the last shipping point to the Port in the case of exports. Because these locations may not reflect the actual origin of goods or the final destination of shipment (addresses may be those of freight forwarders, wholesalers or customs brokers, especially those close to the port), a precise identification of the Port's market is challenging; however, the Piers data do provide the first basis of information ever available to the Port to examine market area.

Based on more than 250,000 shipments (bills of lading), the average distance for all shipments combined in 2004 was 384 miles, a distance that covers all of Florida south of Jacksonville. For imports, the average distance was 335 miles, and for exports it was 432 miles. That the averages are this large given the limitations of the data indicates that the Port's market area extends well beyond the State of Florida's boundary.

For both imports and exports, shipment distances do not appear to decline uniformly as distance to the Port increases, as shown in Figures 5-1 and 5-2. Although the first and last legs are predominantly short ones for imports and exports, respectively (more than half of all shipments are 50 miles or fewer), there is a substantial proportion of shipments traveling 1000-2,500 miles to or from the Port, representing approximately 20% of all first-shipment distances. These shipments may be going directly to/from owners of the goods, unlike the very shortest haul group of shipments that may be destined to freight forwarders for consolidation and reshipment to the region and beyond. They can be presumed to be truck-load shipments in so much as they are not passing through the region's warehousing and distribution industry for consolidation or repackaging.



Figure 5-1

Distribution of First Shipment Distance from Port of US Imports via the Port of Miami, 2004



Source: Dr. Nicolas Rockler, Economist, using PIERS Data

Figure 5-2 Distribution of Export Shipment to the Port of Miami by Distance (Miles)



Source: Dr. Nicolas Rockler, Economist, using PIERS Data

Different commodities have different sized market areas, among the determinants of which are cost of shipping and handling relative to the value of the goods, and the distribution channels through which the goods pass. Tables 5-3 and 5-4 show average length of import and export shipments.

Table 5-3

Average Length of First Shipment Imported Commodities through the Port of Miami, 2004

Commodity	Average Shipment Distance (Miles)
Fabricated Metal Products	1,528
Apparel From Non-knitted Fabric	931
Miscellaneous Apparel Products	872
Chemical Products	781
Miscellaneous Chemical Products	758
Organic Chemical Compounds	738
Chemical Fertilizers	696
Prepared Plant-Based Products, including Food	661
Tobacco Products	579



Soap And Detergents	561
Apparel from Knitted Fabric	559
Leather, Hides and Related Products	523
Photographic or Cinematographic Goods	514
Unclassified or Unknown	502
Cocoa And Chocolate Products	497
Adhesives	437
Bread, Pastry other Grain-Based Products	437
Ferrous Metal Products	433
Edible Oils and Fats	430
Explosives and Fireworks	418
Rubber and Rubber Products, including Tires	416
Railroad Equipment	407
Salt, Sulfur, Earth and Stone, Lime and Cement Plaster	406
Synthetic Fiber Fabrics	403
Clay and Ceramic Products	402
Miscellaneous Knitted Products	396
Cotton, including Yarn and Woven Fabric thereof	392
Miscellaneous Manufactured Products	391
Wood and Wood Products	391
Edible Preparations of Meat, Fish, Crustaceans, etc.	377
Miscellaneous Fabric Products	354
Nuts and Seeds, Oils	344
Pulp and Paper Products, including Scrap and Waste	343
Refined Petroleum Products	338
Flour and Milled Grain Products	336
Zinc and Zinc Products	335
Sugar	332
Beer, Wine and Alcoholic Beverages	331
Other Vegetable Products including Oils and Fats	328
Knitted Fabric	321
Aluminum and Aluminum Products	317
Grain and Grain Products	312
Books, Periodicals and Printer Materials	296
Shoes and Footwear	294
Glass, Glassware and Glass Products	286
Miscellaneous Leather Products	285
Wool and Animal Hair, including Yarn and Woven Fabric	281
Cork and Cork Products	280
Nonmetallic Mineral Products	260
Copper and Copper Products	256
Vegetable Gums and Resins	253
Baskets	230



Nickel and Nickel Products	219
Furskins and Fur Products	200
Natural Fiber Fabrics, not including Cotton or Wool	185
Jewelry	175
Paper, Paperboard and Articles (including Paper Pulp)	122
Miscellaneous Textile Products	48
Toiletries	12

Source: Dr. Nicolas Rockler, Economist, using PIERS Data

On the import side, Miami-Dade serves a large regional (and possibly national) market for several goods shipped an average of more than 600 miles from the Port. These commodities include tobacco, chemical products, apparel and fabricated metal products, the latter with an average import shipment distance of more than 1,500 miles.

Cross-hauling of products is evident in these data at this level of detail. On the export side, a number of exported commodities are also found to be prominent imports, such as apparel, fabric and food-related products. In view of the distances the goods are moved, Miami appears to serve large regional markets and possibly national export producers. At a more detailed level of commodity disaggregation, what appear to be cross-hauling may disappear.

Table 5-4

Average Length of Last Shipment, Exported Commodities through the Port of Miami, 2004

Exported Commodities	Average Shipment Distance (Miles)
Apparel from Non-knitted Fabric	1,290
Knitted Fabric	1,115
Other Vegetable Products including Oils and Fats	1,042
Toiletries	965
Chemical Products	920
Chemical Fertilizers	897
Edible Oils and Fats	803
Edible Preparations of Meat, Fish, Crustaceans, etc.	755
Copper and Copper Products	669
Salt, Sulfur, Earth and Stone, Lime and Cement Plaster	617
Photographic or Cinematographic Goods	477
Organic Chemical Compounds	462
Books, Periodicals and Printer Materials	455
Wood and Wood Products	394
Miscellaneous Chemical Products	390
Railroad Equipment	387
Vegetable Gums and Resins	379
Explosives and Fireworks	357



Furskins and Fur Products	337
Nickel and Nickel Products	312
Unclassified or Unknown	309
Soap and Detergents	307
Apparel from Knitted Fabric	302
Fabricated Metal Products	296
Miscellaneous Manufactured Products	296
Miscellaneous Leather Products	271
Nuts and Seeds, Oils	267
Jewelry	251
Pulp and Paper Products, including Scrap and Waste	242
Flour and Milled Grain Products	232
Cotton, including Yarn and Woven Fabric thereof	232
Miscellaneous Knitted Products	229
Miscellaneous Apparel Products	229
Cocoa and Chocolate Products	227
Leather, Hides and Related Products	224
Zinc and Zinc Products	216
Miscellaneous Fabric Products	215
Nonmetallic Mineral Products	210
Grain and Grain Products	205
Rubber and Rubber Products, including Tires	196
Adhesives	194
Synthetic Fiber Fabrics	184
Beer, Wine and Alcoholic Beverages	171
Glass, Glassware and Glass Products	169
Shoes and Footwear	169
Baskets	167
Clay and Ceramic Products	162
Ferrous Metal Products	159
Natural Fiber Fabrics, not including Cotton or Wool	152
Aluminum and Aluminum Products	135
Refined Petroleum Products	134
Cork and Cork Products	124
Paper, Paperboard and Articles (including Paper Pulp)	113
Prepared Plant-Based Products, including Food	85
Bread, Pastry and other Grain-Based Products	83
Wool and Animal Hair, including Yarn and Woven Fabric	76
Tobacco Products	52
Sugar	49
Miscellaneous Textile Products	14

Source: Dr. Nicolas Rockler, Economist, using PIERS Data



The volume of shipments does not decline at a uniform rate as the distance increases further from or to the Port. For example, the distance patterns for two important imports through Miami, ceramic tile and prepared seafood, are shown in Figures 5-3 and 5-4.

- More than 70% of all imported ceramic tile shipments are delivered from the Port to numerous distributors located less than 50 miles from the Port in and around Miami-Dade County. Miami is a national import center for ceramic tile, with distributors filling wholesale and retail orders from their locations, which are then re-shipped in small (less-than-truckload) quantities.
- A large portion of prepared meat and seafood products (including frozen products) travel only a short distance once imported, most likely to local distributors who serve the regional market. There appears to be, however, more regional markets than just that served within 50 miles of the Port. One appears at a distance in the range of 100-250 miles (still in Florida) and another between 1000-2500 miles, which includes major metropolitan centers in the northeast, Midwest and western regions. These markets are large enough to require frequent, direct shipment in full-truckload volumes.

In contrast to the highly localized shipment characteristics of many goods imported to the US through the Port of Miami, the export market size for certain important commodities is quite large, with goods traveling long distances to arrive at the Port. For example, the distribution of shipments for chemical products shows that, in general, they travel long distances prior to being exported through the Port, with approximately 85% of all chemical product exports shipped more than 500 miles, and nearly 45% traveling more than 1000 miles. See Figure 5-5.





Source: Dr. Nicolas Rockler, Economist, using PIERS Data



Figure 5-4

Distribution of First Shipment Distances from the Port of Miami, Imported Prepared Meat and Seafood Products







Source: Dr. Nicolas Rockler, Economist, using PIERS Data

Transshipment Volume

The Port of Miami serves as an important transshipment point for both domestic and international markets. According to 2004 PIERS data, approximately 440,000 tons or 6% of total shipments to Miami are destined to other maritime ports.³ Similar in some respects to a number of the cost-sensitive goods shipped to or from the Port, the handling of transshipments is prone to competition from other ports if delays on the Port of Miami become problematic. If federal and state security mandates cause shippers to seek non-US (or non-Florida) ports to avoid inspection-related delays, the sizeable transshipment volume now handled is at risk. These shipments represent approximately 52,000 TEUs or nearly 7% of the total, as shown in Table 5-4.



Table 5-5 Transshipment Volume through the Port of Miami, 2004

Source of Transshipment	Bills of Lading (000)	Metric Tons (000)	TEUs (000)
Identified in Import Database	29.4	344.4	40.2
Identified in Export Database	29.0	377.6	47.5
Duplicate Records (deduct)	8.6	158.3	16.6
Total Combined	49.8	563.7	71.1
Estimated Transshipments (x 0.5)	29.2	281.9	35.6
Shipments			
Imports	289.7	4,576.8	435.1
Exports	335.2	2,743.1	341.7
Total	624.9	7319.9	776.8
Transshipments as Percent of Total	4.7	3.8	4.6

⁴Source: PIERS and Dr. Nicolas Rockler, Economist

Information on the Port's market area is further complicated by the fact that goods that enter Miami and are transported to freight forwarders may appear to stay in the immediate area, but could actually be repackaged and shipped out of the country to other destinations. This practice, while not identifiable using existing data sources, was reported during interviews with four different freight handling operations conducted by the study team. This off-port type of transshipment may account for a significant proportion of imported and exported goods moving the short "first-leg" distance to or from the Port that was observed in the Piers data. Further, unlike many import hubs, Miami-Dade County does not have a significant manufacturing base; modeling techniques which attempt to distribute imports by industry don't work well for this area, and may be misleading in characterizing the apparent end-user of a product or commodity.

Information from interviews also suggest that cargo from Port Everglades is often blended with that from the Port of Miami once it reaches interior distribution centers, reinforcing the notion that the regional operation of ports in the Tri-County area is important.

The local market of Miami-Dade County and the Tri-County area is sizeable enough to warrant a substantial share of the observed shipment volume, but regional growth still lags the growth in import volume moving through the Port. As the region continues to grow and firms adapt and improve the regional distribution system, documentation of regional trade synergies may become more important and warrant further study. Despite an unusually high concentration of freight forwarders and customs brokers in Miami-Dade County, analysts face an absence of unified data that track cargo once it reaches is customs-required destination. Freight handlers are reluctant or unable to provide data that offer a clear picture of freight movement patterns in the region.





¹ Wall Street Journal. January 16, 2006, p. B4.

 ² PIERS uses several coding schemes, including its own four-digit codes as well as harmonized commodity codes. Combined, these allow for more than 1000 distinct categories. This report aggregates PIERS' 4-digit codes to form 99 two-digit categories. Data from PIERS was requested for the Port of Miami only and does not include information for the Miami River.

³ Transshipments are derived from the PIERS database by identifying shipments that originate at a port other than Miami and which are destined for final delivery to a port other than Miami. PIERS has separate import and export databases. Using these two, it is possible to identify double counted transshipments, i.e., ones that appear in both databases. These are identified in Table 5-4.

6 Report Findings



For public port facilities, the key measurement of accomplishment is the creation of significant, positive economic impact on the surrounding community. The Port of Miami is extremely successful in this regard. The Port's passenger numbers and cargo tonnages are comparative to the largest ports in the world, but more importantly, they translate into jobs, income and output, each of which help drive and diversify not only Miami-Dade County's economy, but the region's and the state's economy as a whole.

This study found that the Port of Miami directly generates the following key benefits (see Table 6-1 for Total Economic Impacts):

Jobs

- The Port creates 24,626 direct jobs and 81,800 total jobs (direct, indirect and induced) in Miami-Dade County
- The Port creates 98,100 total jobs in the Tri-County area and 102,300 total jobs in the State of Florida.

Personal Income

• The Port creates \$4.4 billion in personal income in Miami-Dade County, \$5.4 billion in the Tri-County area, and \$5.6 billion in the state as a whole.

Output

• The Port is responsible for almost \$12.2 billion in total output in Miami-Dade County, \$14.7 billion in the region, and \$15.4 billion in the state.



Table 6-1

Port of Miami Total Economic Impacts in 2005 Employment, Personal Income and Output in Miami-Dade County, Tri-County Area and Florida

Variable	Cumulative Port- Related Employment (000)	Cumulative Personal Income (\$ billions)	Total Output (\$ billions)
Miami-Dade County	81.8	4.4	12.2
Tri-County Area	98.1	5.4	14.7
All of Florida	102.3	5.6	15.4

Note: All dollar values are in 2005 dollars. Source: Dr. Nicolas Rockler

The Port is often mentioned along with the Miami International Airport as the economic engine for the County. This study substantiates that the Port and airport are closely linked, both from the passenger perspective (cruise and business travelers both fly through the airport) and cargo perspective (air and maritime freight synergies were documented). In addition, the Port's generation of 24,600 direct jobs is comparable to the estimated 37,000 generated at the Miami International Airport. More detailed information on related studies is found in Appendix E, Comparison with Other Studies.

Employment Impacts

This study also finds that jobs generating from the Port of Miami are diverse and generally better paying than other jobs in Miami-Dade County. Most jobs occur off-island, in businesses that are located on the mainland. These jobs are concentrated in transportation (maritime, air and ground), retail trade and business services (most notably finance, accounting, insurance, and legal services). As a provider of public jobs, the Port is not a large employer in the context of the County, with the Port accounting for less than two percent of the Port's total direct employment overall, and less than three percent of the Port's total direct employment. Those jobs, although few in number, represent an efficient use of public funds when considering the impact Port operations have in generating nearly *five* percent of the County's total employment after considering linked activities to the Port.

Surveys completed as part of the study verified a long-held, but unconfirmed, supposition that Port-related jobs tend to be good jobs. Median wages reported through surveys of Port-related businesses were \$17.25 hourly, vs. median wages for county jobs as a whole at \$12.83 hourly. Individuals with jobs directly related to the Port have an average salary of \$34,370 vs. the county average of \$33,571. Jobs directly associated with the Port are also 16% more productive than the county average. When compared to wages for service-sector jobs created by tourism, Port median wages of \$17.25 are significantly higher than wages for jobs in sales and related occupations (\$11.40 hour), food preparation and serving (\$7.61), and personal care and services (\$8.87).



Surveys also provided significant data on where people who benefit from Portrelated employment live. Table 6-2 shows that most people with Port-related live in unincorporated areas or the City of Miami.

Table 6-2

Port of Miami Direct Impact City of Residence of Surveyed Employees in Miami-Dade County

Location in Miami-Dade County	% Miami-Dade County Total
Hialeah	17.2
Homestead	1.4
Key Biscayne	0.3
Miami	27.5
Miami Beach	3.0
North Miami Beach	0.9
Opa Locka	5.6
Unincorporated	44.1
TOTAL	100.0

Source: The Four Gates Company; Dr. Nicolas Rockler, Economist

While it is difficult to fully separate economic impacts associated with cargo from those associated with cruise activities, the study was able to distinguish some industry characteristics and estimate industry specific direct job generation (see Table 6-2). Because cruise activities touch on more industries, primarily due to passenger and crew activities including travel, retail purchases, lodging, transportation and utility use, they create more jobs, income and output than the cargo industry. *This confirms that the diversity offered by both cargo and cruise activities is crucial to the overall economic stability of the Port.*

Table 6-2

Port of Miami Direct Economic Impacts Cruise, Cargo and General Operations Impacts

Sector	Employment	Personal Income (\$ millions)	Output (\$ millions)
Cruise Related	19,031	1,053	2618
Cargo Related	8,247	450	1664
General Operations	1,827	93	180
PORT TOTAL	29,103	1,595	4,461

Sources: The Four Gates Company; Dr. Nicolas Rockler, Economist; Port of Miami; REMI Model; Bureau of the Census; and Bureau of Economic Analysis



Cruise Impacts

Detailed surveys and interviews demonstrate that the Port of Miami and surrounding area reap many benefits from the cruise industry, including:

- Homeport Passenger spending of \$83.48 (average per passenger), which in 2005 represents \$ 295 million in spending (measured in \$2005);
- Port-of-Call Passenger spending of \$40.62 each or \$9 million in 2005;
- Crew member spending averaging over \$190 per month in Miami or an estimated \$28 million annually; and,
- Cruise line annual contributions in 2005 were estimated at \$1.3 billion in Miami-Dade County alone.

The cruise surveys revealed that passengers consistently rated their satisfaction with the Port of Miami as excellent or good in every major category, even when construction activities at the Port impacted passenger experiences. The surveys also found that most passengers (eight out of 10) would plan a future vacation in Miami based on their cruise experience, indicating that their experience in the larger community was positive.

While the surveys indicated that spending is strong and satisfaction is good, it did find several areas where improvements might be warranted. For example, passenger spending could be increased by working with the cruise industry to encourage more passenger stays before and after cruises. In addition, cruise ship crew satisfaction might increase with additional on-port facilities.

Larger industry trends, such as the development of new homeports to accommodate "close to home" cruising, have already had a demonstrative impact on the Port of Miami through decreased passenger numbers. While Miami's airlift capacity will always ensure its position as a significant homeport, it will likely not dominate to the same extent in the future. Therefore, information in the surveys on spending patterns is particularly relevant if the larger business community wants to maintain and increase positive impacts despite more modest growth in passenger numbers expected in the future.

Cargo Impacts

The Port serves two distinct sets of geographic markets. The first one, centered on the metropolitan area (less than 50 miles from the Port) consists of the local consumer market and the warehousing, distribution, and transportation complex that then re-ships throughout the country. The second market is quite distant and is comprised of manufactured goods that travel, on average, between 500-2500 miles, and is served directly by the Port. In view of the distances traveled, it can be conjectured that these goods are less transport-cost sensitive, but may need to be shipped with predictable timing to get into the retail distribution or manufacturing chains.

The cargoes moving through the Port appear to be of two types, based on recent data. First, the largest volume of commodities moving through the Port appear to be characterized by low-value, high bulk goods, such as paper, pulp, and fibers; these goods are generally containerized, transport-cost sensitive, but not time-sensitive. The second set of goods moving through the Port are more specialized and have both higher value and greater needs for timeliness; these products include a number of different chemical products, apparel, and fabricated metal



products. These commodities are not generally ones that are part of timesensitive manufacturing supply chains, but because a great proportion of goods being shipped are also very low value and/or low density (e.g., paper and pulp, plant fiber, etc.), these commodities are still likely to be sensitive to total transport costs, ones negatively affected by terminal dwell time. If delays getting on or off the island become the norm, whether from general congestion, security and customs inspection delays, or peak load capacity problems, the Port's competitiveness will deteriorate, even for goods that don't appear to be timesensitive. To the extent that ground transportation firms are able to pass congestion costs along to shippers or consumers, rising relative costs will induce the use of other ports, all else being equal. However, if transportation firms are forced to absorb these costs because of stiff competition within the trucking and warehouse industries, the Port will not likely suffer in the near-term. Longer-run, if the congestion goes unabated for an extended period, fewer trucking firms and independent operators will concentrate on serving the Port, forcing up overall transport costs.

Conclusions

The Port of Miami is one of the country's major cargo ports: it is the fifth largest on the Atlantic coast in terms of tonnage, the twenty-fifth largest container port in the world, and the hub of an intercontinental shipping complex that is linked to the rest of the domestic market through a network of transport providers that include trucking firms, freight forwarders, logistics companies, and consolidators. They, in turn, rely on multimodal access that includes both air and ground transport that comprise a network whose performance is continually evaluated by users for both speed and reliability. Although Miami has a peripheral location with respect to the domestic market, it is well-positioned to serve as a focal point for international shipping that encompasses the Americas, but which also includes Europe and Asia. Its dominance may be challenged by competitors, both near ones in Florida and those along the Gulf and Atlantic coasts, whose distance from foreign markets is not drastically different from that of Miami. To meet this competition, both speed and reliability will be important determinants of success, especially as security-related activities (and delays) become a prominent feature of the shipping process.

The Port of Miami's long dominance as a cruise passenger homeport is changing along with the market, which is shifting to diversification of homeports throughout coastal areas of the United States. However, Miami will always have the attraction of airlift capacity and its strategic location to North American market itineraries as well as the infrastructure to continue serving a large portion of the North American cruise market. Surveys indicate that passenger spending – and related positive impacts on the economy – could be increased, and may offer an important benefit as overall passenger numbers begin to stabilize.

Miami-Dade County, and in fact the greater Tri-County region and state, reap significant benefits from the Port, and the facility must be supported at all levels to ensure that quality jobs and diversity in the overall economy of the area remain.



Appendix A Economic Modeling Methodology

A multi-regional model (the REMI model) was used to estimate the economic impacts of activities at the Port of Miami. These activities include both those present at the Port and those located off-Port, but still within Miami-Dade County. This Appendix provides an overview of the model and presents a set of Port-related impact estimates for Miami-Dade County.

The REMI Model

Economic estimates for the Port of Miami are derived from the REMI model, a model developed by Regional Economic Models, Inc. This model is a hybrid, combining the behavioral and temporal characteristics of a multi-regional econometric model with the structural relationships found in an input-output framework. The model, as used in this study, links economic activity found in three regions:

- Miami-Dade County
- Broward County and Palm Beach County (combined)
- The remaining Florida counties (combined)

The model is constructed from a set of regional equations that depict the behavior of individuals and firms with respect to varying economic conditions such as changes in price levels, employment opportunities, wage rates, and volume of economic output.

The REMI model adheres to assumptions commonly found in many macroeconometric models in that the behavioral portions of the model link to consumption, investment, government spending, intermediate goods production, labor markets, financial/capital markets and demographic movements. By holding to standard income and product accounting conventions, the model produces results consistent with national and regional economic accounts developed by federal statistical agencies such as the US Bureau of Labor Statistics and the US Bureau of Economic Analysis.

The components of the REMI model that elicit consumer and producer responses convey market supply and demand through pricing mechanisms. This is a significant feature of the model that distinguishes it from several others commonly used for regional impact estimation. Two of the better known models Regional Impact Modeling System (RIMS) from the Bureau of Economic Analysis and the IMPLAN model from the Minnesota Implan Group, Inc. – are built around a static input-output modeling framework. This entails the use of fixed relationships between output, employment and income, operating in a linear fashion, regardless of the market conditions affecting any or all of these factors. These relationships are independent of timing considerations, which are unspecified.



When a regional labor market is already operating at full-employment levels and a model structure like that of IMPLAN or RIMS is employed, expanding output does not cause wage rates to rise, labor force participation to increase, inmigration from other regions to grow. Changes in employment follow from output-level changes, occurring immediately and without limitation on capacity or availability of resources. This absence of *realistic* economic behavior is not problematic when considering the economic impacts of very small industries or small changes in activity levels, but poses a number of analytical challenges when attempting to account for the impacts of larger and more complex industries, such as the Port of Miami. In a very real sense, the Port and activities directly tied to it have significant influence on the market for certain occupations and on the labor market and level of output of the region in general.

The REMI Model Structure

The REMI model utilizes blocks of regional equations that the designer estimated on the basis of conventional behavioral assumptions commonly found in macroeconometric models. Characterized by highly flexible geographic coverage that has the capability to range from single counties to the entire country, its components include an equally geographically flexible non-survey-adjusted inputoutput model that is useful for disaggregating and localizing the effects of certain changes in final demand.

The REMI model is also distinguished from other regional models by its being the first to apply the concept of regional purchase coefficients to interregional trade flows (for example, it provides measurements of relative regional sectoral self-sufficiency compared with the nation as a whole, for estimating regional imports and exports). This concept was developed by Treyz, Friedlaender, and Stevens (1980). Figure A-1 shows the basic model linkages, and Ehlen and Brown (2000) provide a useful compact summary of its operations and assumptions.

The model is comprised of five *blocks* of behavioral equations estimated using multiple-regression techniques that link output, labor/capital demand, population/labor supply, wages/prices/profits and geographically defined market shares. Using the model, an analyst can draw on the output, employment and income blocks to make estimates at either a 53- or 172-sector level of detail. The analysis of the Port of Miami was conducted with the 53-sector model.



Figure A-1 Basic Model Linkages in the REMI Model



Impact Types

The REMI model generates economic and demographic forecasts on an annual basis, constructed from more than 30 years of historical data. Its forecast horizon extends 35 years, but we have limited this to 10 years (2005-2015) for planning purposes. When estimating economic impacts, users are required to identify the *direct* impacts of an activity, which is then used to simulate the full economic effects. Direct effects, measured as employment, personal income, gross regional product, or value of output, are those of the industry or industries (or economic complex) being analyzed, such as the maritime cargo and cruise transportation industry. Direct economic activity gives rise to indirect and induced effects.

By convention, *indirect* impacts are those derived from intermediate goods and service production, i.e., the things needed to support direct activity, such as material inputs, fuel and services. In the case of cruise transportation, purchases of goods such as food and beverages, cabin furnishings and maritime insurance are all deemed indirect, in that they are needed to support the direct (cruise) outputs.

Induced impacts are those that arise from consumption expenditures supported by income earned in both direct and indirect activities. Because consumption accounts for such a large proportion of overall economic activity, it is not unusual to find that induced effects are often equal in magnitude to those of the direct and indirect effects combined. This becomes less significant as region sizes decline, as both indirect and induced expenditures flow out of an area with only little return flow in later time periods, reducing the multiplier.

The REMI model also includes one other impact measure, termed *the full impact*. This includes direct, indirect, and induced impacts as well as those caused by population movement stimulated by the other effects. Shifts in population and changes in labor force participation occur as labor markets evolve. These can, in turn, cause changes in the location of consumption and investment and become



a significant source of economic growth or decline. In this study, the full impact is estimated and used in the analysis. The indirect and induced impacts are not broken out separately, as the REMI model simultaneously includes both effects in estimating impacts.¹

Estimates of Direct Effects of the Port As Impacts the REMI Model

The total impact estimates for the Port rely on a set of industry-specific direct impact estimates that depict the level of activity measured on an annual basis. For example, data on the level of output for the Miami-Dade maritime transportation industry is reported annually by the Bureau of Census, US Department of Commerce, in the Census of Transportation. These measurements, taken every five years and supplemented with annual survey estimates for intervening years, provide the best available time-series estimate for the output and employment of cruise and cargo services combined. Similar estimates exist for the county output of air and local transportation, freight forwarding, travel agency services and transportation equipment repair services. The full set of direct impacts consists of the following measures:

- Industry Output
- Maritime transportation
 - Cruise
 - Cargo
- Shipbuilding and Repair* (excluding boat repair)
- Freight Forwarding* (Maritime only)
- Port Administration, Security, and Safety* (portion of local government employment)
- Travel Arrangement* (cruise and portions of cruise-related air transportation)
- Air Transportation* (Cruise-related only)
- Cruise Passenger and Ships' Crew Expenditures from survey estimates:
 - Lodging
 - Housing and Utilities (energy, telecommunications)
 - Food and Beverage
 - Entertainment
 - Local transportation (public, car rental, taxi)
 - Miscellaneous (souvenirs, other purchases)
 - Port Capital Improvements (value of contract construction)

* Industry output adjusted for Port only proportions based on direct requirements for the water transportation industry given in the 1997 Input-Output Accounts of the United States from the Bureau of Economic Analysis.



Estimates for these direct impact amounts are shown in Section 3 in Table 3-1, and are adjusted to appear in current (2005) dollar amounts. These amounts are used to drive the model for 2005 and subsequent years incorporating the REMI baseline forecast.²



¹ The presentation of separate effects is generally limited to pure input-output models, which require that the model be run in two stages to obtain the separate impacts. The REMI model performs this simultaneously and, for our purposes, there is no analytical benefit to separating the impacts derived from intermediate inter-industry consumption and that from personal consumption derived from personal income.

² Except for Port-related capital expenditures, which represent the actual budgeted amounts from the Port's capital plan.

Appendix **B** Definition of Terms used in Section 3

Air Transportation: Establishments engaged in providing air transportation to and from Miami for the purpose of cruising.

Ground Transportation and Maritime Freight Forwarding: Businesses related to the distribution of freight including long distance and local trucking, warehousing, transfer services and rail service.

Housing and Lodging: Businesses providing lodging for cruise ship passengers and crew in Miami and hotel and other crew housing in Miami.

Local Transportation: Firms engaged in providing ground transportation for cruise ship passengers and crew, such as taxis, shuttle services and car rental for passengers and crew

Port Administration, Security and Safety: Public entities that manage the Port, provide Port security and provide Port safety.

Port Construction: Businesses engaged in the construction of Port improvements.

Retail Trade: Firms involved in providing food, excursions, and entertainment for cruise ship passengers while in Miami.

Ship Building and Repair: Establishments primarily engaged in building and repairing ships, barges and lighters.

Travel Agency Services: Firms involved in ticketing for cruises.

Utilities: Companies providing power, water and sanitary sewer for cruise ships.

Water Transportation: Establishments engaged in freight and passenger transportation on the open seas and related services, such as cargo handling services. For our study, this category includes a portion of corporate activities of cruise lines and cargo companies.

Division Titles for SIC Code

Agricultural, Forestry and Fishery Services: Establishments engaged in performing soil preparation, crop services, animal services, farm labor and management services (including landscaping services).

Construction: Establishments engaged primarily in new construction, additions, alterations and repair of structures.

Farm: Establishments primarily engaged in agricultural production.

Federal Civilian: Government establishments engaged in non-defense.

Federal Military: Government establishment engaged in defense activities.

Finance, Insurance and Real Estate: Establishments primarily engaged in providing finance, insurance and real estate, including depository institutions, credit institutions, holding companies, security brokers and dealers, commodity



brokers and dealers, insurance agents and brokers, and real estate owners, lessors, lessees and buyers, sellers, agents and developers.

Manufacturing: Establishments engaged in mechanical or chemical transformation of materials or substances into new products.

Mining: Establishments primarily engaged in extraction of minerals, including quarrying.

Retail Trade: Establishments selling merchandise for personal or household consumption or rendering services to same.

Services: Establishments primarily engaged in providing a large variety of services for businesses, individuals and governments, including personal services, business services, repair services, amusement services, health services, legal and engineering services, and educational services.

State and Local: State and local government.

Transportation and Public Utilities: Establishments providing to the general public and business enterprises passenger transportation, communication services, electricity, gas, steam, water or sanitary services, and all establishments of the U.S. Post Office.

Wholesale Trade: Firms engaged in selling merchandise to retailers, industrial, commercial, institutional, farm, contractors or professional business users.



Appendix C Cruise Passenger & Crew Survey Analysis

Background and Purpose

Survey research was conducted to assess the economic impact of cruise ship passenger and crew spending on the Miami economy. This was accomplished by asking passengers and crewmembers how much money they spend in various categories, including lodging, shops, restaurants, transportation, recreation and entertainment. In addition, the survey measured satisfaction with Port facilities to provide direction in making marketing and operational improvements.

The primary objectives of the cruise-related surveying were to:

- Estimate the economic impact of spending by home port and port-of-call passengers
- Estimate the economic impact of spending by crew
- Measure home port and port-of-call passenger and crew satisfaction with the Port of Miami

The discussion in this Appendix includes the following sections:

- Home Port Cruise Ship Passenger Survey
- Port-of-Call Cruise Ship Passenger Survey
- Crew Survey
- Methodology

Home-Port Cruise Survey

Passengers during the shoulder, winter and summer seasons were intercepted and asked to complete a survey as they embarked or disembarked from ten different cruise ships, including both short and long itinerary vessels in the Port of Miami. Short itinerary cruises are those between three and five days while long itinerary cruises are seven days in duration. The distribution of passengers represented in the survey by ship is shown in the Table C-1.

Table C-1

Distribution of Respondents by Cruise Line

Percent of Passengers
46%
40%
14%

Source: Home Port Passenger Survey, 2004



In total, 44% of passengers took a cruise on a short itinerary vessel and 56% cruised on long itinerary vessels. This proportion approximates the distribution of all passengers by itinerary. According to the most recent data available from the Port of Miami, 40% of passengers took short itinerary cruises and 60% took long itinerary cruises in 2003.

Length of cruise varied significantly by season, with summer-season passengers more likely to take shorter cruises (60%) than passengers sailing during the shoulder (35%) and winter (37%) seasons. This is shown in the Table C-2.

Table C-2

Comparison of Cruise Length by Season

Length of Cruise		Season		Total
	Shoulder	Summer	Winter	
Short: 3 to 5 days	35%	60%	37%	44%
Long: 7 days	65%	40%	63%	56%

Source: Port of Miami, 2004

For six out of ten passengers (60%), this was the first cruise they had taken from the Port of Miami. Passengers sailing during the summer season were more likely to have not cruised from the Port of Miami previously (68%) than passengers sailing in the shoulder (58%) and winter (56%) seasons.

One-third of passengers (35%) were on their first cruise when interviewed. Including this cruise, it was the second cruise taken for 22% of passengers, while 21% had taken 3-4 cruises. Nearly one-fourth of homeport passengers (22%) were avid cruisers, having cruised five or more times. The average number of cruises passengers had taken is four, while the median is two.

Satisfaction with Port Experience

In addition to rating their overall experience, passengers rated their experience at the Port of Miami as excellent, good, fair or poor in ten areas:

- Ease of access to the port
- Directional signs
- Parking
- Check-in process
- · Friendliness and helpfulness of the curbside staff
- Baggage claim process
- Finding and boarding the bus
- Locating their vehicle
- Security
- Comfort and appearance of the terminals
- Overall experience



Table C-3 shows the rating of each area of experience by category. Satisfaction was high in all aspects of the experience at the Port of Miami with each rated excellent or good by at least 81% of passengers. However, the Port of Miami may want to review the Comments section to gain direction for improving ratings and achieving an even higher level of passenger satisfaction.

Table C-3

Rating of Port Experience

Area of Experience	Excellent or Good	Fair or Poor
Ease of access to the port	88%	12%
Directional signs	82%	18%
Parking ¹	81%	19%
Check-in process ²	89%	11%
Friendliness and helpfulness of curbside staff	88%	12%
Baggage claim process ³	83%	17%
Finding and boarding the bus ³	87%	13%
Locating their vehicle ¹	90%	10%
Security	91%	9%
Comfort and appearance of terminals	83%	17%
Overall Experience	88%	12%

Source: Home Port Passenger Survey, 2004

¹ Rated only by passengers with a private vehicle.

² Not rated by shoulder season disembarking passengers.

³ Not rated by shoulder season embarking passengers.

Eight in ten passengers (81%) said they would plan a future vacation in Miami. (*This question was added to the survey for summer and winter season passengers. It was not asked of the first survey conducted with shoulder season embarking and disembarking passengers.*)

Willingness to Pay Fee Earmarked for Security

One-third of passengers (36%) would be willing to pay a nominal additional fee in US cruise ports that would be earmarked for security and 41% might. Only one-fourth of passengers (23%) would not be willing to pay a nominal fee for additional security.

Expenditures of Cruise Ship Passengers in Miami

One-fourth of passengers (24%) had purchased a vacation package while threefourths (76%) purchased the cruise individually. Most vacation packages included airfare (88%) and local transportation (68%). One-third of vacation packages (31%) included hotel, 10% entertainment and 3% included meals before or after the cruise. A bus trip was included in the packages of less than 1% of passengers.

Nearly half of passengers (46%) spent money in Miami prior to their cruise that was *not* included in the cruise vacation for such items as lodging, meals, rental cars, taxis and entertainment. Though they spent less per passenger, nearly the same number of passengers (44%) spent money on these items after their cruise.



In total, home-port passengers spent an average of \$83.48 in Miami. This figure does not include income from pre-paid components of vacation packages that are spent in Miami.

On a dollar value basis, the majority of passenger expenditures is spent on hotels (33%), food and beverages (26%) and shopping (21%). Figure C-1 shows the distribution of expenditures by type.

Figure C-1

Distribution of Home Port Passenger Expenditures in Miami by Value



With the exception of events, homeport passengers spend more money in Miami prior to their cruise than after the cruise, particularly for hotels, food and beverages, and shopping. In total, passengers spent \$53.94 prior to the cruise and \$29.54 afterwards. Figure C-2 provides a comparison of average per-passenger spending by category before and after the cruise.

Figure C-2 Average Per Passenger Expenditure by Category



The following sections provide detail on the percent of passenger spending money in each category and the average amount spent before and after their cruise.


Hotel

Total spending by homeport cruise ship passengers on hotels averaged \$28.00 per all passengers with \$20.26 spent prior to the cruise and \$7.74 after the cruise.

Prior to the Cruise. The majority (62%) of passengers did not stay overnight in Miami before their cruise. One-third (34%) spent one to two nights in Miami prior to their cruise and four percent stayed in Miami three or more nights before embarking.

Of the 38% of passengers staying overnight in Miami before embarking on their cruise, 91% stayed in a hotel. They represent 34% of all passengers. One-fourth of these passengers (25%) stayed in a hotel located in downtown Miami, 20% stayed at an airport hotel, 19% in Miami hotels, 12% in Miami Beach hotels and 10% in a hotel on South Beach. Six percent stayed in the Civic Center, Coconut Grove or Coral Gables. The remaining 8% stayed in hotels in Broward and Palm Beach Counties. Of the remaining passengers staying overnight prior to their cruise, 7% stayed with friends or relatives, 1% in a condominium or timeshare and less than 1% stayed in their motor home or car.

Of the 62% of passengers who did not stay overnight in Miami prior to their cruise, one-third (33%) were in Miami less than one hour before embarking, 55% were in Miami 1-2 hours prior, and 11% were in Miami three or more hours. Both the average and median number of hours spent in Miami prior to embarking was one.

Overall, 34% of all passengers stayed in a hotel prior to their cruise. Passengers during the shoulder season were more likely than passengers during the winter season to stay in a hotel prior to their cruise (40% vs. 33% respectively).

Passengers staying in a hotel prior to their cruise spent an average of \$59.59 per passenger, or \$20.26 per passenger based on all passengers. Passengers cruising during the summer and winter seasons spend more money on lodging than passengers cruising during the shoulder season (\$57.82 and \$61.85 vs. \$42.56 respectively).

After the Cruise. The vast majority (88%) of passengers did not stay overnight in Miami after their cruise. Ten percent spent 1-2 nights in Miami after their cruise and two percent stayed in Miami three or more nights after disembarking.

Of the 12% of passengers staying overnight in Miami after their cruise, 81% stayed in a hotel. They represent 10% of all passengers. Onefourth of these passengers (23%) stayed in a hotel located at the airport, 18% stayed in Miami, 15% stayed in Miami Beach hotels, 12% stayed in downtown Miami and 10% in a hotel on South Beach. Six percent stayed in the Civic Center, Coconut Grove, Coral Gables, or Hialeah. The remaining 16% stayed in hotels in Broward, Palm Beach and Monroe Counties. In total, 11% of passengers staying in a hotel stayed in downtown Miami.

Of the remaining passengers staying overnight after their cruise, 17% stayed with friends or relatives, 2% in a condominium or timeshare and 1% stayed in lodgings of the Baptist Hospital.

Of the 88% of passengers who did not stay overnight in Miami after their cruise, 27% stayed in Miami less than one hour after their cruise, 33% were in Miami for 1-2 hours, 19% were in Miami 3-4 hours, 12% for 5-6



hours and 11% were in Miami seven or more hours. The average number of hours spent in Miami after the cruise was three, while the median was two.

Passengers staying in a hotel after their cruise spent an average of \$77.44 per spending passenger on paid lodging, or \$7.74 per passenger for all passengers.

Car Rental

Total spending by home port cruise ship passengers on rental cars averaged \$5.19 per all passengers with \$3.07 spent before the cruise and \$2.13 after the cruise. Arriving to the port on the day of the cruise, an equal number of passengers took a bus (25%) or shuttle (25%), drove a private vehicle (23%), or took a taxi (22%). Only 4% hired a limousine and 3% a rented a car.

Seven percent of passengers used a rental car prior to their cruise, spending an average of \$43.80 per spending passenger, or \$3.07 per passenger based on all passengers. Five percent of passengers used a rental car after their cruise spending an average of \$42.53 per spending passenger, or \$2.13 per passenger based on all passengers.

Taxi Cab/Limousine

In total, passengers spending money on taxis and limousines averaged \$7.13 per all passengers.

One in four (26%) passengers hired a taxi or limousine before their cruise, spending an average of \$16.51 per spending passenger, or \$4.29 per passenger based on all passengers. One in five (21%) passengers hired a taxi or limousine after their cruise, spending an average of \$13.49 per spending passenger, or \$2.83 per passenger based on all passengers.

Food and Beverage

In total, homeport passengers spent an average of \$21.52 per all passengers during their stay in Miami on food and beverages. Forty percent of passengers purchased food and beverages before the cruise with 30% of these expenditures made in downtown Miami. These passengers spent an average of \$35.36 per spending passenger on food and beverages prior to their cruise, or \$14.22 per passenger based on all passengers.

Passengers cruising during the summer and winter seasons spent more money on food and beverages before the cruise than those cruising during the shoulder season (\$42.09 and \$33.28 vs. \$20.71 respectively). Thirty-six percent of passengers purchased food and beverages after the cruise with 18% of these expenditures made in downtown Miami. These passengers spent an average of \$20.27 per spending passenger, or \$7.30 per passenger based on all passengers.

Shopping

In total, passengers spent an average of \$17.71 per all passengers shopping before or after their cruise. Twenty percent of passengers spent money shopping before the cruise with 34% of these purchases made in downtown Miami. These passengers spent an average of \$53.31 per spending passenger, or \$10.66 per passenger based on all passengers.



Passengers cruising during the winter season spent more money shopping before the cruise than those cruising during the shoulder season (\$56.20 vs. \$29.50 respectively). Fifteen percent of passengers spent money on shopping after the cruise with 23% of these purchases made in downtown Miami. These passengers spent an average of \$46.98 per spending passenger, or \$7.05 per passenger based on all passengers.

Sporting Events

Less than 1% of passengers spent money on sporting events before the cruise, none of which were in downtown Miami. Likewise, less than 1% of passengers spent money on sporting events after the cruise. Due to the small number of passengers spending in this category, per-passenger expenditure figures are not reliable and, therefore, not presented.

Ecotours and Parks

Two percent of passengers spent money on ecotours or visiting parks before the cruise, of which 22% was in downtown Miami (due to the small sample size, the percentage is presented for informational purposes and is not statistically reliable). Due to the small number of passengers spending in this category prior to their cruise, per-passenger expenditure figures are not reliable and, therefore, not provided.

Three percent of passengers spent money on ecotours and visiting parks after the cruise, of which 9% was in downtown Miami. These passengers spent an average of \$30.27 per spending passenger on ecotours and visiting parks after their cruise or \$0.91 per all passengers. While the data on average expenditures is statistically reliable, it has a high margin of error due to the small sample size.

Attractions, Concerts or Tours

In total, home-port passengers spent an average of \$2.60 per all passengers on attractions, concerts or tours during their visit to Miami. Three percent of passengers spent money on attractions, concerts or tours before the cruise, none of which was in downtown Miami. These passengers spent an average of \$38.32 per spending passenger in this category prior to their cruise, or \$1.15 per all passengers. Five percent of passengers spent money on attractions, concerts or tours after the cruise, of which 22% was in downtown Miami. These passengers spent an average of \$29 per spending passenger in this category after their cruise, or \$1.45 per all passengers.

SUMMARY:

Attractions, Concerts, Tours, Sporting Events, Ecotours and Parks

By combining spending on attractions, concerts and tours; sporting events; and ecotours and parks we are able to more reliably calculate expenditures, including those categories that individually have a sample size too small to report. Combined, 4% of passengers spent money engaging in these activities before the cruise and 8% afterwards, spending \$1.44 and \$2.49 per all passengers respectively. In total, passengers spending in these three categories spent an average of \$3.93 per all passengers either before or after their cruise.



Passenger Characteristics

Half of the passengers (52%) flew into Miami International Airport for their cruise. Twenty percent drove a private vehicle, 16% flew into Ft. Lauderdale International Airport, 6% arrived via bus, 3% drove a rental car and 2% hired a limousine.

More than half of all passengers (55%) traveled in parties of 1-2 persons. Twenty-seven percent had a party size of 3 to 5 persons, 9% were in parties of 6-9 persons and 9% traveled with ten or more people. The average party size was six, while the median was two. The majority of parties (60%) consisted of two adults. One-third (35%) were parties with three or more adults and only 5% traveled alone. The vast majority (81%) did not travel with children under 18 years of age. The average age of each person traveling in the party is shown in the Table C-4 below. Most passengers were in their 40's and 50's.

Table C-4

Average Age of Passengers

Passenger	Average Age (years)
First person	50
Second person	48
Third person	39
Fourth person	40
Fifth person	41
Sixth person	45
Source: Home Dort	Bassanger Survey 2001

Source: Home-Port Passenger Survey, 2004

For half of homeport passengers (53%), three people shared the expenses of their cruise vacation. Eleven percent bore the expenses themselves, 14% shared the expenses with another individual, and 22% shared the expenses with three or more others. The average number of additional people (other than the respondent) sharing the expenses was four, while the median was two.

The majority of homeport cruise ship passengers (61%) have an annual household income of \$50,000 or more as shown in Table C-5. Homeport passengers responding to the survey were 65% female and 35% male.

Table C-5Annual Household Income of Passengers

Household Income	Percent of Passengers
Less than \$30,000	8%
\$30,000 to \$39,999	9%
\$40,000 to \$49,999	12%
\$50,000 to \$74,999	28%
\$75,000 to \$99,999	20%
\$100,000 to \$149,999	15%
\$150,000 to \$199,999	6%
\$200,000 or more	3%

Source: Home Port Passenger Survey, 2004



Port-of-Call Cruise Ship Passenger Survey

The following pages detail the survey results of port-of-call passengers on the *Norwegian Dawn* during their stopover in Miami in August 2003 and May 2004.

Satisfaction with Port Experience

In addition to rating their overall experience at the Port of Miami, port-of-call passengers rated their experience at the port as excellent, good, fair or poor in seven areas:

- Ship disembarkation process
- Ease of access to and from the port once off the ship
- Directional signs
- Finding and boarding the excursion bus
- · Helpfulness of the concierge desk in the terminal
- Security
- Comfort and appearance of the terminals
- Overall experience

Table C-6 shows the top two box and bottom two box ratings of passengers for each area. Top-two box refers to combining excellent and good ratings while bottom-two box refers to combining ratings that were fair or poor.

As is evident in Table C-6, satisfaction was exceptionally high in all aspects of the experience at the Port of Miami with each rated excellent or good by nearly all passengers with the exception of directional signs, which were rated fair or poor by 7% of passengers.

Table C-6

Rating of Port Experience

Area of Experience	Excellent or Good	Fair or Poor
Ship disembarkation process	99%	1%
Ease of access to and from the port once off ship	98%	2%
Directional signs	93%	7%
Finding and boarding the excursion	97%	3%
Friendliness and helpfulness of the concierge desk in the terminal	97%	3%
Security	98%	2%
Comfort and appearance of the terminals	98%	2%
Overall experience at the port	98%	2%

Source: Port-of-Call Passenger Survey, 2004



Eighty-four percent of port-of-call passengers indicated they are 'very likely' or 'likely' to take another cruise that includes Miami in the itinerary. Specifically, 42% indicated they are 'very likely' and 42% are likely to take another cruise involving Miami in the itinerary. Thirteen percent are 'neither likely nor unlikely,' and only 4% are 'very unlikely' or 'unlikely' to book a cruise that includes the Port of Miami in the itinerary.

Based on this cruise experience in Miami, 77% are 'very likely' or 'likely' to return to Miami for a land-based vacation in the future. Specifically, 33% indicated they are 'very likely' and 44% are 'likely' to take a land-based vacation in Miami. Thirteen percent are 'neither likely nor unlikely,' and 10% are 'very unlikely' or 'unlikely' to visit Miami on a non-cruise vacation.

What port-of-call passengers most liked about Miami were the beaches (21%), South Beach (15%), the weather (13%), and shopping (12%). Four in ten (43%) passengers said there was nothing about Miami that they disliked. Twenty-two percent disliked the heat and humidity and 11% the traffic.

Off-Shore Activities and Passenger Spending

Nearly half of port-of-call passengers (45%) took an organized excursion, of which 90% were purchased on the ship. One in five passengers (21%) took an excursion to South Beach or Bayside, 15% went to the Everglades, 14% took the B&B Hopper and 11% went on the Duck Tour. Based on data provided by the Port of Miami, passenger spending on pre-paid excursions averaged \$22.75 per spending passenger, or \$10.35 per all passengers. On an annualized basis, spending on excursions is estimated at \$1,244,784 with half of this amount (\$622,000) impacting the Miami economy.

The majority of passengers (91%) rated their excursion as excellent or good, with 57% rating their excursion as excellent and 34% as good. The majority of passengers spent their personal time in Miami shopping (38%), at the beach or a pool (26%), or sightseeing (18%). On average, passengers spent 4.5 hours offship in Miami.

Eight in ten passengers (84%) spent money in Miami during their visit. Sixtyeight percent purchased food and beverages, 50% spent money shopping (not including clothing), 31% purchased clothes, 31% hired a taxi, and 26% purchased souvenirs. Spending occurred in other categories by 7% or fewer passengers. Figure C-3 shows the percentage of passengers who spent money in Miami by category.



Figure C-3 Percent of Port-of-Call Passenger Spending in Miami by Category



Detailed Expenditures by Category

In total, port-of-call passengers spent an average of \$40.62 in Miami per all passengers. Per passenger spending is highest for non-clothes shopping (\$15.57), followed by spending on clothing (\$8.59) and food and beverages (\$7.42). Figure C-4 shows the average per passenger expenditure by category of port-of-call passengers during their visit to Miami.

Figure C-4 Port-of-Call Average Per-Person Expenditure, by Category





Non-Clothes Shopping

The non-clothes shopping category is a combination of several categories asked in the survey because the number of port-of-call passengers purchasing in individual categories was too small to calculate reliable expenditure estimates. The categories included in shopping are as follows. The percentage beside each shows the percent of passengers spending in the category.

- 5% Jewelry and watches
- 2% Electronics
- 2% Perfume and cosmetics
- 2% Artwork
- <1% Crystal and china

Combined, half of port-of-call passengers (54%) spent money in Miami purchasing these items. In total, passengers who spent money on non-clothing items spent \$31.06 on average, or \$15.57 per all passengers. Just over half of these (54%) shopped in downtown Miami.

Clothes

One-third of port-of-call passengers (31%) purchased clothing in Miami spending an average of \$27.45 per spending passenger, or \$8.59 per all passengers. Half of these (52%) purchased clothing in downtown Miami.

Food and Beverages

Two-thirds of passengers (68%) purchased food and beverages in Miami spending an average of \$10.92 per spending passenger, or \$7.42 per all passengers. Half of these (48%) purchased food and beverages in downtown Miami.

Souvenirs

One-fourth of passengers (26%) purchased souvenirs in Miami spending an average of \$17.43 per spending passenger, or \$4.52 per all passengers. Nearly half of these (45%) purchased souvenirs in downtown Miami.

Events

Passengers were asked how much they spent on sightseeing, entertainment, ecotours and parks, and attractions, tours and concerts. Because so few port-ofcall passengers engaged in any of these activities individually, the categories were combined into one events category. In total, 10% of passengers engaged in events spending an average of \$23.62 per spending passenger, or \$2.31 per all passengers. (Note: the percentage of passengers who participated in events downtown could not be calculated.)

Taxi Cabs

One-third of passengers (31%) hired a taxi, averaging \$7.17 per spending passenger or \$2.21 per all passengers. Nearly half of these (45%) spent money on taxi cabs in downtown Miami.



Port-of-Call Passenger Characteristics

Nearly all summer port-of-call passengers (95%) live in the US, the majority of which live in or around the New York area. Half (53%) live in New York, 20% in New Jersey, and 7% in Connecticut.

Half of the port-of-call passengers (54%) have visited Miami before. These passengers have visited Miami an average of 4 times in the past five years. More than half of all passengers (56%) traveled in parties of 1-2 persons. Thirty percent had a party size of 3-5 persons, 10% were in parties of 6-9 persons and 4% percent traveled with ten or more people. The average party size was five, while the median was two.

The majority of parties (61%) consisted of two adults. One-third (35%) were parties with three or more adults and only 4% consisted of one adult. The average number of adults in the party was five, while the median was two. Three-fourths (74%) did not travel with children under 18 years of age. The average age of each person traveling in the party is shown in the Table C-7. Port-of-call passengers are younger than home port passengers with most being in their 30's and 40's.

Table C-7Average Age of Passengers

Passenger	Average Age (years)
First person	46
Second person	47
Third person	36
Fourth person	31
Fifth person	31
Sixth person	36

Source: Port-of-Call Passenger Survey, 2004

For six in ten passengers (58%), three people shared the expenses of their cruise vacation. Four percent bore the expenses themselves, 19% shared the expenses with another individual, 19% shared the expenses with three or more others. The average number of additional people (other than the respondent) sharing the expenses was four, while the median was two.

The majority of port-of-call passengers (61%) have an annual household income of \$50,000 or more as shown in Table C-8.

Port-of-call passengers responding to the survey were 65% female and 35% male.



Table C-8Annual Household Income of Passengers

Household Income	Percent of Passengers
Less than \$30,000	10%
\$30,000 to \$39,999	5%
\$40,000 to \$49,999	10%
\$50,000 to \$59,999	7%
\$60,000 to \$74,999	19%
\$75,000 to \$99,999	19%
\$100,000 to \$149,999	17%
\$150,000 to \$199,999	8%
\$200,000 or more	5%
Courses Dort of Coll Doool	Shaar Survay 2001

Source: Port-of-Call Passenger Survey, 2004

Homeport Crew Survey

All homeport cruise lines participated in the study by distributing confidential surveys to all of their crewmembers. The distribution of crewmembers responding to the survey by cruise line is shown in the Table C-9.

Table C-9

Distribution of Interviews by Cruise Ship

Ship	Percent of Crew Interviewed
Carnival	53%
Royal Caribbean	15%
Carnival Paradise	32%

Source: Crew Survey, 2004

Half of crewmembers (53%) responding to the survey worked aboard the short itinerary vessel *Carnival Fascination* and the other half worked on the long itinerary vessels *Norwegian Wind* (32%), Royal Caribbean's *Explorer of the Seas* (8%) and Royal Caribbean's *Navigator of the Seas* (7%).

Half of the crewmembers (52%) working on home-port vessels have worked on the vessel less than 1 year. Nineteen percent have worked on the vessel for 1-2 years, 16% from 3-5 years, 8% from 6-9 years and 4% for ten or more years. Crewmembers working on short itinerary vessels are more likely to have worked on the vessel for less than one year than crewmembers who work on long itinerary vessels (63% vs. 40%). On average, crewmembers have worked on their designated vessel for two years.



Expenditures

Twenty percent of crewmembers bank in Miami. Half of all crewmembers (49%) do not bank in Miami and one-third (32%) do not have a bank account. Crewmembers serving on short itinerary vessels are more likely to bank in Miami than those serving on long itinerary vessels (29% vs. 9% respectively).

The majority (88%) of crewmembers do not stay overnight while ashore in Miami. Five percent stay ashore one night, 3% stay two nights and 3% stay three or more nights on shore. Most crewmembers (93%) staying ashore overnight lodge in a hotel or motel. Four percent stay with friends and 2% rent. None of the crewmembers interviewed own a home in Miami. Crewmembers on short itinerary vessels are more likely to spend money on housing in Miami than those crewmembers on long itinerary vessels (3% vs. <1% respectively). Because so few crewmembers spend money on housing, an average expenditure by type of housing cannot be calculated with statistical reliability.

More than half of crewmembers spend money in Miami on telephone costs, personal transportation, restaurants and retail purchases. Few crewmembers spend money on entertainment and recreation, health and medical services and housing. On a value basis, crewmembers spend the most money on retail purchases, restaurants and telephone costs. Table C-10 shows the percentage of crewmembers spending money in Miami between cruises and the average amount spent per month by category.

Table C-10

Category	Percent of Crew Spending	Average Monthly Expenditure by Crew Spending in Miami
Telephone Costs	59%	\$ 74.85
Personal Transportation	54%	\$ 37.66
Restaurants	50%	\$ 81.33
Retail Purchases	51%	\$117.32
Entertainment and Recreation	14%	\$ 96.21
Health and Medical Services	9%	\$ 69.33
Housing	2%	NA

Crew Spending in Miami by Category

Source: Crew Survey, 2004

In total, crewmembers spend an average of \$190.57 per month in Miami per all crewmembers for telephone costs, retail purchases, medical and health-related costs, restaurants, and entertainment and recreation. Housing costs could not be calculated due to the small number of crewmembers providing housing expenditure data. Based on data provided by the Port of Miami, 12,383 crewmembers work aboard homeport vessels. If monthly spending is consistent throughout the year, we can estimate that crewmembers spend \$28,318,000 annually in Miami in the categories captured in the survey.

With the exception of spending on entertainment and recreation, crewmembers working on short itinerary vessels are more likely to spend money in Miami than those working on long itinerary vessels. Percent of crew spending by itinerary is shown in Table C-11.



Table C-11

Crew Spending in Miami by Itinerary or Vessel

Category	Short Itinerary	Long Itinerary
Telephone Costs	68%	49%
Personal Transportation	64%	43%
Restaurants	58%	41%
Retail Purchases	59%	41%
Entertainment and Recreation	16% ¹	11% ¹
Health and Medical Services	11%	6%
Housing	3%	0%

Source: Crew Survey, 2004

¹ The numerical difference is not statistically significant.

The average amount crewmembers spend in each category per month differs only by itinerary for spending in restaurants. On average, crewmembers on short itinerary vessels spend \$90.06 per month in restaurants, while those on long itinerary vessels only spend \$67.07 per month.

Satisfaction with the Port of Miami

Crewmembers rated their experience with the Port of Miami in twelve areas. Only security was rated as excellent or good by a large number of crewmembers (81%). Satisfaction with other aspects of the Port, as defined by an excellent or good rating, ranged from 42% to 67% of employees, as shown in Table C-12.

Area	Excellent or Good	Excellent	Good	Fair	Poor	Fair or Poor
Parking	65%	20%	46%	4%	14%	35%
Telephones	42%	11%	31%	22%	35%	58%
Computer Access	49%	12%	36%	24%	27%	51%
Lounge Area	43%	10%	33%	24%	33%	57%
Banking	49%	14%	35%	23%	28%	51%
Recreation	46%	11%	35%	25%	30%	54%
Post Office/Mail	56%	15%	41%	20%	24%	44%
Security	81%	37%	44%	13%	6%	19%
Food	52%	15%	38%	28%	20%	48%
Transportation to Downtown Shopping	67%	20%	47%	21%	12%	33%
Transportation to Other Areas	56%	14%	41%	24%	20%	44%
Seamen's Center	51%	11%	40%	31%	18%	49%

Table C-12Rating of the Port of Miami

Source: Crew Survey, 2004



Significant improvement needs to be made in many areas in order to increase crewmember satisfaction, most particularly in regard to telephones, the lounge area, recreation, banking and computer access. Also rated low on satisfaction is the Seaman's Center, postal services and transportation to non-downtown areas. Crewmembers serving on short itinerary vessels are more likely to be dissatisfied with the Port than those crewmembers serving on long itinerary vessels. This finding is especially salient, since short itinerary crewmembers tend to spend more time in Miami than long itinerary cruise members. The areas where short itinerary crewmembers rated the Port as fair or poor more often than long itinerary crewmembers include:

- The lounge area (65% vs. 48%)
- Recreation (64% vs. 44%)
- Computer access (59% vs. 43%)
- Post office/mail (54% vs. 34%)
- Food (56% vs. 38%)
- Security (25% vs. 13%)
- Facilities at the Seamen's Center (62% vs. 35%)

Crewmembers would like to see specific additional services provided at the Port. An overwhelming number of crewmembers want more telephones and better transportation available, including transportation to more places and transportation that is cheaper or free. Banking and money transfer facilities, more computer and Internet access, and restaurants near or at the Port were also common themes. Other mentions included recreation at the Port and better shops.

Crew Member Characteristics

More than half the crewmembers (57%) are between the ages of 25 and 34. Table C-13 shows the distribution of crew by age.

Table C-13Age of Crew Members

Age	Percent of Crew
18 to 24	17%
25 to 34	57%
35 to 44	19%
45 to 54	5%
55 to 64	1%
65 and older	<1%

Source: Crew Survey, 2004

Half of the crewmembers (54%) are single, 43% are married or living with a partner, 3% are divorced or separated and less than 1% are widowed; only 3% of crewmembers live in Miami.



Only crewmembers working for Carnival Cruise line were asked their income. Six in ten crewmembers' (63%) yearly income is less than \$15,000. Table C-14 shows the income of Carnival Cruise line crewmembers.

Table C-14 Total Yearly Income

Income	Percent of Crew ¹
Less than \$15,000	63%
\$15,000 to \$24,999	18%
\$25,000 to \$34,999	8%
\$35,000 to \$49,999	8%
\$50,000 to \$74,999	2%
\$75,000 to \$99,999	1%
\$100,000 or more	1%

Source: Crew Survey, 2004

¹ Carnival Cruise line crewmembers only.

Methodology

Six surveys were conducted with home-port and port-of-call passengers and home port vessel crewmembers. Home port passengers, who represent the most significant economic impact in Miami, were interviewed in the shoulder, summer and winter seasons. The first survey was conducted in October 2002, the second in August 2003 and the third in February 2004.

The initial survey conducted in October 2002 was an intercept survey that employed trained interviewers to engage in one-on-one personal interviews with passengers as they embarked upon their cruise. The methodology for homeport passengers changed thereafter in an effort to achieve a larger sample size. A sweepstakes was offered and passengers were given the survey to take home and complete. This method was used for the October 2002 disembarking home port passenger survey and the August 2003 and February 2004 home-port passenger surveys.

In total, 1,977 home-port cruise ship passengers were interviewed. At a 95% level of confidence, the margin of error is plus or minus 2.2%. This means that, if all home-port passengers were interviewed, the results would be within 2.2% of the survey findings.

The port-of-call passenger survey, by nature, had to be conducted as a one-onone personal interview. The August 2003 survey resulted in 190 completed interviews and the May 2004 resulted in 219 completed interviews. Combined, the port-of-call survey consists of 409 interviews. At a 95% level of confidence, the margin of error is plus or minus 4.9%. This means that, if all port-of-call passengers were interviewed, the results would be within 4.9% of the survey findings.

For the crew survey, cruise lines were given surveys to distribute to the entire crew. In total, 518 crewmembers participated in the survey. At a 95% level of confidence, the margin of error is plus or minus 4.3%. This means that, if all crewmembers were interviewed, the results would be within 4.3% of the survey findings.



Appendix D REMI Model Output

The following terms are used throughout the tables in this Appendix:

Demand (Bil Fixed 05\$)	Demand (Billions, Fixed ¹ 2005 Dollars)
Disp Pers Inc	Disposable Personal Income
Div∬&Rent	Dividends, Interest and Rent
Econ Migrants	Economic Migrants. Persons moving in response to
~ 	wage rate differentials.
Employment (Thous)	Employment in Thousands
GRP (Bil Chained ² 05\$)	Gross Regional Product (Billions, 2005 Dollars)
GRP (Bil Fixed 05\$)	Gross Regional Product (Billions, 2005 Dollars, Fixed ³
	Weight)
Lab & Prop Inc	Labor and Proprietors Income
Net Res Adj	Net Resonance Adjustment
Output (Bil Fixed 05\$)	Output (Billions, Fixed ¹ 2005 Dollars)
PCE-Price Index	Personal Consumption Expenditures Price Index
Pers Inc	Personal Income
Pers Inc (Bil Nom \$)	Personal Income (Billions, Nominal Dollars)
Prop & Oth Lab Inc	Proprietors' and Other Labor Income (Billions,
•	Nominal Dollars)
Real Disp Pers Inc	Real Disposable Personal Income (Billions, Nominal
·	Dollars)
Soc Ins Contrib	Social Insurance Contribution (Billions, Nominal
	Dollars)
Taxes	Taxes (Billions, Nominal Dollars)
Trans Pymnts	Transfer Payments (Billions, Nominal Dollars)
Wage & Sal Disb	Wage and Salary Disbursement (Billions, Nominal
5	Dollars)

¹ "Fixed" here refers to constant units, as in constant 2005 dollars. ² "Chained" here refers to an indexing scheme that varies proportion

- "Chained" here refers to an indexing scheme that varies proportions of goods/services' prices within the index as their price-adjusted characteristics change.
- "Fixed" here refers to an indexing scheme that holds the proportions of the component goods/services proportions at a constant rate within the index.



Economic Impact Summary Miami-Dade County, 2005-2015

	2005	2006	2007	2008	2009
Employment (Thous)	80.37	80.44	80.12	79.72	79.10
GRP (Bil Chained 05\$)	5.41	5.52	5.59	5.65	5.69
GRP (Bil Fixed 05\$)	5.65	5.79	5.89	5.98	6.05
Pers Inc (Bil Nom \$)	3.01	3.20	3.38	3.55	3.72
PCE-Price Index (Fixed 05\$)	0.69	0.70	0.70	0.68	0.66
Real Disp Pers Inc (Bil Fixed 05\$)	2.46	2.59	2.70	2.80	2.90
Population (Thous)	53.19	60.00	65.96	71.18	75.73
Econ Migrants (Thous)	7.02	6.01	5.07	4.27	3.56
Total Migrants (Thous)	7.01	6.00	5.06	4.26	3.55
Labor Force (Thous)	37.55	40.62	43.06	44.99	46.44
Demand (Bil Fixed 05\$)	11.83	12.04	12.15	12.24	12.26
Output (Bil Fixed 05\$)	10.61	10.77	10.87	10.95	10.98
Wage Rate (Thous Nom\$)	0.20	0.20	0.20	0.20	0.19

	2010	2011	2012	2013	2014	2015
Employment (Thous)	81.64	81.85	82.92	83.76	84.57	85.28
GRP (Bil Chained 05\$)	6.02	6.13	6.29	6.44	6.59	6.73
GRP (Bil Fixed 05\$)	6.42	6.56	6.75	6.93	7.11	7.29
Pers Inc (Bil Nom \$)	4.00	4.21	4.44	4.68	4.91	5.15
PCE-Price Index (Fixed 05\$)	0.65	0.64	0.63	0.63	0.62	0.62
Real Disp Pers Inc (Bil Fixed 05\$)	3.09	3.21	3.35	3.48	3.61	3.73
Population (Thous)	80.25	84.31	88.14	91.70	94.98	97.96
Econ Migrants (Thous)	3.51	3.00	2.75	2.46	2.17	1.84
Total Migrants (Thous)	3.49	2.98	2.74	2.44	2.14	1.82
Labor Force (Thous)	48.12	49.52	50.85	52.17	53.47	54.80
Demand (Bil Fixed 05\$)	12.77	12.97	13.32	13.62	13.93	14.21
Output (Bil Fixed 05\$)	11.43	11.67	12.01	12.34	12.66	12.98
Wage Rate (Thous Nom\$)	0.19	0.18	0.17	0.16	0.15	0.14



Employment Impact by Industry (000) Miami-Dade County, 2005-2015

	2005	2006	2007	2008	2009
Private Non-Farm	76.86	76.56	75.92	75.23	74.35
Government	3.51	3.88	4.20	4.49	4.75
Farm	0.00	0.00	0.00	0.00	0.00
Manufacturing	3.25	3.16	3.06	2.97	2.88
Non-Manufact	73.61	73.40	72.86	72.26	71.48
Lumber	0.07	0.07	0.06	0.06	0.06
Furniture	0.18	0.17	0.16	0.16	0.15
Stone,Clay,Etc.	0.15	0.15	0.14	0.13	0.12
Primary Metals	0.03	0.03	0.03	0.02	0.02
Fabricated Metals	0.29	0.28	0.27	0.26	0.24
Machin & Comput	0.31	0.30	0.29	0.28	0.27
Electric Equip	0.13	0.13	0.12	0.12	0.11
Motor Vehicles	0.01	0.01	0.01	0.01	0.01
Rest Trans Equip	0.22	0.21	0.20	0.19	0.18
Instruments	0.22	0.21	0.20	0.19	0.18
Misc. Manufact	0.19	0.19	0.19	0.19	0.19
Food	0.12	0.12	0.11	0.11	0.11
Tobacco Manuf	0.00	0.00	0.00	0.00	0.00
Textiles	0.05	0.05	0.05	0.04	0.04
Apparel	0.36	0.35	0.34	0.33	0.32
Paper	0.06	0.06	0.06	0.06	0.06
Printing	0.52	0.51	0.51	0.50	0.49
Chemicals	0.08	0.08	0.08	0.08	0.09
Petro Products	0.02	0.02	0.02	0.02	0.02
Rubber	0.13	0.13	0.13	0.12	0.12
Leather	0.09	0.09	0.09	0.09	0.10
Mining	0.01	0.00	0.00	0.00	0.00
Construction	6.47	6.16	5.72	5.36	5.06
Trans.&Public Util.	27.52	27.77	27.95	28.02	27.94
Fin&Ins&Real Est	2.81	2.72	2.63	2.55	2.47
Retail Trade	10.58	10.57	10.52	10.44	10.33
Wholesale Trade	2.29	2.18	2.08	1.97	1.88
Services	23.47	23.52	23.49	23.44	23.31
Agri&For&Fish Serv	0.47	0.47	0.47	0.48	0.48
State and Local	3.17	3.53	3.85	4.14	4.39
Federal Civilian	0.34	0.35	0.35	0.35	0.36
Federal Military	0.00	0.00	0.00	0.00	0.00



Employment Impact by Industry (000), continued Miami-Dade County, 2005-2015

	2010	2011	2012	2013	2014	2015
Private Non-Farm	76.64	76.64	77.50	78.17	78.80	79.37
Government	5.00	5.22	5.42	5.60	5.76	5.91
Farm	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	2.94	2.94	2.97	3.00	3.04	3.07
Non-Manufact	73.71	73.70	74.54	75.17	75.77	76.30
Lumber	0.06	0.05	0.05	0.05	0.05	0.05
Furniture	0.15	0.15	0.15	0.16	0.16	0.16
Stone,Clay,Etc.	0.12	0.12	0.12	0.11	0.11	0.11
Primary Metals	0.02	0.02	0.02	0.02	0.02	0.02
Fabricated Metals	0.24	0.24	0.24	0.24	0.24	0.23
Machin & Comput	0.28	0.28	0.28	0.28	0.28	0.29
Electric Equip	0.11	0.11	0.11	0.11	0.11	0.11
Motor Vehicles	0.01	0.01	0.01	0.01	0.01	0.01
Rest Trans Equip	0.18	0.18	0.18	0.19	0.19	0.20
Instruments	0.18	0.18	0.18	0.18	0.18	0.18
Misc. Manufact	0.20	0.20	0.21	0.21	0.21	0.21
Food	0.11	0.11	0.11	0.11	0.11	0.11
Tobacco Manuf	0.00	0.00	0.00	0.00	0.00	0.00
Textiles	0.04	0.05	0.05	0.05	0.05	0.05
Apparel	0.32	0.32	0.32	0.33	0.33	0.33
Paper	0.06	0.06	0.06	0.06	0.06	0.06
Printing	0.51	0.52	0.53	0.55	0.56	0.58
Chemicals	0.09	0.09	0.09	0.09	0.09	0.09
Petro Products	0.02	0.02	0.02	0.02	0.02	0.02
Rubber	0.12	0.12	0.12	0.12	0.12	0.12
Leather	0.10	0.11	0.11	0.12	0.13	0.13
Mining	0.00	0.00	0.00	0.00	0.00	0.00
Construction	5.07	4.85	4.78	4.70	4.63	4.55
Trans.&Public Util.	28.88	28.94	29.28	29.54	29.77	29.98
Fin&Ins&Real Est	2.51	2.50	2.52	2.53	2.54	2.56
Retail Trade	10.66	10.67	10.81	10.91	11.00	11.07
Wholesale Trade	1.89	1.83	1.81	1.79	1.77	1.75
Services	24.19	24.39	24.80	25.14	25.49	25.80
Agri&For&Fish Serv	0.51	0.52	0.54	0.56	0.57	0.59
State and Local	4.64	4.85	5.05	5.22	5.38	5.53
Federal Civilian	0.36	0.37	0.37	0.38	0.38	0.38
Federal Military	0.00	0.00	0.00	0.00	0.00	0.00



Personal Income Impact by Source (Billions, Nominal) Miami-Dade County, 2005-2015

	2005	2006	2007	2008	2009
As a % of Nation	0.03	0.03	0.03	0.03	0.03
Wage & Sal Disb	2.91	3.02	3.12	3.20	3.27
Prop & Oth Lab Inc	0.70	0.72	0.75	0.77	0.79
Lab & Prop Inc	3.61	3.75	3.86	3.97	4.05
Soc Ins Contrib	0.22	0.23	0.24	0.24	0.25
Net Res Adj	-0.58	-0.60	-0.62	-0.63	-0.65
Div∬&Rent	0.20	0.24	0.28	0.32	0.36
Trans Pymnts	0.00	0.05	0.10	0.15	0.20
Pers Inc	3.01	3.20	3.38	3.55	3.72
Taxes	0.37	0.40	0.42	0.44	0.46
Disp Pers Inc	2.63	2.80	2.96	3.11	3.26

	2010	2011	2012	2013	2014	2015
As a % of Nation	0.03	0.03	0.03	0.03	0.03	0.03
Wage & Sal Disb	3.47	3.59	3.74	3.89	4.04	4.20
Prop & Oth Lab Inc	0.84	0.87	0.91	0.95	0.99	1.04
Lab & Prop Inc	4.31	4.46	4.65	4.84	5.03	5.23
Soc Ins Contrib	0.26	0.27	0.28	0.29	0.30	0.31
Net Res Adj	-0.69	-0.71	-0.75	-0.78	-0.81	-0.84
Div∬&Rent	0.40	0.45	0.49	0.53	0.57	0.61
Trans Pymnts	0.24	0.29	0.33	0.38	0.42	0.46
Pers Inc	4.00	4.21	4.44	4.68	4.91	5.15
Taxes	0.50	0.52	0.55	0.58	0.61	0.64
Disp Pers Inc	3.50	3.69	3.89	4.09	4.30	4.51



Output Impact by Industry (Billions, \$ 2005) Miami-Dade County, 2005-2015

	2005	2006	2007	2008	2009
Durables Manuf	0.66	0.67	0.66	0.66	0.65
Non-Durbls Manuf	0.38	0.38	0.38	0.39	0.39
Mining	0.00	0.00	0.00	0.00	0.00
Construction	0.83	0.80	0.76	0.72	0.69
Trans.&Public Util.	5.06	5.20	5.32	5.41	5.47
Fin&Ins&Real Est	0.73	0.72	0.71	0.70	0.69
Retail Trade	0.65	0.67	0.68	0.68	0.69
Wholesale Trade	0.44	0.44	0.44	0.44	0.43
Services	1.85	1.88	1.91	1.93	1.94
Agri&For&Fish Serv	0.02	0.02	0.02	0.02	0.02

	2010	2011	2012	2013	2014	2015
Durables Manuf	0.69	0.70	0.72	0.75	0.78	0.80
Non-Durbls Manuf	0.41	0.42	0.44	0.45	0.47	0.48
Mining	0.00	0.00	0.00	0.00	0.00	0.00
Construction	0.70	0.68	0.68	0.68	0.67	0.67
Trans.&Public Util.	5.68	5.85	6.04	6.22	6.40	6.58
Fin&Ins&Real Est	0.72	0.73	0.75	0.77	0.79	0.80
Retail Trade	0.72	0.74	0.76	0.78	0.81	0.83
Wholesale Trade	0.45	0.46	0.47	0.48	0.49	0.50
Services	2.04	2.07	2.13	2.18	2.24	2.29
Agri&For&Fish Serv	0.02	0.02	0.02	0.02	0.02	0.02



Economic Impact Summary Broward and Palm Beach Counties, 2005-2015

	2005	2006	2007	2008	2009
Employment (Thous)	15.87	15.84	15.75	15.68	15.60
GRP (Bil Chained 05\$)	1.21	1.24	1.26	1.28	1.30
GRP (Bil Fixed 05\$)	1.26	1.30	1.33	1.36	1.38
Pers Inc (Bil Nom \$)	1.31	1.39	1.46	1.53	1.59
PCE-Price Index (Fixed 05\$)	0.22	0.22	0.21	0.20	0.19
Real Disp Pers Inc (Bil Fixed 05\$)	1.04	1.09	1.13	1.18	1.22
Population (Thous)	18.00	20.31	22.30	24.00	25.46
Econ Migrants (Thous)	2.43	2.05	1.70	1.39	1.14
Total Migrants (Thous)	2.43	2.05	1.69	1.39	1.14
Labor Force (Thous)	16.35	17.70	18.79	19.61	20.20
Demand (Bil Fixed 05\$)	2.52	2.57	2.60	2.64	2.66
Output (Bil Fixed 05\$)	2.10	2.13	2.16	2.18	2.20
Wage Rate (Thous Nom\$)	0.09	0.09	0.09	0.08	0.08

	2010	2011	2012	2013	2014	2015
Employment (Thous)	16.14	16.33	16.63	16.88	17.13	17.32
GRP (Bil Chained 05\$)	1.37	1.40	1.44	1.48	1.52	1.55
GRP (Bil Fixed 05\$)	1.46	1.50	1.55	1.59	1.64	1.68
Pers Inc (Bil Nom \$)	1.71	1.80	1.90	2.00	2.10	2.20
PCE-Price Index (Fixed 05\$)	0.18	0.18	0.17	0.17	0.16	0.16
Real Disp Pers Inc (Bil Fixed 05\$)	1.29	1.35	1.40	1.46	1.52	1.57
Population (Thous)	26.91	28.21	29.42	30.55	31.57	32.50
Econ Migrants (Thous)	1.12	0.96	0.88	0.78	0.68	0.56
Total Migrants (Thous)	1.12	0.96	0.88	0.78	0.68	0.56
Labor Force (Thous)	20.91	21.48	22.04	22.59	23.14	23.70
Demand (Bil Fixed 05\$)	2.80	2.87	2.96	3.04	3.12	3.19
Output (Bil Fixed 05\$)	2.31	2.37	2.44	2.51	2.58	2.64
Wage Rate (Thous Nom\$)	0.07	0.07	0.07	0.06	0.06	0.06



Employment Impact by Industry (000) Broward and Palm Beach Counties, 2005-2015

	2005	2006	2007	2008	2009
Private Non-Farm	0.02	0.02	0.02	0.02	0.02
Government	0.04	0.04	0.04	0.04	0.04
Farm	0.06	0.05	0.05	0.05	0.05
Manufacturing	0.01	0.01	0.00	0.00	0.00
Non-Manufact	0.09	0.09	0.08	0.08	0.08
Lumber	0.16	0.16	0.15	0.14	0.14
Furniture	0.19	0.18	0.16	0.15	0.14
Stone,Clay,Etc.	0.01	0.01	0.01	0.01	0.01
Primary Metals	0.05	0.05	0.04	0.04	0.04
Fabricated Metals	0.04	0.04	0.04	0.03	0.03
Machin & Comput	0.07	0.07	0.07	0.07	0.07
Electric Equip	0.04	0.04	0.04	0.04	0.04
Motor Vehicles	0.00	0.00	0.00	0.00	0.00
Rest Trans Equip	0.01	0.01	0.01	0.01	0.01
Instruments	0.04	0.04	0.04	0.04	0.04
Misc. Manufact	0.01	0.01	0.01	0.01	0.01
Food	0.13	0.13	0.13	0.13	0.13
Tobacco Manuf	0.02	0.02	0.02	0.02	0.02
Textiles	0.00	0.00	0.00	0.00	0.00
Apparel	0.04	0.04	0.04	0.04	0.04
Paper	0.01	0.01	0.01	0.01	0.01
Printing	0.01	0.01	0.00	0.00	0.00
Chemicals	1.82	1.73	1.63	1.54	1.46
Petro Products	1.26	1.25	1.24	1.23	1.22
Rubber	1.42	1.42	1.43	1.44	1.45
Leather	3.04	3.04	3.04	3.02	3.00
Mining	0.60	0.58	0.56	0.53	0.51
Construction	5.65	5.66	5.65	5.66	5.66
Trans.&Public Util.	0.21	0.21	0.21	0.22	0.22
Fin&Ins&Real Est	0.81	0.92	1.01	1.09	1.16
Retail Trade	0.00	0.00	0.00	0.00	0.00
Wholesale Trade	0.00	0.00	0.00	0.00	0.00
Services	0.02	0.02	0.02	0.02	0.02
Agri&For&Fish Serv	0.04	0.04	0.04	0.04	0.04
State and Local	0.06	0.05	0.05	0.05	0.05
Federal Civilian	0.01	0.01	0.00	0.00	0.00
Federal Military	0.09	0.09	0.08	0.08	0.08



Employment Impact by Industry (000), continued Broward and Palm Beach Counties, 2005-2015

	2010	2011	2012	2013	2014	2015
Private Non-Farm	0.02	0.02	0.02	0.02	0.02	0.02
Government	0.04	0.04	0.04	0.04	0.04	0.04
Farm	0.05	0.05	0.05	0.05	0.05	0.05
Manufacturing	0.00	0.00	0.00	0.00	0.00	0.00
Non-Manufact	0.08	0.07	0.07	0.07	0.07	0.07
Lumber	0.14	0.14	0.14	0.13	0.13	0.13
Furniture	0.14	0.13	0.13	0.13	0.12	0.12
Stone, Clay, Etc.	0.01	0.01	0.01	0.01	0.01	0.01
Primary Metals	0.04	0.04	0.04	0.04	0.04	0.04
Fabricated Metals	0.03	0.04	0.04	0.04	0.04	0.04
Machin & Comput	0.07	0.08	0.08	0.08	0.08	0.08
Electric Equip	0.04	0.04	0.04	0.04	0.04	0.04
Motor Vehicles	0.00	0.00	0.00	0.00	0.00	0.00
Rest Trans Equip	0.01	0.01	0.01	0.01	0.01	0.01
Instruments	0.04	0.04	0.04	0.04	0.04	0.04
Misc. Manufact	0.01	0.01	0.01	0.01	0.01	0.01
Food	0.13	0.14	0.14	0.15	0.15	0.16
Tobacco Manuf	0.02	0.02	0.02	0.02	0.02	0.02
Textiles	0.00	0.00	0.00	0.00	0.00	0.00
Apparel	0.04	0.04	0.04	0.04	0.04	0.04
Paper	0.01	0.01	0.02	0.02	0.02	0.02
Printing	0.00	0.00	0.00	0.00	0.00	0.00
Chemicals	1.47	1.43	1.41	1.39	1.37	1.35
Petro Products	1.23	1.23	1.24	1.24	1.25	1.25
Rubber	1.51	1.54	1.58	1.61	1.64	1.67
Leather	3.09	3.12	3.18	3.23	3.27	3.30
Mining	0.52	0.51	0.51	0.51	0.50	0.50
Construction	5.93	6.04	6.19	6.32	6.45	6.56
Trans.&Public Util.	0.23	0.24	0.25	0.26	0.27	0.28
Fin&Ins&Real Est	1.23	1.29	1.34	1.38	1.43	1.46
Retail Trade	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale Trade	0.00	0.00	0.00	0.00	0.00	0.00
Services	0.02	0.02	0.02	0.02	0.02	0.02
Agri&For&Fish Serv	0.04	0.04	0.04	0.04	0.04	0.04
State and Local	0.05	0.05	0.05	0.05	0.05	0.05
Federal Civilian	0.00	0.00	0.00	0.00	0.00	0.00
Federal Military	0.08	0.07	0.07	0.07	0.07	0.07



Personal Income Impact by Source (Billions, Nominal) Broward and Palm Beach Counties, 2005-2015

	2005	2006	2007	2008	2009
As a % of Nation	0.01	0.01	0.01	0.01	0.01
Wage & Sal Disb	0.65	0.67	0.68	0.70	0.71
Prop & Oth Lab Inc	0.13	0.13	0.14	0.14	0.15
Lab & Prop Inc	0.78	0.81	0.82	0.84	0.85
Soc Ins Contrib	0.05	0.05	0.06	0.06	0.06
Net Res Adj	0.47	0.49	0.51	0.52	0.53
Div∬&Rent	0.13	0.16	0.19	0.22	0.24
Trans Pymnts	-0.03	-0.02	0.00	0.01	0.02
Pers Inc	1.31	1.39	1.46	1.53	1.59
Taxes	0.16	0.17	0.18	0.19	0.20
Disp Pers Inc	1.15	1.22	1.28	1.34	1.40

	2010	2011	2012	2013	2014	2015
As a % of Nation	0.01	0.01	0.01	0.01	0.01	0.01
Wage & Sal Disb	0.74	0.77	0.80	0.83	0.86	0.89
Prop & Oth Lab Inc	0.16	0.16	0.17	0.18	0.19	0.20
Lab & Prop Inc	0.90	0.93	0.97	1.01	1.05	1.09
Soc Ins Contrib	0.06	0.06	0.06	0.07	0.07	0.07
Net Res Adj	0.57	0.59	0.61	0.64	0.66	0.69
Div∬&Rent	0.27	0.30	0.33	0.35	0.38	0.41
Trans Pymnts	0.03	0.04	0.05	0.06	0.07	0.09
Pers Inc	1.71	1.80	1.90	2.00	2.10	2.20
Taxes	0.21	0.22	0.24	0.25	0.26	0.28
Disp Pers Inc	1.50	1.58	1.66	1.75	1.84	1.92



Output Impact by Industry (Billions, \$ 2005) Broward and Palm Beach Counties, 2005-2015

	2005	2006	2007	2008	2009
Durables Manuf	0.36	0.36	0.36	0.36	0.36
Non-Durbls Manuf	0.08	0.08	0.08	0.09	0.09
Mining	0.00	0.00	0.00	0.00	0.00
Construction	0.24	0.24	0.23	0.22	0.21
Trans.&Public Util.	0.27	0.28	0.28	0.29	0.29
Fin&Ins&Real Est	0.36	0.37	0.39	0.40	0.41
Retail Trade	0.20	0.20	0.21	0.21	0.21
Wholesale Trade	0.12	0.12	0.12	0.13	0.13
Services	0.45	0.46	0.47	0.48	0.49
Agri&For&Fish Serv	0.01	0.01	0.01	0.01	0.01

	2010	2011	2012	2013	2014	2015
Durables Manuf	0.38	0.38	0.39	0.40	0.41	0.42
Non-Durbls Manuf	0.09	0.10	0.10	0.10	0.11	0.11
Mining	0.00	0.00	0.00	0.00	0.00	0.00
Construction	0.22	0.21	0.21	0.21	0.21	0.21
Trans.&Public Util.	0.31	0.32	0.33	0.34	0.35	0.35
Fin&Ins&Real Est	0.43	0.45	0.47	0.49	0.50	0.52
Retail Trade	0.22	0.23	0.24	0.25	0.25	0.26
Wholesale Trade	0.13	0.13	0.14	0.14	0.15	0.15
Services	0.52	0.53	0.55	0.57	0.58	0.60
Agri&For&Fish Serv	0.01	0.01	0.01	0.01	0.01	0.01



Economic Impact Summary Rest of Florida, 2005-2015

	2005	2006	2007	2008	2009
Employment (Thous)	4.02	4.03	4.00	4.01	3.98
GRP (Bil Chained 05\$)	0.32	0.33	0.33	0.34	0.34
GRP (Bil Fixed 05\$)	0.33	0.34	0.35	0.36	0.36
Pers Inc (Bil Nom \$)	0.22	0.23	0.24	0.25	0.25
PCE-Price Index (Fixed 05\$)	0.02	0.02	0.02	0.02	0.02
Real Disp Pers Inc (Bil Fixed 05\$)	0.14	0.15	0.15	0.16	0.16
Population (Thous)	2.47	2.87	3.21	3.53	3.79
Econ Migrants (Thous)	0.38	0.35	0.30	0.27	0.24
Total Migrants (Thous)	0.38	0.35	0.30	0.27	0.24
Labor Force (Thous)	2.66	2.89	3.09	3.23	3.35
Demand (Bil Fixed 05\$)	0.59	0.59	0.59	0.59	0.58
Output (Bil Fixed 05\$)	0.60	0.60	0.60	0.61	0.61
Wage Rate (Thous Nom\$)	0.01	0.01	0.01	0.01	0.01

	2010	2011	2012	2013	2014	2015
Employment (Thous)	4.17	4.20	4.29	4.36	4.38	4.47
GRP (Bil Chained 05\$)	0.36	0.37	0.38	0.39	0.40	0.40
GRP (Bil Fixed 05\$)	0.38	0.39	0.41	0.42	0.43	0.44
Pers Inc (Bil Nom \$)	0.27	0.29	0.30	0.32	0.33	0.35
PCE-Price Index (Fixed 05\$)	0.02	0.02	0.02	0.02	0.02	0.02
Real Disp Pers Inc (Bil Fixed 05\$)	0.18	0.18	0.19	0.20	0.21	0.22
Population (Thous)	4.13	4.40	4.68	4.96	5.22	5.48
Econ Migrants (Thous)	0.26	0.23	0.22	0.21	0.20	0.18
Total Migrants (Thous)	0.26	0.23	0.22	0.21	0.20	0.18
Labor Force (Thous)	3.52	3.64	3.76	3.90	4.00	4.11
Demand (Bil Fixed 05\$)	0.62	0.63	0.65	0.67	0.68	0.70
Output (Bil Fixed 05\$)	0.64	0.65	0.67	0.69	0.71	0.72
Wage Rate (Thous Nom\$)	0.01	0.01	0.01	0.00	0.00	0.00



Employment Impact by Industry Rest of Florida, 2005-2015

	2005	2006	2007	2008	2009
Private Non-Farm	3.66	3.62	3.56	3.53	3.45
Government	0.36	0.41	0.45	0.49	0.52
Farm	0.00	0.00	0.00	0.00	0.00
Manufacturing	0.61	0.59	0.56	0.54	0.52
Non-Manufact	3.06	3.04	2.99	2.99	2.94
Lumber	0.03	0.03	0.02	0.02	0.02
Furniture	0.02	0.02	0.01	0.01	0.01
Stone, Clay, Etc.	0.03	0.03	0.02	0.02	0.02
Primary Metals	0.01	0.01	0.01	0.01	0.01
Fabricated Metals	0.06	0.06	0.05	0.05	0.05
Machin & Comput	0.10	0.09	0.09	0.08	0.08
Electric Equip	0.10	0.09	0.09	0.08	0.08
Motor Vehicles	0.02	0.02	0.02	0.02	0.01
Rest Trans Equip	0.03	0.03	0.03	0.03	0.03
Instruments	0.04	0.04	0.03	0.03	0.03
Misc. Manufact	0.02	0.02	0.02	0.02	0.02
Food	0.04	0.04	0.04	0.04	0.04
Tobacco Manuf	0.00	0.00	0.00	0.00	0.00
Textiles	0.00	0.00	0.00	0.00	0.00
Apparel	0.01	0.01	0.01	0.01	0.01
Paper	0.01	0.01	0.01	0.01	0.01
Printing	0.05	0.05	0.05	0.05	0.05
Chemicals	0.02	0.02	0.02	0.02	0.02
Petro Products	0.00	0.00	0.00	0.00	0.00
Rubber	0.02	0.02	0.02	0.02	0.02
Leather	0.00	0.00	0.00	0.00	0.00
Mining	0.01	0.01	0.01	0.01	0.01
Construction	0.44	0.42	0.39	0.37	0.35
Trans.&Public Util.	0.25	0.25	0.25	0.25	0.24
Fin&Ins&Real Est	0.31	0.31	0.31	0.32	0.32
Retail Trade	0.67	0.67	0.66	0.66	0.64
Wholesale Trade	0.16	0.16	0.15	0.15	0.14
Services	1.15	1.16	1.16	1.18	1.18
Agri&For&Fish Serv	0.06	0.06	0.06	0.06	0.06
State and Local	0.36	0.41	0.45	0.49	0.52
Federal Civilian	0.00	0.00	0.00	0.00	0.00
Federal Military	0.00	0.00	0.00	0.00	0.00



Employment Impact by Industry, continued Rest of Florida, 2005-2015

	2010	2011	2012	2013	2014	2015
Private Non-Farm	3.60	3.61	3.67	3.71	3.71	3.77
Government	0.56	0.59	0.62	0.65	0.67	0.70
Farm	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	0.52	0.52	0.52	0.52	0.52	0.52
Non-Manufact	3.08	3.09	3.15	3.19	3.19	3.25
Lumber	0.02	0.02	0.02	0.02	0.02	0.02
Furniture	0.01	0.01	0.01	0.01	0.01	0.01
Stone,Clay,Etc.	0.02	0.02	0.02	0.02	0.02	0.02
Primary Metals	0.01	0.01	0.01	0.01	0.01	0.01
Fabricated Metals	0.05	0.05	0.05	0.05	0.05	0.05
Machin & Comput	0.08	0.08	0.08	0.08	0.07	0.07
Electric Equip	0.08	0.08	0.08	0.07	0.07	0.07
Motor Vehicles	0.01	0.01	0.01	0.01	0.01	0.01
Rest Trans Equip	0.02	0.02	0.03	0.03	0.03	0.03
Instruments	0.03	0.03	0.03	0.03	0.03	0.03
Misc. Manufact	0.02	0.02	0.02	0.02	0.02	0.02
Food	0.04	0.04	0.04	0.04	0.04	0.04
Tobacco Manuf	0.00	0.00	0.00	0.00	0.00	0.00
Textiles	0.00	0.00	0.00	0.00	0.00	0.00
Apparel	0.01	0.01	0.01	0.01	0.01	0.01
Paper	0.01	0.01	0.01	0.01	0.01	0.01
Printing	0.05	0.05	0.05	0.06	0.06	0.06
Chemicals	0.02	0.02	0.02	0.02	0.02	0.02
Petro Products	0.00	0.01	0.01	0.01	0.01	0.01
Rubber	0.02	0.02	0.02	0.02	0.02	0.02
Leather	0.00	0.00	0.00	0.00	0.00	0.00
Mining	0.01	0.01	0.01	0.01	0.01	0.01
Construction	0.36	0.35	0.35	0.34	0.33	0.33
Trans.&Public Util.	0.25	0.25	0.25	0.25	0.25	0.25
Fin&Ins&Real Est	0.33	0.34	0.35	0.36	0.37	0.37
Retail Trade	0.68	0.68	0.70	0.70	0.71	0.72
Wholesale Trade	0.15	0.14	0.14	0.14	0.14	0.14
Services	1.25	1.26	1.30	1.32	1.33	1.36
Agri&For&Fish Serv	0.06	0.06	0.06	0.07	0.07	0.07
State and Local	0.56	0.59	0.62	0.65	0.67	0.70
Federal Civilian	0.00	0.00	0.00	0.00	0.00	0.00
Federal Military	0.00	0.00	0.00	0.00	0.00	0.00



Personal Income Impact by Source (Billions, \$ 2005) Rest of Florida, 2005-2015

	2005	2006	2007	2008	2009
As a % of Nation	0.00	0.00	0.00	0.00	0.00
Wage & Sal Disb	0.14	0.15	0.15	0.15	0.16
Prop & Oth Lab Inc	0.03	0.03	0.03	0.03	0.03
Lab & Prop Inc	0.17	0.17	0.18	0.18	0.18
Soc Ins Contrib	0.01	0.01	0.01	0.01	0.01
Net Res Adj	0.06	0.06	0.06	0.06	0.06
Div∬&Rent	0.01	0.01	0.02	0.02	0.02
Trans Pymnts	-0.01	-0.01	-0.01	0.00	0.00
Pers Inc	0.22	0.23	0.24	0.25	0.25
Taxes	0.03	0.03	0.03	0.03	0.03
Disp Pers Inc	0.19	0.20	0.21	0.21	0.22

	2010	2011	2012	2013	2014	2015
As a % of Nation	0.00	0.00	0.00	0.00	0.00	0.00
Wage & Sal Disb	0.17	0.17	0.18	0.18	0.19	0.20
Prop & Oth Lab Inc	0.03	0.03	0.03	0.03	0.04	0.04
Lab & Prop Inc	0.20	0.20	0.21	0.22	0.22	0.23
Soc Ins Contrib	0.01	0.01	0.01	0.01	0.01	0.01
Net Res Adj	0.07	0.07	0.07	0.07	0.08	0.08
Div∬&Rent	0.03	0.03	0.03	0.03	0.04	0.04
Trans Pymnts	0.00	0.00	0.00	0.01	0.01	0.01
Pers Inc	0.27	0.29	0.30	0.32	0.33	0.35
Taxes	0.04	0.04	0.04	0.04	0.04	0.05
Disp Pers Inc	0.24	0.25	0.26	0.28	0.29	0.31



Output Impact by Industry (Billions, \$ 2005) Rest of Florida, 2005-2015

	2005	2006	2007	2008	2009
Durables Manuf	0.21	0.21	0.21	0.20	0.20
Non-Durbls Manuf	0.05	0.05	0.06	0.06	0.06
Mining	0.00	0.00	0.00	0.00	0.00
Construction	0.06	0.05	0.05	0.05	0.05
Trans.&Public Util.	0.05	0.05	0.06	0.06	0.06
Fin&Ins&Real Est	0.07	0.07	0.07	0.08	0.08
Retail Trade	0.04	0.04	0.04	0.04	0.04
Wholesale Trade	0.03	0.03	0.03	0.03	0.03
Services	0.08	0.08	0.08	0.09	0.09
Agri&For&Fish Serv	0.00	0.00	0.00	0.00	0.00

	2010	2011	2012	2013	2014	2015
Durables Manuf	0.21	0.21	0.22	0.22	0.23	0.23
Non-Durbls Manuf	0.06	0.06	0.06	0.07	0.07	0.07
Mining	0.00	0.00	0.00	0.00	0.00	0.00
Construction	0.05	0.05	0.05	0.05	0.05	0.05
Trans.&Public Util.	0.06	0.06	0.06	0.06	0.07	0.07
Fin&Ins&Real Est	0.09	0.09	0.09	0.10	0.10	0.11
Retail Trade	0.04	0.04	0.04	0.05	0.05	0.05
Wholesale Trade	0.03	0.03	0.03	0.04	0.04	0.04
Services	0.09	0.10	0.10	0.10	0.10	0.11
Agri&For&Fish Serv	0.00	0.00	0.00	0.00	0.00	0.00



Economic Impact Summary Florida Total, 2005-2015

	2005	2006	2007	2008	2009
Employment (Thous)	100.20	100.30	99.86	99.41	98.68
GRP (Bil Chained 05\$)	6.94	7.08	7.18	7.27	7.33
GRP (Bil Fixed 05\$)	7.25	7.43	7.56	7.69	7.79
Pers Inc (Bil Nom \$)	4.53	4.82	5.08	5.33	5.56
PCE-Price Index (Fixed 05\$)	0.14	0.14	0.14	0.14	0.13
Real Disp Pers Inc (Bil Fixed 05\$)	3.64	3.83	3.99	4.14	4.28
Population (Thous)	73.65	83.20	91.48	98.71	105.00
Econ Migrants (Thous)	9.83	8.41	7.06	5.93	4.94
Total Migrants (Thous)	9.81	8.39	7.05	5.92	4.93
Labor Force (Thous)	56.56	61.21	64.94	67.83	69.99
Demand (Bil Fixed 05\$)	14.93	15.19	15.34	15.46	15.50
Output (Bil Fixed 05\$)	13.31	13.50	13.63	13.74	13.78
Wage Rate (Thous Nom\$)	0.08	0.08	0.08	0.08	0.08

	2010	2011	2012	2013	2014	2015
Employment (Thous)	102.00	102.40	103.80	105.00	106.10	107.10
GRP (Bil Chained 05\$)	7.74	7.90	8.11	8.31	8.50	8.69
GRP (Bil Fixed 05\$)	8.26	8.45	8.71	8.95	9.18	9.41
Pers Inc (Bil Nom \$)	5.98	6.29	6.64	6.99	7.34	7.70
PCE-Price Index (Fixed 05\$)	0.13	0.12	0.12	0.12	0.12	0.11
Real Disp Pers Inc (Bil Fixed 05\$)	4.56	4.74	4.95	5.14	5.33	5.52
Population (Thous)	111.30	116.90	122.20	127.20	131.80	135.90
Econ Migrants (Thous)	4.88	4.20	3.86	3.45	3.04	2.59
Total Migrants (Thous)	4.87	4.18	3.84	3.43	3.02	2.56
Labor Force (Thous)	72.56	74.65	76.65	78.65	80.61	82.60
Demand (Bil Fixed 05\$)	16.19	16.47	16.93	17.32	17.72	18.10
Output (Bil Fixed 05\$)	14.38	14.68	15.13	15.54	15.95	16.36
Wage Rate (Thous Nom\$)	0.08	0.08	0.08	0.08	0.08	0.08



Employment Impact by Industry (000) Florida Total, 2005-2015

	2005	2006	2007	2008	2009
Private Non-Farm	95.58	95.11	94.21	93.34	92.25
Government	4.68	5.21	5.67	6.08	6.43
Farm	0.00	0.00	0.00	0.00	0.00
Manufacturing	4.91	4.76	4.59	4.45	4.30
Non-Manufact	90.66	90.35	89.61	88.90	87.95
Lumber	0.12	0.12	0.11	0.10	0.09
Furniture	0.23	0.23	0.22	0.21	0.20
Stone, Clay, Etc.	0.24	0.23	0.21	0.20	0.19
Primary Metals	0.05	0.04	0.04	0.04	0.04
Fabricated Metals	0.45	0.43	0.41	0.39	0.37
Machin & Comput	0.57	0.55	0.53	0.51	0.49
Electric Equip	0.43	0.40	0.38	0.35	0.33
Motor Vehicles	0.04	0.04	0.04	0.04	0.03
Rest Trans Equip	0.31	0.29	0.27	0.26	0.24
Instruments	0.30	0.29	0.27	0.26	0.24
Misc. Manufact	0.28	0.28	0.28	0.28	0.29
Food	0.20	0.19	0.19	0.18	0.18
Tobacco Manuf	0.00	0.00	0.00	0.00	0.00
Textiles	0.06	0.06	0.06	0.05	0.05
Apparel	0.41	0.40	0.38	0.37	0.36
Paper	0.09	0.09	0.08	0.08	0.08
Printing	0.70	0.69	0.69	0.68	0.67
Chemicals	0.12	0.12	0.12	0.12	0.12
Petro Products	0.03	0.03	0.03	0.03	0.03
Rubber	0.19	0.19	0.18	0.18	0.17
Leather	0.10	0.10	0.10	0.11	0.11
Mining	0.02	0.02	0.02	0.02	0.01
Construction	8.74	8.31	7.74	7.28	6.88
Trans.&Public Util.	29.03	29.27	29.43	29.49	29.40
Fin&Ins&Real Est	4.53	4.45	4.37	4.30	4.24
Retail Trade	14.29	14.29	14.21	14.12	13.98
Wholesale Trade	3.06	2.92	2.79	2.66	2.53
Services	30.26	30.34	30.30	30.28	30.15
Agri&For&Fish Serv	0.73	0.74	0.74	0.75	0.76
State and Local	4.34	4.86	5.32	5.72	6.07
Federal Civilian	0.34	0.35	0.35	0.35	0.36
Federal Military	0.00	0.00	0.00	0.00	0.00



Employment Impact by Industry, continued Florida Total, 2005-2015

	2010	2011	2012	2013	2014	2015
Private Non-Farm	95.17	95.29	96.46	97.36	98.21	98.99
Government	6.79	7.10	7.37	7.63	7.86	8.07
Farm	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	4.39	4.38	4.42	4.46	4.50	4.53
Non-Manufact	90.78	90.92	92.05	92.92	93.72	94.45
Lumber	0.10	0.09	0.09	0.09	0.09	0.09
Furniture	0.20	0.20	0.20	0.21	0.21	0.21
Stone, Clay, Etc.	0.19	0.18	0.18	0.18	0.18	0.18
Primary Metals	0.03	0.03	0.03	0.03	0.03	0.03
Fabricated Metals	0.37	0.36	0.36	0.36	0.36	0.35
Machin & Comput	0.50	0.50	0.50	0.49	0.49	0.49
Electric Equip	0.33	0.32	0.32	0.31	0.31	0.30
Motor Vehicles	0.04	0.03	0.03	0.03	0.03	0.03
Rest Trans Equip	0.24	0.24	0.25	0.25	0.26	0.27
Instruments	0.24	0.24	0.24	0.25	0.25	0.25
Misc. Manufact	0.30	0.30	0.31	0.31	0.31	0.32
Food	0.18	0.19	0.19	0.19	0.19	0.19
Tobacco Manuf	0.00	0.00	0.00	0.00	0.00	0.00
Textiles	0.05	0.05	0.06	0.06	0.06	0.06
Apparel	0.37	0.37	0.37	0.37	0.37	0.37
Paper	0.08	0.08	0.09	0.09	0.09	0.09
Printing	0.70	0.71	0.73	0.75	0.77	0.79
Chemicals	0.13	0.13	0.13	0.13	0.14	0.14
Petro Products	0.03	0.03	0.03	0.03	0.03	0.03
Rubber	0.18	0.17	0.17	0.18	0.18	0.18
Leather	0.12	0.13	0.13	0.14	0.15	0.16
Mining	0.01	0.01	0.01	0.01	0.01	0.01
Construction	6.90	6.63	6.54	6.43	6.33	6.23
Trans.&Public Util.	30.36	30.42	30.77	31.03	31.27	31.48
Fin&Ins&Real Est	4.36	4.37	4.44	4.50	4.55	4.60
Retail Trade	14.43	14.47	14.69	14.84	14.97	15.09
Wholesale Trade	2.55	2.49	2.46	2.44	2.41	2.38
Services	31.36	31.70	32.29	32.79	33.26	33.72
Agri&For&Fish Serv	0.80	0.82	0.86	0.89	0.92	0.95
State and Local	6.43	6.73	7.00	7.25	7.48	7.69
Federal Civilian	0.36	0.37	0.37	0.38	0.38	0.38
Federal Military	0.00	0.00	0.00	0.00	0.00	0.00



Personal Income Impact by Source (Billions, \$ 2005) Florida Total, 2005-2015

	2005	2006	2007	2008	2009
As a % of Nation	0.04	0.05	0.05	0.05	0.05
Wage & Sal Disb	3.70	3.84	3.95	4.05	4.13
Prop & Oth Lab Inc	0.86	0.89	0.91	0.94	0.96
Lab & Prop Inc	4.56	4.73	4.86	4.98	5.09
Soc Ins Contrib	0.29	0.30	0.31	0.31	0.32
Net Res Adj	-0.05	-0.05	-0.05	-0.05	-0.05
Div∬&Rent	0.34	0.41	0.49	0.56	0.63
Trans Pymnts	-0.03	0.02	0.09	0.15	0.22
Pers Inc	4.53	4.82	5.08	5.33	5.56
Taxes	0.56	0.60	0.63	0.66	0.69
Disp Pers Inc	3.97	4.22	4.45	4.67	4.88

	2010	2011	2012	2013	2014	2015
As a % of Nation	0.05	0.05	0.05	0.05	0.05	0.05
Wage & Sal Disb	4.38	4.52	4.71	4.90	5.09	5.29
Prop & Oth Lab Inc	1.03	1.06	1.12	1.17	1.22	1.27
Lab & Prop Inc	5.40	5.59	5.83	6.06	6.31	6.56
Soc Ins Contrib	0.33	0.34	0.36	0.37	0.38	0.39
Net Res Adj	-0.06	-0.06	-0.06	-0.06	-0.07	-0.07
Div∬&Rent	0.70	0.77	0.84	0.91	0.98	1.05
Trans Pymnts	0.27	0.33	0.39	0.45	0.50	0.56
Pers Inc	5.98	6.29	6.64	6.99	7.34	7.70
Taxes	0.74	0.78	0.83	0.87	0.92	0.97
Disp Pers Inc	5.24	5.51	5.82	6.12	6.43	6.74



Output Impact by Industry (Billions, \$ 2005) Florida Total, 2005-2015

	2005	2006	2007	2008	2009
Durables Manuf	1.23	1.24	1.23	1.23	1.21
Non-Durbls Manuf	0.51	0.52	0.52	0.53	0.53
Mining	0.01	0.01	0.01	0.01	0.01
Construction	1.12	1.09	1.03	0.99	0.95
Trans.&Public Util.	5.38	5.53	5.65	5.76	5.82
Fin&Ins&Real Est	1.16	1.16	1.17	1.18	1.18
Retail Trade	0.89	0.91	0.92	0.93	0.94
Wholesale Trade	0.59	0.60	0.59	0.59	0.59
Services	2.38	2.43	2.46	2.50	2.52
Agri&For&Fish Serv	0.03	0.03	0.03	0.03	0.03

	2010	2011	2012	2013	2014	2015
Durables Manuf	1.28	1.29	1.34	1.37	1.41	1.45
Non-Durbls Manuf	0.56	0.58	0.60	0.62	0.65	0.67
Mining	0.01	0.01	0.01	0.01	0.01	0.01
Construction	0.97	0.94	0.94	0.94	0.94	0.94
Trans.&Public Util.	6.05	6.23	6.43	6.62	6.81	7.00
Fin&Ins&Real Est	1.24	1.27	1.31	1.35	1.39	1.43
Retail Trade	0.99	1.01	1.05	1.08	1.11	1.14
Wholesale Trade	0.61	0.62	0.64	0.66	0.67	0.69
Services	2.65	2.70	2.78	2.85	2.92	2.99
Agri&For&Fish Serv	0.03	0.03	0.03	0.03	0.03	0.03



Appendix E Comparison with Other Studies

During the past several years, no fewer than four other studies have been conducted on ports and their economic impacts within Florida. Three studies, Washington Economics Group, Inc (WEG, 2003), International Council of Cruise Line (ICCL, 2003), and MGT of America (MGT, 1999) focus specifically on maritime port impacts in the entire state. The other study, that of Martin Associates (Martin, 2003), concerns the Miami International Airport that is relevant here because of the significant passenger volume passing through the airport on the way to or from a cruise.

With the exception of this study, all of the impact estimates for the comparison studies are based on regional input-output models, ones that incorporate a fixed economic *structure* as the basis of estimated indirect and induced effects, i.e., activity that is necessitated in support of direct output either through inter-industry purchases or through consumption derived from additional income earned by labor and business owners. Unlike the REMI model, these models make no attempt to mimic market behavior vis-à-vis capacity utilization and relative price level changes. They operate without a time-dimension, and there are no time-lags in production and shipment of goods required for intermediate uses or to satisfy induced demand. In reality, some of these responses can take several years, particularly with regard to real estate and public expenditures.

From these studies, a set of direct and total impact estimates and resulting multipliers are shown in Table D-1. Because each of the other studies includes different elements among their direct impacts (see activities included in Table D-1), most of the direct impact numbers are not readily comparable to one another as shown. Also, for Port of Miami Study, only the Miami-Dade total impacts are presented so that the geography is held constant for both the direct and total effects, as is the case with the others.

The employment multiplier of 3.3 for Miami-Dade used in this study is somewhat higher than that of the WEG, and substantially larger than that of MGT, Inc. and Martin Associates of 2.1 and 2.0, respectively. There may be systematic reasons why the RIMSII model yields lower employment multipliers (e.g., due to lower estimated proportions of intermediate goods and services supplied locally), but without highly detailed disaggregation of the estimate components (and requiring data not provided in the other study reports), the precise reasons for this cannot be determined here. The personal income multipliers, however, are much closer to one another, with all falling in range of 2.7 to 3.1. (This study's multiplier was at the upper end of the range at 2.8) The output multipliers, for which only two of the four other studies provided estimates, show a moderate gap between the WEG and MGT values around 2.0-2.1 and this study's estimate of 3.0. It should be noted that this study's estimates for all three concepts fall fairly close to one other, something that is to be expected for aggregate measures. It is much harder to account for the divergence of employment and income multipliers seen in the RIMSII-based studies, wherein income growth occurs approximately 50% faster than underlying employment growth in response to a change in output.


Table E-1Comparison of Impact Estimates for Related Florida Port Studies

	Port of Miami Economic Study	Washington Economics Group	ICCL	MGT	Martin
Direct Impact Geography, Port, Study Year	Miami-Dade, Maritime Port, 2005	State of Florida, Maritime Ports, 2003	State of Florida, Florida, Maritime Ports, 2003	State of Florida, Maritime Ports, 1999	Miami-Dade, Airports, 2003
Model	REMI	IMPLAN	RIMSII	RIMSII	RIMSII
Direct Port Activities Included	Cruise and Related (i.e., air fares, commissions), Cargo, warehousing, Forwarding, Passenger Spending, Port Construction	Cruise and Related (e.g. air fares, commissions),Cargo, Warehousing, Forwarding, Passenger Spending, Export Goods	Cruise and Related (including air fares, commissio ns, vessel maintenan ce, fees)	Cruise and Related, Cargo, Warehousing, Forwarding, Passenger Spending, Export Goods, Port Construction	Air Travel, Air Cargo and Related, Local Ground Transport, Port Construction
Direct Employment (000)	24,626	89,911	NA	185,752	37,425
Total Employment (000)	81,800	288,696	126,559	389,192	75,733
Employment Multiplier	3.3	3.2	NA	2.1	2.0
Direct Output (\$bil., \$2005)	3.9	19.1	5.0	15.9	NA
Total Output (\$bil., \$2005)	11.6	39.2	NA	33.4	NA
Output Multiplier	3.0	2.0	NA	2.1	NA
Direct Personal Income (\$bil., \$2005)	1.3	4.5	NA	3.5	1.6
Total Personal Income (\$bil., \$2005)	4.0	12.4	4.764*	10.9	4.0
Effective Income	3.1	2.7	NA	3.1	2.5

 Multiplier
 Multiplier

 *Employee compensation only. Does not include dividends, interest, rental income, proprietors' income, transfer payments.

Source: The Four Gates Company, 2005

