



**THE ECONOMIC IMPACT
OF THE
MILITARY ON
NORTH CAROLINA**



A joint publication of the North Carolina Department of Commerce and the North Carolina Military Affairs Commission

Written by

Joshua Levy
North Carolina Department of Commerce
Labor & Economic Analysis Division (LEAD)

Economic impact modeling by

Scott Nystrom
Regional Economic Models Incorporated (REMI)

A special thanks to:

Cornell Wilson, North Carolina Military Affairs Commission; Tommy Lashley Jr., Defense Manpower Data Center; Scott Dorney and Cherie Daniels, North Carolina Military Business Center; Mark Mills, Small Business and Technology Development Center; Brett Dyson, Laurie Green, Allan Sandoval, Heather Wojton and Kirubel Aysheshim, North Carolina Department of Commerce

Photo Credits

Cover (clockwise from top left):
North Carolina National Guard
North Carolina National Guard
United States Army - Fort Bragg, photo by Staff Sgt. Mary S. Katzenberger
U.S. Marine Corps, photo by Lance Cpl. Justin A. Rodriguez
United States Air Force - Seymour Johnson AFB

Page 14:
All photos courtesy of North Carolina National Guard



North Carolina Military Affairs Commission

TABLE OF CONTENTS

Key Findings.....	1
Introduction.....	1
I. Background on North Carolina’s Military Presence.....	2
Military Installations	2
Contracting	4
Active Military Personnel.....	5
Projected Separations from the Military.....	7
The Current Veteran Population	7
II. Economic Impact Analysis Methodology.....	9
Overview of REMI PI+	9
The Approach	10
How the Military Impacts North Carolina’s Economy.....	10
III. Economic Impact Analysis Results	10
Jobs.....	11
The Relative Importance of the Military for Private Industry.....	13
Other Measures of Economic Impact.....	13
Conclusions.....	14

LIST OF FIGURES

Figure I: Military Installations in North Carolina.....	4
Figure II: North Carolina Veteran Population by Age.....	8
Figure III: Employment Contribution by Military Funding Source.....	11
Figure IV: The Composition of Military-Supported Employment in North Carolina	11
Figure V: Employment by Private Industry Sector (and source of funds).....	12
Figure VI: Employment by Private Manufacturing Subsector (and source of funds)	12

LIST OF TABLES

Table I: DoD Prime Military Contracting by Prosperity Zone.....	5
Table II: Top 10 Counties for DoD Prime Military Contracting	5
Table III: Active-Duty Military Personnel by Service and Installation as of June 2015	6
Table IV: Most Common Military Occupational Specializations in North Carolina	6
Table V: Projected Military Separations.....	7
Table VI: Veteran Population by Prosperity Zone.....	7
Table VII: Veteran Population Projections	8
Table VIII: Veteran Pensions & Compensation by Prosperity Zone.....	9
Table IX: Top 10 Sectors by Percentage of Military-Supported Economic Activity	13
Table X: Economic Impact on Gross State Product and Personal Income.....	13

Key Findings

- Overall, the economic impact model estimates that the military supports roughly 10 percent of North Carolina's employment
 - The military supports 578,000 jobs in North Carolina, nearly \$34 billion in state personal income, and \$66 billion in gross state product
 - 386,000 of the total military-supported jobs occur in the private sector
 - Professional, Scientific and Technical Services, Administrative and Waste Management Services, and Construction are the top three military-supported private industry sectors
- 102,000 active duty military personnel were assigned to units in North Carolina as of June 2015, and more than 78,000 individuals are projected to leave the military over the next four years
- The North Carolina National Guard has a strength of nearly 12,000, with more than 20,000 in the Reserves
- More than 20,000 civilian contractors are employed by the Department of Defense and the North Carolina National Guard in North Carolina
- Department of Defense prime contracting in FY 2014 totaled \$2.5 billion, with 81 percent of that being performed in the South Central and Southeast prosperity zones
- 79 of 100 counties had prime contracting activity in FY 2014
- North Carolina's active military personnel have in-demand occupational skills which could contribute to private industries in the state as personnel separate from the military in the future
- North Carolina has a total of 775,000 veterans that reside in every county across the state
- Military veterans in North Carolina received more than \$8.2 billion in pensions, medical care and other support from the Department of Defense and the Department of Veteran Affairs in FY 2014

Introduction

The presence of U.S. military installations in North Carolina supports the state's economy in numerous ways. In 2008, the North Carolina Department of Commerce published a study titled *North Carolina's Military Footprint: Current Economic Impacts and Projections for 2013*¹ to better understand the connections between military operations and the North Carolina economy. This report was expanded and updated in 2013 to reflect changes to the economy and the military which occurred during that time period, including the 2007–2009 recession, the effects of federal budget sequestration, and the withdrawal of U.S. troops from Iraq and Afghanistan.²

This report updates the 2013 version and makes two significant changes. First, it includes the contribution of military pensions to the state's economy, an important but often overlooked source of federal dollars flowing to the state's veterans. In addition, it includes the state government's financial support for the North Carolina National Guard and Reserves, an important contribution that was also missing from the 2013 analysis. With the exception of these two additional components, the methodology of the report replicates that of the 2013 study, and uses the REMI PI+ input-output model to estimate the economic impact of total military spending on the North Carolina economy.³

This report analyzes the impact of the military in a fairly broad sense. The first section of the report begins with an overview of the major military facilities in North Carolina, followed by a discussion of military contracting performed in the state, active military personnel levels, projected separations from the military, estimates of the veteran population, and pensions distributed within the state. The second section of the report details the methodology used to measure the economic impact of the U.S. military on North Carolina's economy in 2015. The third section discusses the results from the economic impact model

¹North Carolina's Military Footprint: Current Economic Impacts and Projections for 2013. North Carolina Department of Commerce, 2008. <http://www.nccommerce.com/Portals/0/Research/Industry%20Reports/North%20Carolinas%20Military%20Footprint.pdf>

²The Economic Impact of the Military on North Carolina. North Carolina Department of Commerce, 2013. <http://www.nccommerce.com/Portals/47/Publications/Industry%20Reports/The%20Economic%20Impact%20of%20the%20Military%20on%20North%20Carolina%20%283%29.pdf>

³The economic impact analysis in this report is based on modeling performed by Scott Nystrom of Regional Economic Models, Inc. (REMI), carried out on behalf of the North Carolina Military Affairs Commission and released on June 1, 2015.

including sectors and industries supported by the military, as well as estimates for the military's contribution to personal income and gross state product.

I. Background on North Carolina's Military Presence

The military has had a prominent presence in North Carolina over the last century. According to the Defense Manpower Data Center, North Carolina currently has the fourth largest military population in the United States.⁴ There are five military bases, a military ocean terminal, and a U.S. Coast Guard base located within the state:

- Fort Bragg
- Camp Lejeune Marine Corps Base
- Cherry Point Marine Corps Air Station and Naval Air Depot
- New River Marine Corps Air Station
- Seymour Johnson Air Force Base
- Sunny Point Military Ocean Terminal
- U.S. Coast Guard Base Elizabeth City

Fort Bragg

City: Fayetteville

County: Cumberland

Started as Camp Bragg, Fort Bragg was built as the first modern military base in the state of North Carolina in 1918. It is one of the largest military installations in the world in terms of personnel. As of June 2015, Fort Bragg is home to approximately 48,000 military personnel and 9,500 civilian contract employees.⁵ As part of the Base Closure and Reassignment (BRAC) process, Fort Bragg took command of Pope Field, formerly known as Pope Air Force Base. It also hosts the 82nd Airborne Division and the U.S. Army Special Operations Command. The U.S. Army Forces Command (FORSCOM) and U.S. Army Reserve Command (USARC) were relocated to Fort Bragg as part of the BRAC process, which means that Fort Bragg now has the highest number of general officers in the country outside of the Pentagon.⁶

Camp Lejeune Marine Corps Base

City: Jacksonville

County: Onslow

Known as the "Home of Expeditionary Forces in Readiness" and with its close proximity to ports at Wilmington and Morehead City, Camp Lejeune is the oldest Marine Corps base in the state. Its primary purpose is to train and maintain combat-ready units for expeditionary deployment.⁷ It is the second largest military base in North Carolina with more than 33,000 active duty military personnel, and like Fort Bragg, it is also one of the largest bases in the nation. The camp has about 3,500 civilian contract employees and some of the units in the base include the II Marine Expeditionary Force and the U.S. Marine Corps Forces Special Command. The base has also received the Commander-In-Chief's Annual Award for Installation Excellence on six occasions.⁸

Cherry Point Marine Corps Air Station and Naval Air Depot

City: Havelock

County: Craven

Cherry Point is a Marine Corps Air Station and Naval Air Depot with more than 7,500 active duty military members of the Marines and the Navy and more than 1,500 civilian contract employees.⁹ It is home to Fleet

⁴Data provided as of June 2015.

⁵Defense Manpower Data Center, June 2015. Civilian contractors only include those directly employed by the Department of Defense.

⁶<http://www.ncse.org/industry-clusters/defense>

⁷<http://www.lejeune.marines.mil/About.aspx>

⁸http://www.campjeuneglobe.com/base_info/about_lejeune/history-of-marine-corps-base-camp-lejeune/article_51dbf81c-f67d-11e3-9911-001a4bcf6878.html

⁹Defense Manpower Data Center, June 2015.

Readiness Center (FRC) East, which provides maintenance, engineering, and logistics support for aviation operations of the Marine Corps, Navy, and other branches of the U.S. military. The Fleet Readiness Center East claims to be the largest employer of civilians east of Interstate 95 in North Carolina.¹⁰ Like Camp Lejeune, Cherry Point has received the Award for Installation Excellence multiple times.¹¹

New River Marine Corps Air Station

City: Jacksonville

County: Onslow

Located in Jacksonville, North Carolina, New River Marine Corps Air Station is the largest Marine Corps helicopter base on the East Coast.¹² The base provides support for aviation combat with focus on enhancing combat readiness. There are more than 5,500 Marines and other branches' military personnel located at the air station. The station has more than 160 civilian employees and contractors. The Second Marine Aircraft Wing as well as several installation support units are located at the facility.¹³

Seymour Johnson Air Force Base

City: Goldsboro

County: Wayne

Seymour Johnson Air Force Base, located in Goldsboro, is home to the 4th Fighter Wing and the 916th Air Refueling Wing and employs more than 4,100 active duty personnel.¹⁴ The base has a civilian employee population of more than 700 and also provides combat airpower support to other branches of the U.S. Armed Forces.

Sunny Point Military Ocean Terminal

City: Southport

County: Brunswick

Sunny Point is the largest military ocean terminal in the world and is operated by the Department of Defense. It enables the import and export of military supplies and the efficient domestic and international transfer of these goods among multiple modes of transportation including rail, ships, and trucks. The terminal employs more than 200 personnel, including civilian contractors and Army staff.¹⁵

U.S. Coast Guard Base

City: Elizabeth City

County: Pasquotank

The U.S. Coast Guard installation is home to an Aviation Logistics Center, the Aviation Technical Training Center, an Air Station, and a Small Boat Station.¹⁶ The U.S. Coast Guard falls under the jurisdiction of the Department of Homeland Security during peacetime and can be transferred to the Navy in wartime by an executive order. The Coast Guard also runs eight additional boat stations up and down the North Carolina coastline.

¹⁰<http://www.navair.navy.mil/frce/history.html>

¹¹<http://www.cherrypoint.marines.mil/About.aspx>

¹²<http://www.military.com/base-guide/marine-corps-air-station-new-river>

¹³<http://www.newriver.marines.mil/Units.aspx>

¹⁴<http://www.seymourjohnson.af.mil/library/factsheets/factsheet.asp?id=4330>

¹⁵Defense Manpower Data Center, June 2015.

¹⁶<http://www.uscg.mil/baseelizabethcity/>

Figure I: Military Installations in North Carolina



Figure I shows the military installations discussed above. North Carolina's bases and other military installations are geographically concentrated in the Eastern and Southern regions of the state.

North Carolina National Guard

The National Guard has a significant presence in the state with more than 11,700 military personnel (10,200 in the Army National Guard and 1,500 in the Air National Guard) as of April 2015.¹⁷ It has over 100 facilities spread across the state, from Murphy to Manteo. The North Carolina National Guard's Joint Force Headquarters is located in Raleigh and its Air National Guard Headquarters is located in Charlotte at the Charlotte-Douglas International Airport.

Other Military Facilities and Reserve Components

Other military facilities include the U.S. Coast Guard sector in Wilmington that oversees Coast Guard stations up and down the East Coast of North Carolina. The state has a military reserve strength of more than 21,000 personnel. The United States Army Reserve (USAR) consists of approximately 11,000 personnel; the U.S. Marine Corps Reserve (USMCR) is made up of approximately 4,500 personnel; the U.S. Air Force Reserve (USAFR) has approximately 3,600 personnel; and the U.S. Navy Reserve has approximately 2,200 personnel.¹⁸

Contracting

Military contracts performed in North Carolina occur mainly through prime contracts awarded by the Department of Defense.¹⁹ In FY 2014, prime military contracts performed in North Carolina totaled more than \$2.49 billion.²⁰ The South Central (\$1.03 billion) and Southeast (\$974 million) regions of the state received 81 percent of the total prime contract dollars, indicating that these regions have developed robust regional defense industries (Table I).²¹ The Northwest region, by contrast, accounted for only 0.3 percent of the state's total prime contract dollars.

¹⁷Defense Manpower Data Center, April 2015.

¹⁸Although the Coast Guard awards contracts through the Department of Homeland Security, these are relatively small when compared to Department of Defense prime contracts.

¹⁹Federal Procurement Data System (FPDS) provided by the N.C. Military Business Center. The FPDS captures all federal contracting activity except for micropurchases, i.e., transactions under \$2,500. Data are presented by place of performance and includes both North Carolina vendors as well as out-of-state vendors.

²⁰Federal Procurement Data System provided by the N.C. Small Business and Technology Development Center's Procurement Technical Assistance Center.

²¹For a description of the state's prosperity zones, please see <http://www.nccommerce.com/lead/research-publications/regional-economic-labor-market-information/prosperity-zone-data-books/statewide-summary>

Table I: DoD Prime Military Contracting by Prosperity Zone

	Total Dollars
South Central	\$1,032,356,895
Southeast	\$974,349,957
North Central	\$157,906,702
Central	\$125,852,595
Southwest	\$110,356,460
Northeast	\$56,933,970
Western	\$26,473,276
Northwest	\$6,871,784
North Carolina	\$2,491,101,639

Data supplied by the NC Military Business Center (Source: FPDS)

Overall, prime contracting activity was performed in 79 of North Carolina’s 100 counties in FY 2014. However, these contracts were heavily concentrated in only a handful of counties. The top 10 counties, for instance, accounted for greater than 88 percent of prime military contracting in North Carolina (Table II). Moreover, the top two counties — Cumberland and Onslow — accounted for nearly 63 percent of prime military contracting. Not surprisingly, these counties are home to the state’s two largest military bases, Fort Bragg and Camp Lejeune.

Table II: Top 10 Counties for DoD Prime Military Contracting

	Region	Total Dollars
Cumberland	South Central	\$975,352,435
Onslow	Southeast	\$590,541,913
Craven	Southeast	\$194,905,539
Wake	North Central	\$94,700,189
Wayne	Southeast	\$93,335,857
Guilford	Central	\$76,035,460
Mecklenburg	Southwest	\$60,550,628
New Hanover	Southeast	\$45,809,098
Durham	North Central	\$40,394,372
Brunswick	Southeast	\$30,408,347

Data supplied by the NC Military Business Center (Source: FPDS)

In addition to prime contracting, a great deal of subcontracting work occurs in North Carolina. During FY 2014, more than \$204 million of Department of Defense subcontracting activity was performed in the state.²²

Active Military Personnel

According to the Defense Manpower Data Center, more than 102,000 active duty military personnel were assigned to units in North Carolina as of June 2015. The Marine Corps and the Army are the two largest branches of the military in the state, followed by a smaller presence of Air Force, Navy, and Coast Guard personnel. Table III shows the distribution of these forces by location.²³

²²Source: Federal Procurement Data System, provided by the NC Small Business and Technology Development Center’s Procurement Technical Assistance Center.

²³In addition to these active-duty personnel, there are nearly 12,000 National Guard and 21,000 Reserve forces in the state as of April, 2015, according to Defense Manpower Data Center. There are also nearly 22,000 civilian personnel assigned to bases in the state as of June, 2015.

Table III: Active-Duty Military Personnel by Service and Installation as of June 2015

	Camp Lejeune	Cherry Point	Fort Bragg	New River	Seymour Johnson	Unknown	Total
Air Force		3	1,993	21	4,154	141	6,312
Army	24		45,365		3	470	45,862
Coast Guard	165					1,441	1,606
Marine Corps	29,718	7,162	3	5,508		1,307	43,698
Navy	3,576	406	235	41		270	4,528
Total	33,483	7,571	47,596	5,570	4,157	3,629	102,006

Source: Defense Manpower Data Center, active duty personnel as of June 2015. Coast Guard data as of February 2015.

The occupational makeup of the military is of particular interest to current and potential employers anticipating an overall reduction in forces and the potential transition to civilian employment for some military personnel in the state. Each branch of the military classifies its workforce using a Military Occupational Code, which can then be compared to existing civilian occupations using the Standard Occupational Classification system used by the Bureau of Labor Statistics. Table IV below lists the 10 most common military occupational specializations for North Carolina’s active military personnel, along with several compatible civilian occupations:

Table IV: Most Common Military Occupational Specializations in North Carolina

Military Occupational Code Title	Standard Occupational Classification Title
Infantryman	Training & Development Workers, Policing & Security, Construction Workers, Heavy & Tractor-Trailer Truck Drivers
Rifleman	Training & Development Workers, Policing & Security, Construction Workers, Heavy & Tractor-Trailer Truck Drivers
Motor Vehicle Operator	Heavy & Tractor-Trailer Truck Drivers Industrial Truck & Tractor Drivers
Health Care Specialist	Emergency Medical Technicians & Paramedics, Medical Secretaries, Medical Assistants
Hospital Corpsman	Medical Secretaries, Orderlies, Emergency Medical Technicians & Paramedics, Medical & Nursing Assistants
Combat Engineer	Construction Workers, Operating Engineers & other Construction Equipment Operators
Wheeled Vehicle Repairer	Supervisors of Mechanics, Installers, & Repairers, Bus & Truck Mechanics & Diesel Engine Specialists, Automotive Specialty Technicians & Master Mechanics
Field Radio Operator	Radio Operators, Dispatchers, Police, Fire & Ambulance Dispatchers, Broadcast Technicians, Radio, Cellular, & Tower Equipment Installers & Repairers
Military Police	Correctional Officers & Jailers, Supervisors of Correctional Officers Supervisors of Police and Detectives
Food Service Specialist	Cooks, Institution & Cafeteria Food Preparation Workers

Based on analysis of Defense Manpower Data Center data and O*Net Military Crosswalk

The military occupational mix shows areas of overlap with some of North Carolina’s largest civilian occupational groups, including concentrations in health care, automotive and transportation-related occupations, and food service occupations. In addition, several occupational specializations within the military have relevance to emerging industry clusters in North Carolina, including aerospace and aviation-related industries, automotive and transportation, and logistics.

Projected Separations from the Military

From 2015 through 2018, more than 78,000 active duty personnel are projected to separate from the military in North Carolina during the military drawdown from two major wars and the subsequent realignment of troop levels.

Table V: Projected Military Separations

	2015	2016	2017	2018	Total
Air Force	635	1,057	1,191	1,258	4,141
Army	3,168	8,528	8,730	7,013	27,439
Coast Guard	177	220	239	329	965
Marine Corps	7,585	12,328	12,367	10,704	42,984
Navy	430	949	949	748	3,076
Total	11,995	23,082	23,476	20,052	78,605

Projected Separations for Active Duty Service Members assigned to North Carolina bases. Defense Manpower Data Center, June, 2015. Coast Guard data as of February, 2015.

While not all of these separating personnel will seek employment in the state, this expected surge in separations could provide an opportunity for North Carolina businesses to hire and retain some of these skilled workers to meet their workforce needs. Many individuals who leave the military are still in their prime working age — more than 82 percent of the projected separations from 2015–2018 will be 30 or younger, and more than 96 percent will be no older than 40.²⁴ Many also possess technical skills and soft skills including discipline and punctuality, the ability to follow instructions and work as part of a team, and experience working in a large, complex organization. Opportunities to match employers with these individuals will exist locally in the regions surrounding installations as well as throughout other parts of the state.

The Current Veteran Population

Currently, approximately 775,000 veterans reside in North Carolina — the eighth largest veteran population in the United States. As can be seen in Table VI, the largest number of veterans reside in the North Central and Southwest regions of the state. However, all eight regions have sizable veteran populations.

Table VI: Veteran Population by Prosperity Zone

	Number of Veterans
North Central	154,000
Southwest	144,000
Central	119,000
Southeast	114,000
South Central	93,000
Western	62,000
Northwest	45,000
Northeast	43,000

Source: US Department of Veterans Affairs, VetPop2014
*estimates reported to the nearest 1,000

²⁴Defense Manpower Data Center, June 2015

The Department of Veterans Affairs publishes information from a projection model that estimates the number of veterans in each state and county through 2040.²⁵ One of the key inputs for the projection model is military separations data, which was discussed in the previous section.²⁶ The focus of this section is on North Carolina projections instead of county projections because there is a much smaller margin of error at the state level.

Table VII: Veteran Population Projections

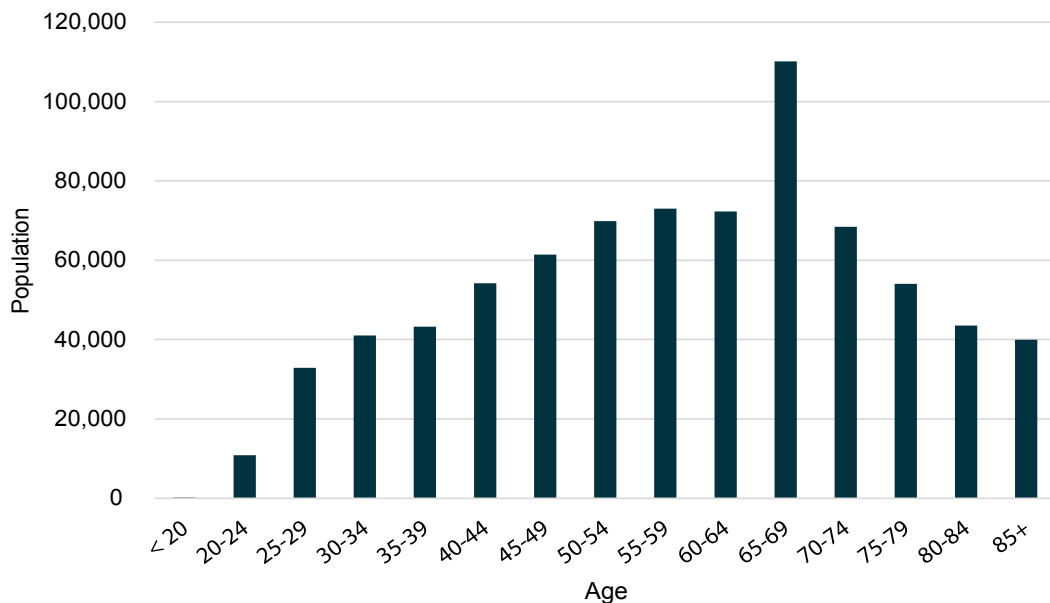
	2014	2020	2030	2040
North Carolina Veterans	775,000	763,000	720,000	659,000
Total US Veterans	21,999,000	20,170,000	17,421,000	15,073,000
% of Total	3.52	3.78	4.13	4.37

Source: US Department of Veterans Affairs, VetPop2014
 *estimates reported to the nearest 1,000

The veteran population in North Carolina is projected to decrease by 115,619 individuals between 2014 and 2040 (Table VII). This trend is consistent with a decrease in the total veteran population projections for the United States. Interestingly, the veteran population in North Carolina is expected to decrease at a slower rate than the total veteran population in the United States. Consequently, North Carolina’s share of the total veteran population is expected to rise by 2040.

Figure II shows the distribution of veterans by age group. The majority of veterans are age 50 or older; however, nearly 244,000 veterans are actually younger than 50, making them part of the prime working-age population. Given a reasonable labor force participation rate, veterans represent a large and skilled labor pool that public and private sector employers can utilize.

Figure II: North Carolina Veteran Population by Age



Source: US Department of Veterans Affairs, VetPop2014

²⁵Available at http://www.va.gov/vetdata/veteran_population.asp

²⁶Other key inputs to the VetPop2011 model are data from Veterans Affairs, the American Community Survey, the Internal Revenue Service, and the Social Security Administration.

Retired military personnel in North Carolina received more than \$2.3 billion in retirement compensation from the Department of Defense in 2014.²⁷ In addition, the Department of Veterans Affairs paid more than \$3.3 billion in pensions and compensation to North Carolina veterans with a disability rating in 2014.²⁸ The Veterans Affairs pensions and compensation payments are concentrated primarily in the South Central and Southeast regions of the state (Table VIII).

Table VIII: Veteran Pensions & Compensation by Prosperity Zone

South Central	\$689,021,000
Southeast	\$651,237,000
North Central	\$543,566,000
Southwest	\$465,063,000
Central	\$375,084,000
Western	\$232,135,000
Northeast	\$195,008,000
Northwest	\$177,070,000
North Carolina	\$3,328,183,000

Source: US Department of Veterans Affairs, VetPop2014

Note: County totals do not exactly equal state total due to rounding.

The Department of Veterans Affairs also provided more than \$1.9 billion in medical care as well as more than \$478 million in education and vocational rehabilitation and employment support to North Carolina veterans in 2014.²⁹

II. Economic Impact Analysis Methodology

Overview of REMI PI+

The economic impact analysis of the military on North Carolina was recently conducted by Regional Economic Models Incorporated (REMI) using the Policy Insight Plus (PI+) model.³⁰ It is based on data from the Bureau of Economic Analysis, the Bureau of Labor Statistics, the Census Bureau, the Department of Defense, the Department of Homeland Security, and other public data sources. Underlying the PI+ model is a base set of assumptions about how regional economies work. As with any economic model, it represents only an approximation of reality. Therefore, the results in Section III should be interpreted as estimates of the economic impact with some level of uncertainty, despite the fact that REMI uses some of the most advanced methods currently available in economic impact analysis.

One specific limitation of the REMI PI+ model is that it does not incorporate unforeseen macroeconomic shocks to the national and global economy. REMI does, however, estimate business cycle fluctuations of the economy based on historical data and trends. The limitation is that big changes in economic conditions such as the national rate of economic growth, international trade patterns, government policies that impact economic performance, and technological innovations that impact productivity cannot be predicted by the model. This limitation is not unique to REMI models, however. To the extent that these economic conditions are stable in the short run, the estimates from the model accurately approximate the true economic impact of military on North Carolina's economy.

²⁷Statistical Report on the Military Retirement System, Fiscal Year 2014. Department of Defense Office of the Actuary, June 2015. Available at http://actuary.defense.gov/Portals/15/Documents/MRS_StatRpt_2014.pdf

²⁸US Department of Veteran Affairs, VetPop2014. Available at <http://www.va.gov/vetdata/Expenditures.asp>

²⁹Ibid.

³⁰See REMI's publication The Economic Impact of the Defense and Military Sector on North Carolina. June 1, 2015. Prepared for North Carolina Military Affairs Commission (NC MAC). More information about the PI+ model is available at <http://www.remi.com/products/pi>

The Approach

In order to estimate the economic impact of the military, the REMI model creates a scenario in which military spending has been entirely removed from the U.S. economy.³¹ This approach enables the model to measure the total military impact — economic activity that is generated by military operations outside of North Carolina, as well as by military operations inside of North Carolina.

Military spending is not reallocated to other government programs because this analysis seeks to quantify the total impact of the military and does not seek to compare the relative impacts of multiple policy options. Therefore, all of the impacts reported in the next section represent the difference between REMI's baseline scenario and the scenario where the military does not exist in the U.S. economy.

Two important additions to the methodology used in the 2013 military impact study are the inclusion of military pensions, as well as nonfederal spending on the military (mostly state funds for the National Guard). In addition, the results are based on the most recent data available for 2015.³²

How the Military Impacts North Carolina's Economy

The primary goal of the military is to protect the citizens of the nation and in doing so, it creates large economic impacts on local economies. Military operations in North Carolina, as well as those that take place outside of North Carolina, generate a significant amount of economic activity in the state. There are several ways that the military contributes to our economy.

First, military bases enrich the regional economy because they provide a source of income to military personnel who, in turn, demand goods (i.e., groceries and clothes) and services (i.e., dining out and dry cleaning), spending a portion of their incomes regionally. Military pensions from the federal government also provide income to individuals who will then purchase goods and services in the regional economy. Another area yielding significant economic impacts is military contracting. Each year, the military purchases billions of dollars of goods and services from defense contractors in North Carolina in sectors such as Manufacturing, Construction, and Aerospace.

In order to meet the military's demand for goods and services, defense contractors require intermediate inputs for their own production processes. Demand for intermediate inputs translates into demand for suppliers and service providers further "upstream" in the value chain.³³ This economic process continues through the value chain, in effect, amplifying the initial dollar value of military contracts.

Finally, labor is required by virtually all companies in military-supported value chains to differing degrees based on each company's production technology. Increased employment and increased wages throughout military-supported value chains result in greater levels of household consumption in North Carolina since households have more income to spend. Higher levels of consumption increase demand for other value chains as well, creating a virtuous spending cycle.

III. Economic Impact Analysis Results

As stated previously, this analysis assesses the total amount of economic activity that takes place in North Carolina due to all military operations located both inside and outside of the state. The total economic impact of the military is substantial, accounting for roughly one-tenth of North Carolina's economic activity. The following section details the estimated effects of military spending on employment, personal income, and gross state product.

³¹"Military" spending in REMI includes the four branches of the Department of Defense and the U.S. Coast Guard. Military pensions administered by the Veteran Administration are included, as well as spending by the state of North Carolina to help support the NC National Guard.

³²2013 report available at <http://www.nccommerce.com/Portals/47/Publications/Industry%20Reports/The%20Economic%20Impact%20of%20the%20Military%20on%20North%20Carolina%20%283%29.pdf>

³³The concept of a value chain is closely related to the supply chain. A value chain for a final product/service includes all intermediate inputs (goods and services), whereas a supply chain typically only considers goods inputs.

Jobs

Military operations are estimated to contribute significantly to employment in the state. In addition to the active duty military personnel that live on base, state and local government jobs are created due to increased demand for government services, and private sector jobs in the defense industry and other industries are created to meet military-supported demand.

Overall, military spending is estimated to support approximately 578,000 jobs within North Carolina, which is roughly 10 percent of North Carolina’s approximate 5.6 million jobs.³⁴ The contribution by funding source is shown in Figure III with the active duty and procurement category responsible for the vast majority of the employment impacts, followed by the contribution of pensions and then the state-funded portions of support for the National Guard and Reserves.³⁵

Figure III: Employment Contribution by Military Funding Source

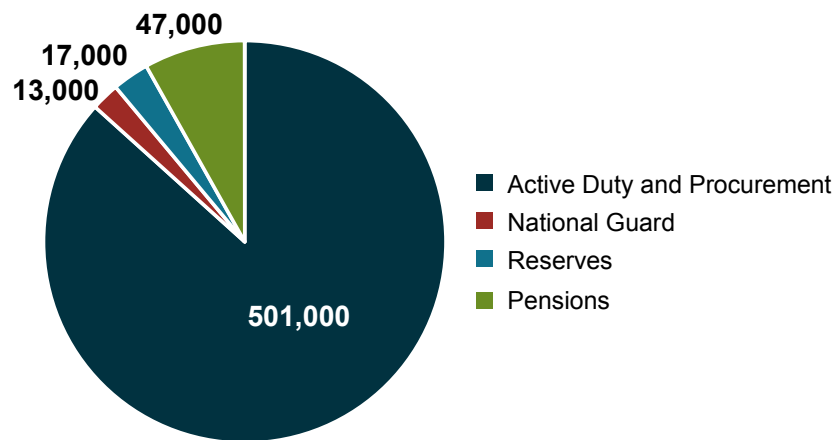
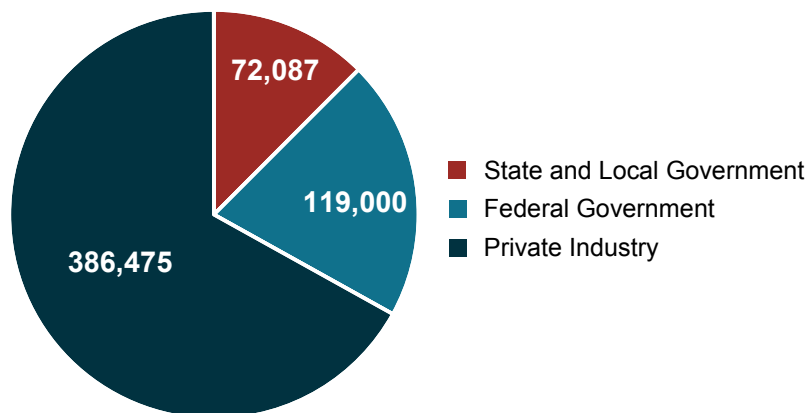


Figure IV shows the breakdown of the estimated 578,000 military-supported jobs by public or private industry. The breakdown is as follows: approximately 119,000 are federal government jobs, 72,087 are state and local government jobs, and 386,475 are private industry jobs.³⁶

Figure IV: The Composition of Military-Supported Employment in North Carolina



³⁴Total number of NC jobs estimate from REMI PI⁺ model.

³⁵Note that the National Guard and Reserves portions count only the payroll of the personnel and any supplementary spending made by the state of North Carolina. Equipment and operations funded by the federal government for the Guard and Reserves shows up in the “procurement” category above.

³⁶Federal government jobs include active duty military as well as civilian personnel, including the Coast Guard.

Figure V shows the entire composition of private industry employment supported by the military, as well as the contribution by “general defense” and military pension funding. The employment impact is spread out across virtually all sectors, albeit to differing degrees. The Professional, Scientific, and Technical Services sector has the most military-supported jobs with nearly 60,000. Other major sectors include Administrative and Waste Services, Construction, Retail Trade, and Health Care and Social Assistance. Sectors least impacted by the military in absolute levels include Utilities, Forestry, Fishing, and Related Activities, and Mining.

Figure V: Employment by Private Industry Sector (and source of funds)

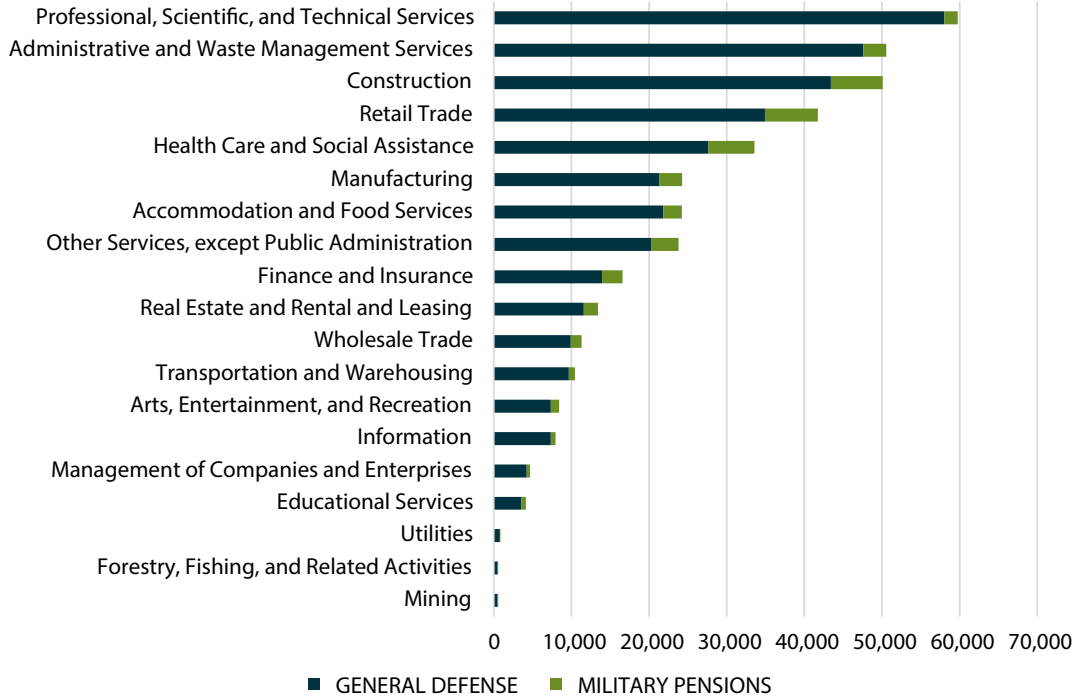
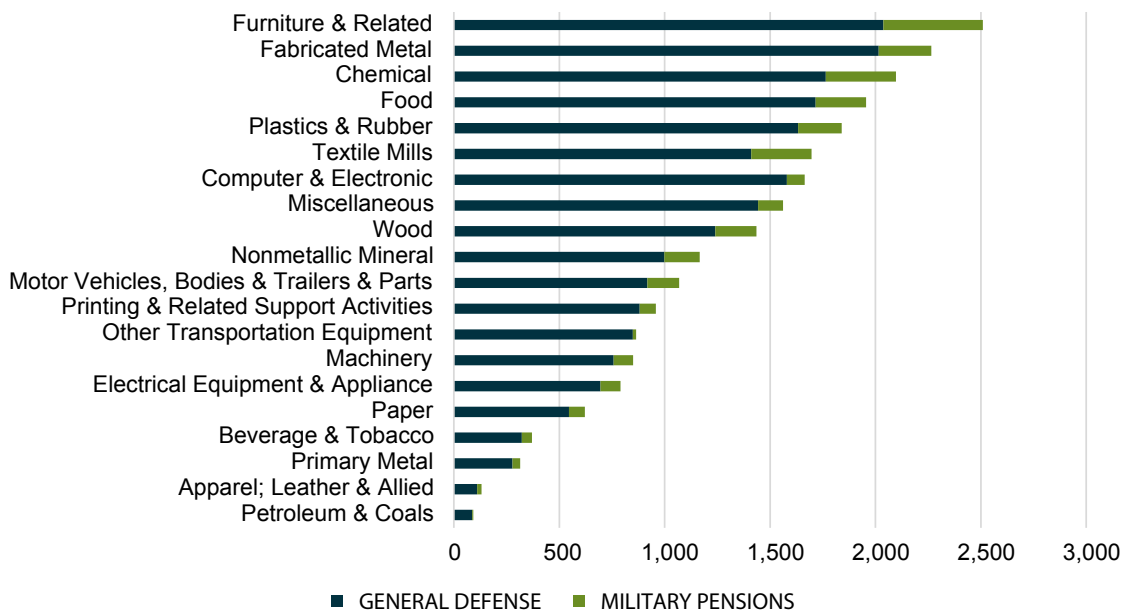


Figure VI shows the military-supported employment within the Manufacturing sector. Although manufacturing is only the sixth-highest sector impacted by military spending, it is of great importance to the North Carolina economy due to its concentration and associated high wages and spending multipliers.

Figure VI: Employment by Private Manufacturing Subsector (and source of funds)



The Relative Importance of the Military for Private Industry

Figure V demonstrates the absolute impact of the military across all private sectors, but it does not answer the question, “To what degree is each sector supported by the military?” To answer this, one must look at the military’s impact relative to total employment in each sector. Table IX lists the top 10 industries in terms of the relative impact of the military on employment. Four of the top 10 industry sectors shown in Figure V also make the top 10 in terms of their percentage of total sector employment — Professional, Scientific, and Technical Services; Construction; Administrative and Waste Management Services; and Retail Trade. There are six other sectors that did not make the top 10 in absolute terms, but did in relative terms, including Information; Other Services; Arts, Entertainment, and Recreation; Transportation and Warehousing; Mining; and Utilities.

Table IX: Top 10 Sectors by Percentage of Military-Supported Economic Activity

Sector	Percentage of Total Sector Jobs in NC Supported by Military
Professional, Scientific & Technical Services	18.5%
Construction	14.0%
Administrative & Waste Management Services	12.7%
Information	9.3%
Other Services, except Public Administration	8.1%
Arts, Entertainment & Recreation	7.2%
Retail Trade	7.2%
Transportation & Warehousing	7.0%
Mining	6.9%
Utilities	6.6%

Other Measures of Economic Impact

Examining personal income and gross state product are supplemental methods for measuring the total economic impact of the military. Personal income is a broad measure of income that includes wages, benefits, dividend and interest income, government assistance, and several other sources of income. Gross state product is the sum of all consumption, investment, and government spending in North Carolina adjusted for trading patterns with other states and countries.³⁷ The REMI model shows that the military (including pensions) supports an estimated \$33.7 billion in North Carolina personal income, which is 7.8 percent of total statewide personal income. Additionally, the model estimates that the military (including pensions) is responsible for \$66 billion, or 12.8 percent, of gross state product.

Table X: Economic Impact on Gross State Product and Personal Income

Results Category	Gross State Product	Personal Income
General Defense (\$)	\$62.5 billion	\$28.9 billion
General Defense (%)	12.0% of total	6.7% of total
Military Pensions (\$)	\$3.5 billion	\$4.8 billion
Military Pensions (%)	0.8% of total	1.1% of total
Combined (\$)	\$66.0 billion	\$33.7 billion
Combined (%)	12.8% of total	7.8% of total

³⁷For precise definitions of personal income or gross product, visit the REMI glossary: <http://www.remi.com/resources/glossary>.

Conclusions

This report supports the general consensus that the military plays a highly significant role in North Carolina's economy. The impact of the military on state personal income is \$33.7 billion, and the impact on gross state product is \$66 billion. Overall, the military supports roughly 10 percent of employment, nearly 8 percent of personal income, and almost 13 percent of the North Carolina's gross state product. The large active duty, guard and reserve military presence in the state is the primary driver of the total economic impact, but defense contracting and pensions of retired military personnel are also important components.

An estimated 386,000 jobs supported by the military are private industry jobs, 119,000 are federal military jobs, and 72,000 are state and local government jobs. Military spending contributes to all sectors of the state's economy, with large contributions to important private industries such as Professional, Scientific and Technical Services and Construction. This analysis shows that the military's economic impact extends far beyond the direct activities of active duty personnel and guard and reserve members to include large numbers of veterans and private citizens who directly or indirectly benefit from the state's large military presence.





Labor & Economic Analysis
COMMERCE

301 N. Wilmington St. | Raleigh, NC 27601
919.707.1500 | lead@nccommerce.com
www.nccommerce.com/lead