

The Ship Repair Industry



HIDDEN IN PLAIN SIGHT: THE SHIP REPAIR INDUSTRY IN HAMPTON ROADS

Shipbuilding and repair activities in Hampton Roads seemingly are everywhere and nowhere at the same time. Nearly everyone knows about Northrop Grumman in Newport News, which employs almost 20,000 people and has built 11 of the nation's 12 active aircraft carriers. But, much less visible are the firms within our region that repair ships. Nevertheless, membership in the Virginia Ship Repair Association exceeds 160 and most of its members are located throughout Hampton Roads.

Even so, the activities of these enterprises, and especially their significant economic impact, are not well known even though the firms are located in plain sight along our waterways. Perhaps we have become so accustomed to seeing their buildings, dry docks and cranes that our eyes pass over them without really seeing and understanding, much like the trees in our neighborhoods.

How big is the private, nongovernment ship repair industry in Hampton Roads? How many employees do its firms have? How many related companies and firms depend upon it? What is the industry's total economic impact on our region? Providing answers to those questions is the focus of this chapter.

The Virginia Ship Repair Association

The Virginia Ship Repair Association (VSRA) is the regional trade association for firms directly involved in, or supporting, ship repair and maintenance. It has four categories of membership:

1. Large Ship Repairer
2. Ship Repairer
3. Ship Repairer Subcontractor
4. Supplier/Service/Other.

The large ship repairers in the region include firms such as Colonna, the oldest family-owned, full-service private shipyard in the country, and BAE Systems, an international firm that is the largest non-nuclear ship repair, modernization, conversion and overhaul firm on the East Coast. The ship repairer category includes smaller firms such as LIP Technical Services in Chesapeake, while the ship repairer/subcontractor category includes firms such as Main Industries in Hampton. The supplier/service group includes large law firms such as Hunton and Williams, along with smaller suppliers such as Marine Chemist Service in Newport News. More than 95 percent of the members of the VSRA are located in Hampton Roads, with a scattering of firms in cities such as Richmond and elsewhere.

Our primary interest initially is with the first three categories of VSRA membership, as it is these firms that are directly involved in shipbuilding and repair work. However, we will capture the economic impact of the fourth category of members when we deal with the indirect and induced economic impacts of the firms directly involved in ship repair (that is, the economic ripple effect of the activities of the firms in the first three categories).

The findings reported here do not include any government shipbuilding and repair facilities, such as the Norfolk Naval Shipyard in Portsmouth. Our interest is focused upon private-sector ship repair activity.

Collecting Data

All firms in the VSRA were sent a questionnaire requesting information on number of employees, payroll, benefits and sales. The survey also sought information about the distribution of their work – Department of Defense, U.S. Coast Guard, U.S. Maritime Administration, NOAA, private cargo carriers, private passenger vessels, private tugs and boats, and other work not related to shipbuilding and ship repair.

The majority of VSRA members are not public firms and therefore data on their economic activities are not in the public domain. Hence, in requesting the necessary economic data, we assured the firms that we would treat the information confidentially.

Surveys were sent by mail and e-mail, and firms were also contacted and surveyed by telephone. We were very pleased with the response. A total of 111 firms responded, including all six large ship repairers. Ten of the 18 ship repairers (56 percent) provided responses. Finally, we received responses from 48 of the 87 subcontractors (55 percent). As is true with any survey, one has to deal with missing information since some firms choose not to respond. We extrapolated information to the universe of firms for each category separately.

Because of the need to treat the data confidentially, we merged large ship repairers and ship repairers into one category – ship builders and repairers. Almost all of their work or source of revenue (99.8 percent) was related to shipbuilding and repair business. In the case of subcontractors, however, their responses revealed that 87.2 percent of the financial value of their work was related to this industry. The remaining 12.8 percent of their business was unrelated to ship repair.

Sales, Payroll and Employment

Table 1 summarizes the responses of the VSRA firms plus Northrop Grumman. The 24 shipbuilding and ship repair firms employed an estimated 24,538 people in 2005-06 and their payroll approximated \$1.266 billion. These firms paid their employees benefits of \$341.5 million, a generous 27 percent of salaries. The firms’ annual sales totaled \$3.843 billion.

The 87 subcontractors employed 4,794 people in 2005 with a payroll of about \$200 million. They spent \$44.45 million on employee fringe benefits (22.2 percent). Their sales in 2005-06 approximated \$1.426 billion.

On average, a person working for shipbuilders and repairers (categories one and two of the VSRA) in Hampton Roads was paid \$51,592 in salary and received \$13,917 in fringe benefits. The total compensation (salary plus benefits) of these employees was about 67 percent higher than the regional average of about \$39,000. Payroll and fringe benefit figures for subcontracting firms were \$41,716 and \$9,272, respectively. Total compensation for these employees was about 31 percent above the regional average.

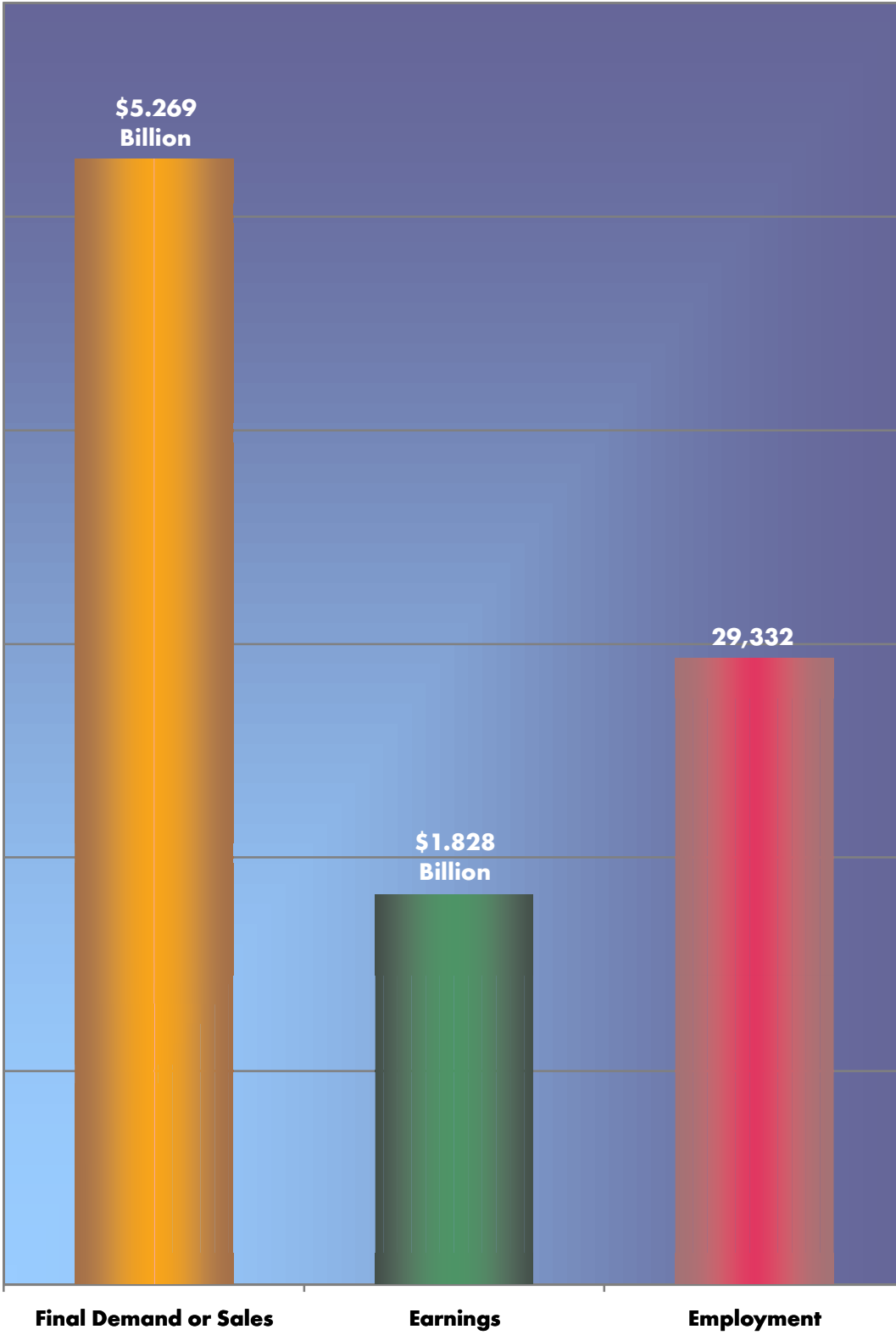
Graph 1 combines the activities of the 24 ship repairers and 87 subcontractors. Note that total sales amounted to \$5.269 billion in 2005-06 and payroll (earnings)¹ reached \$1.828 billion.

Employment totaled 29,332. The results reported in this graph are “direct impacts” and do not include any economic ripple effects in the community from these activities.

TABLE 1 SALES, PAYROLL AND EMPLOYMENT IN THE HAMPTON ROADS SHIPBUILDING AND REPAIR INDUSTRY 2005-06		
	Shipbuilders and Repairers	Subcontractors
Sales	\$3.843 Billion	\$1.426 Billion
Payroll	\$1.266 Billion	\$200.0 Million
Benefits	\$341.5 Million	\$44.45 Million
Employment	24,538	4,794
Source: Old Dominion University Economic Forecasting Project		

¹Our analysis relies upon the U.S. Department of Commerce’s Regional Input-Output Modeling System, known as RIMS II. RIMS II utilizes “earnings” rather than “payroll.” The difference is quite important for the operation of the model, but not for understanding the overall economic impact of the shipbuilding and repair industry. Hence, we will use these terms interchangeably even though we have adjusted our data to reflect the “earnings” definition. Readers interested in understanding the precise details should contact Professor Vinod Agarwal in the Department of Economics at Old Dominion University, vagarwal@odu.edu.

GRAPH 1
DIRECT ECONOMIC IMPACT OF SHIPBUILDING AND REPAIR
INDUSTRY IN HAMPTON ROADS
(2005-2006)



Source: Old Dominion University Economic Forecasting Project

Indirect and Induced Economic Impacts

While the direct impact of the ship repair industry is estimated by the results from the data in Table 1 and Graph 1, it is clear that these expenditures produce economic reverberations around the region. Putting it differently, there is a multiplier effect related to the direct expenditures of shipbuilders and repairers.

The most reliable way to estimate the economic ripple effect connected to direct expenditures is to use what is known as an input-output model. These models show the mathematical relationships among every industry in an economy. For example, shipbuilders and repairers purchase inputs such as fuel, vehicles, food and supplies from other industries. The input-output model expresses this by means of an equation, along with dozens of other similar relationships for every industry.

In the work reported here, we have utilized the U.S. Department of Commerce's Input-Output Model System II (known by the acronym RIMS II). The Bureau of Economic Analysis in the U.S. Department of Commerce provided the RIMS II data for Hampton Roads. This model is highly detailed and identifies 473 industries. It relies upon 2004 regional data.

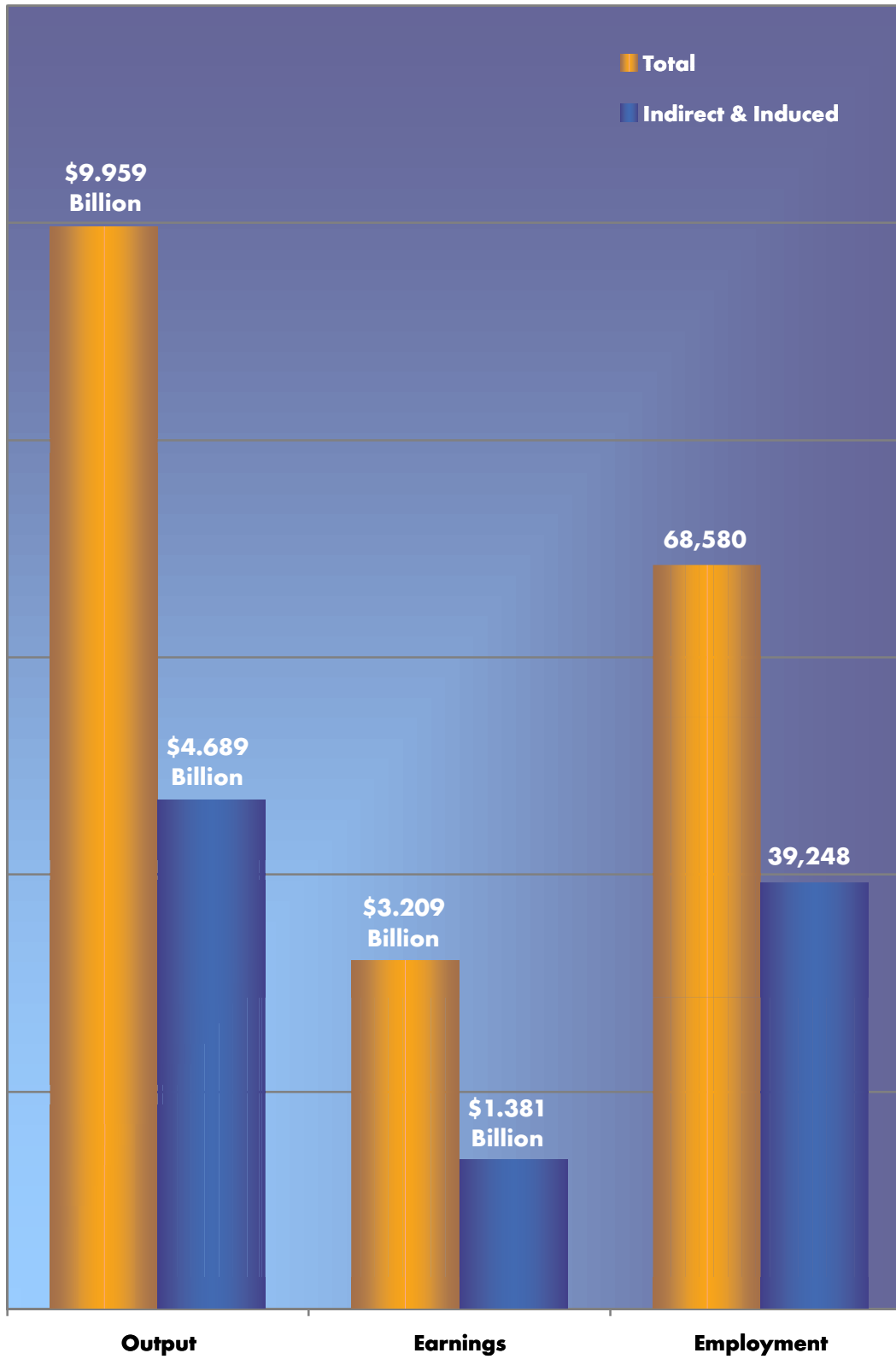
There are two types of economic ripple effects for us to consider. First, there is the "*indirect*" effect of the sales and activities of the firms that supply the shipbuilding and repair industry. Thus, if a fuel supplier sells gasoline and oil to a ship repairer, we will consider this to be an indirect, but very real, economic impact of the shipbuilding and repair industry.

Second, there are "*induced*" economic effects. When a ship repairer or subcontractor pays salaries to its employees, those employees will spend the money, which has an economic impact. Of course, some of their salary will be spent outside of Hampton Roads and some will be saved. But, depending upon the circumstances, each salary dollar may generate another dollar in regional income as employees and businesses spend and re-spend the dollars they receive.

Graph 2 shows the total economic impact of the shipbuilding and repair industry and identifies the portion of that impact that is due to the indirect and induced economic effects. **One can see that the annual total economic impact of the industry is a very healthy \$9.959 billion, of which \$3.209 billion is employee earnings. The number of jobs connected to this economic impact is 68,580, approximately 9 percent of the region's labor force. Thus, almost one in every 11 jobs in Hampton Roads is directly or indirectly dependent upon our private-sector shipbuilding and repair industry.**

Graph 2 also reports the indirect and induced impacts of the shipbuilding and repair industry. These impacts are \$4.689 billion in output, \$1.381 billion in earnings and 39,248 jobs. **Note that fully 57 percent of the jobs generated by the shipbuilding and repair industry are due to economic ripple effects – indirect and induced economic activity stimulated by the industry's direct activities.**

GRAPH 2
TOTAL, INDIRECT AND INDUCED ECONOMIC IMPACTS OF
SHIPBUILDING AND REPAIR IN HAMPTON ROADS
(2005-2006)



Sources: U.S. Department of Commerce and Old Dominion University Economic Forecasting Project

The Economic Impact on Specific Industry Areas

Table 2 discloses the indirect impact of the shipbuilding and repair industry on the top 10 industrial groupings that provide goods and services to shipbuilders and repairers, plus the induced impact of employee and firm expenditures.

The manufacturing industry group, which includes the shipbuilding and repair industry, leads all other industrial groups in terms of the size of the indirect and induced effects on its output. Manufacturing is followed in importance by real estate, health care, retail trade, and finance and insurance.

However, where total employee earnings are concerned, the leader in terms of the ripple effect is the health care industry. It is followed by the manufacturing industry and professional, scientific and technical services.

Ripple employment presents a still different picture. **Even though the health care industry, with 5,653 jobs derived from shipbuilding and repair activities, leads the way, it is closely followed by the accommodation and food services industry with 5,610 jobs, and retail trade with 5,532 jobs. However, the jobs in the latter two areas tend not to be among those that pay the highest salaries. By way of illustration, the average annual earnings per employee in the accommodation and food services industry are only \$14,652. The clear champion in terms of high-paying ripple-effect jobs is the management of companies and enterprises industry, where employee earnings average \$81,644. To the extent that the economic ripple effect from shipbuilding and repair generates management jobs, these tend to be high-paying.**

**TABLE 2
INDIRECT AND INDUCED ECONOMIC IMPACTS OF SHIPBUILDING AND REPAIR
ON THE TOP 10 REGIONAL INDUSTRIAL GROUPINGS**

Industry	Output	Earnings	Employment
Manufacturing	\$741.4 M	\$140.1 M	2,649
Real Estate and Rental and Leasing	\$695.5 M	\$ 43.7 M	1,364
Health Care and Social Assistance	\$432.1 M	\$209.7 M	5,653
Retail Trade	\$369.9 M	\$124.9 M	5,532
Finance and Insurance	\$345.7 M	\$ 83.8 M	1,488
Professional, Scientific and Technical Services	\$299.8 M	\$133.3 M	2,471
Wholesale Trade	\$270.3 M	\$ 86.4 M	1,592
Management of Companies and Enterprises	\$248.7 M	\$122.8 M	1,504
Accommodation and Food Services	\$216.0 M	\$ 82.2 M	5,610
Other Services	\$216.0 M	\$ 72.2 M	2,917
TOTAL	\$3,835.4 M	\$1,099.1 M	30,780

Sources: U.S. Department of Commerce and Old Dominion University Economic Forecasting Project

Summing Up the Industry's Economic Impact

The total annual economic impact, counting economic ripple effects, of the private-sector shipbuilding and repair industry in Hampton Roads on output and earnings is \$9.96 billion and \$3.21 billion, respectively. This is about 8 percent of the value of the region's output. Employment attributable to the industry exceeds 68,500. This is approximately 9 percent of the region's total nonfarm employment. Thus, by any standard, shipbuilding and repair is one of the most significant economic activities in Hampton Roads. Note that these estimates do not include federal and military shipbuilding and repair facilities.

That shipbuilding and Northrop Grumman are important to the region will not come as a surprise to many. Ship repair, however, is not so well known and is not on the metaphorical radar screen of many people in the region. It is an industry we should acknowledge, appreciate and support.



