ECONOMIC IMPACT OF BASE REALIGNMENT AND CLOSING ON THE FORT BRAGG REGION AND THE LARGEST ARMY BASE IN THE UNITED STATES

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ABSTRACT

The Base Realignment and Closure (BRAC) initiative is expected to change the landscape of the Fort Bragg Region which encompasses the largest army base in the United States. BRAC will add approximately 40,000 additional people, 8,554 jobs and $625 million in military construction expenditures to the region. This paper provides an analysis of the economic impact of recurring and non-recurring military expenditures on the economy of the Fort Bragg Region. The direct, indirect, and induced effects of these expenditures on output, employment, personal income, and indirect business taxes are presented here. It also identifies the major sectors that will be impacted by the increase in military expenditures.

INTRODUCTION

The Base Reassignment and Closure (BRAC) initiative will transform the economy of the region. Fort Bragg is located 50 miles south of Raleigh and 10 miles northwest of Fayetteville. It occupies an irregular-shaped parcel of land, covering approximately 160,700 acres, that stretches into four counties and its influence extends far beyond the 7 additional counties that are in close proximity to Fort Bragg (see Figure 1). According to Table 1, the Fort Bragg region represents approximately 13.6 percent of the land area within North Carolina and slightly over 10 percent of the population. Its population of almost 1 million generates $28,461,460,000 in total personal income, which represents 9.3 percent of the total personal income in North Carolina. BRAC expenditures and additional employment opportunities will have a far reaching impact on North Carolina.

The estimates provided in this paper account for only those expenditures and personnel changes which are expected to occur because of the Base Realignment and Closure. Fort Bragg is the largest army base in the United States. This military base exerts a powerful influence in Cumberland and surrounding counties. It generates over $2 billion in military pay, $409 million in civilian pay and over $400 million in government contracts. These expenditures directly or indirectly end up in the pockets of local employees of restaurants, grocery stores, local malls, hospitals, movie theaters, toy shops, car dealers, construction companies etc., which in turn induces further increases in demand when these employees spend their incomes. We would not,

however, study the impact of these expenditures which occur routinely and annually as a result of the military presence.

Figure 1
Fort Bragg Region

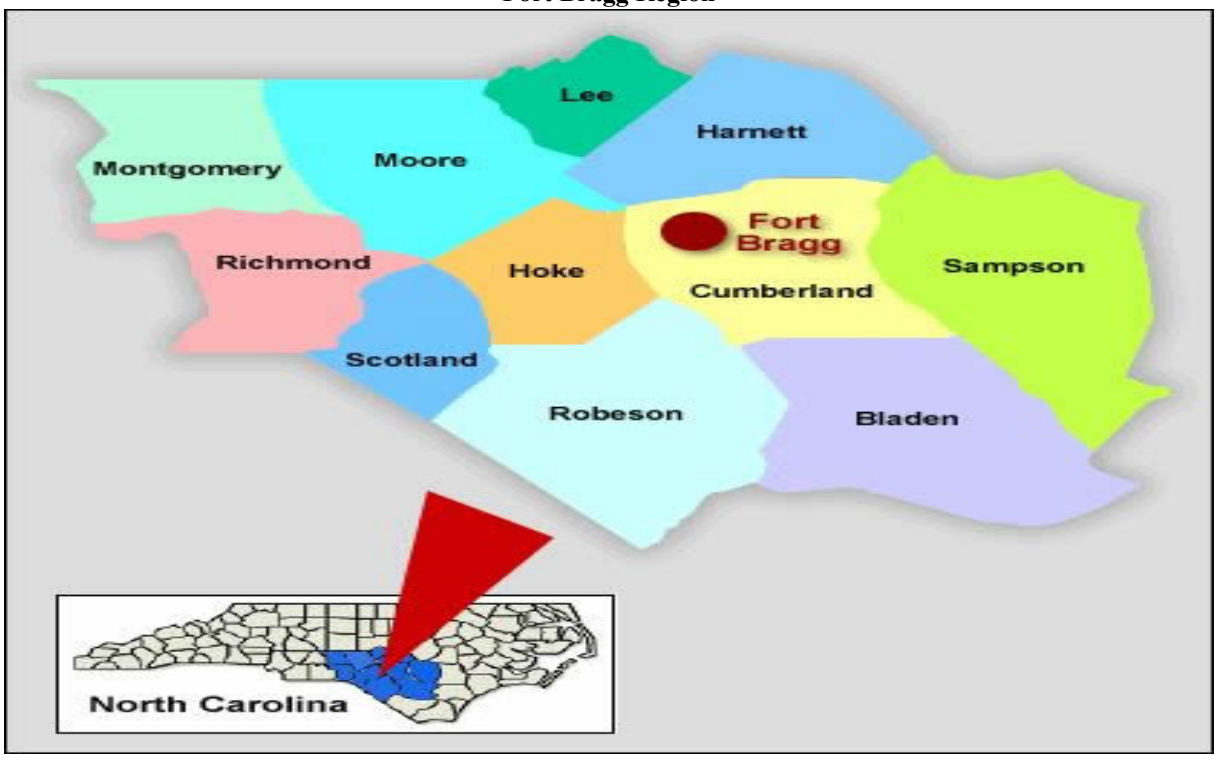


Table 1 Overview of the Fort Bragg Region, 2007			
Fort Bragg		North Carolina (NC)	Ratio of Fort Bragg to NC
Population	933,960	9,061,032	10.3
Area(miles)	6,649 (sq. miles)	48,718 (sq. miles)	13.6
Employment	465,615	5,314,860	8.8
Number of Industries	321	420	76.4
Households	355,296	3,619,747	9.8
Income Per household	$80,160	$84,200	95.2
Total Personal Income	$28,461,460,000	304,781,200,000	9.3
Source: IMPLAN Data			

This paper does not attempt to quantify the BRAC impact on the quality of life which may be inevitable considering the fact that an increase in the presence of military is likely to increase traffic congestion, school crowding, crime, real estate prices, and contribute to

additional civic and cultural activities etc. Instead, attention is confined to the gross effects of military expenditures and jobs which will be created by BRAC.

LITERATURE REVIEW

There are numerous studies that analyze the impact of military expenditures on the economy. The North Carolina Department of Commerce's 2008 study estimates the anticipated effects of the military presence impact until 2013. Using the REMI input output model, it is expected that military expenditures will add to the North Carolina economy, 49,620 jobs, $2.85 billion and $1.93 billion to the Gross State Product and Personal Income respectively. Maguire Company (2008) study laments the fact that notwithstanding the enormous contributions of five major military installations to the Arizona economy, it is generally under-recognized. This may be partly because the military base is isolated from the rest of the county because of security reasons. The military impact, however, is significant in that it adds approximately $9 billion in output and 96,000 jobs to the Arizona economy. Apart from the military data furnished by the Department of Defense, the study used survey data to measure the total impact of military personnel and retirees. The San Antonio 2006 study uses the REMI model to estimate the impact of military on the San Antonio economy. The Base Realignment and Closure impact is measured separately. The NAHB study (2006) is more comprehensive than others in that it goes far beyond the usual impact of military expenditures on employment, income and output. It also includes the effect of military expenditures on the real estate market, education and social services. The NATO study (2000) is different from other studies in that it estimates the impact of military bases within a 200 kilometer radius of the base and throughout Europe. Row's study estimates by fiscal year the economic impact of Marine Corps and Navy on the economy of San Diego. The study emphasizes the point that the expertise supported by military can be easily transferred to civilian sectors. Sara Nienow et al's (2008) report updates the 2007 study of military economic impact on the North Carolina economy. It is reported that the military growth during 2010 – 2013 will add about $2.9 billion to the State Gross Product and create 49,000 additional jobs.

Our study differs from many of these studies in that it includes a 11 county region; it uses survey data to determine the exact local purchase content in the contracts; it includes civilian employees who support the military; it analyzes the employment effects by sectors and occupations; and provides an estimate of occupational gaps.

We begin by examining some essential characteristics of the Fort Bragg region. The Fort Bragg region educational level compares unfavorably with both the state and the nation when measured by the percentage of people holding bachelor and graduate degrees (see Figure 2). Only 18 percent of the population in the Fort Bragg region has a bachelor degree compared with 25 percent in the state and 28 percent in the nation. The percentage of the Fort Bragg regional population which failed to graduate from high school is 3 percent higher than the state and national average.

Apart from the quality of labor force (measured by education level), the quantity of labor force depends on the number of adults in the labor force and the number who are unemployed. Figure 3 below shows that for the past decade, the average unemployment rate in the Fort Bragg region has been 1.9 percent higher than the nation and 1.2 percent higher than the state.

Figure 2
Educational Attainment of Adults in the Fort Bragg Region Compared with State and the Nation.

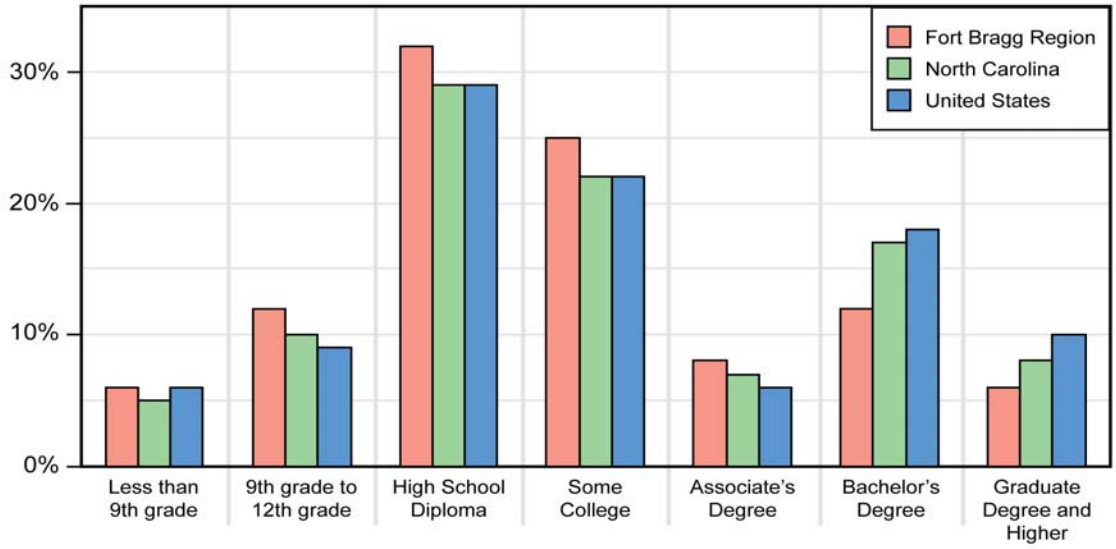
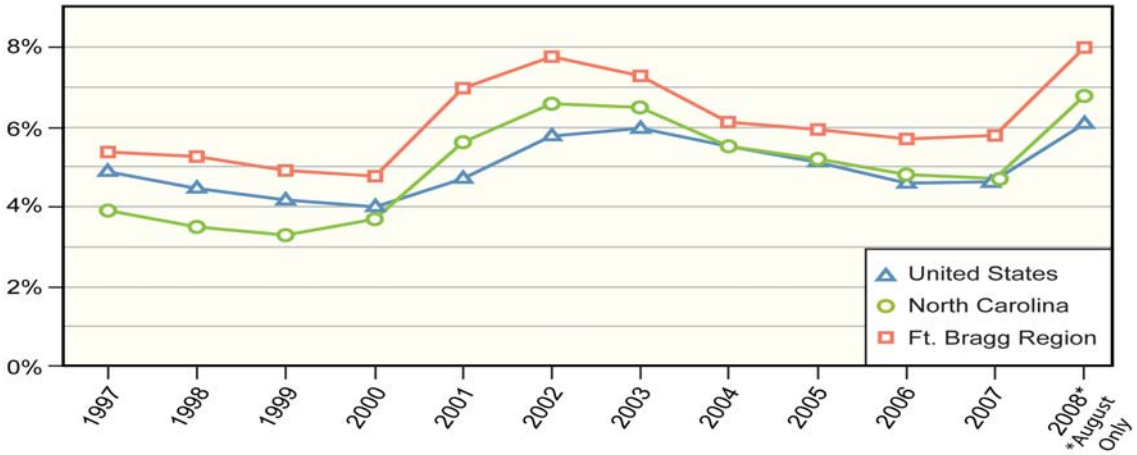


Figure 3
Unemployment Rates in the Fort Bragg Region from 1997 to 2008, Compared with Unemployment Rates in the State and the Nation

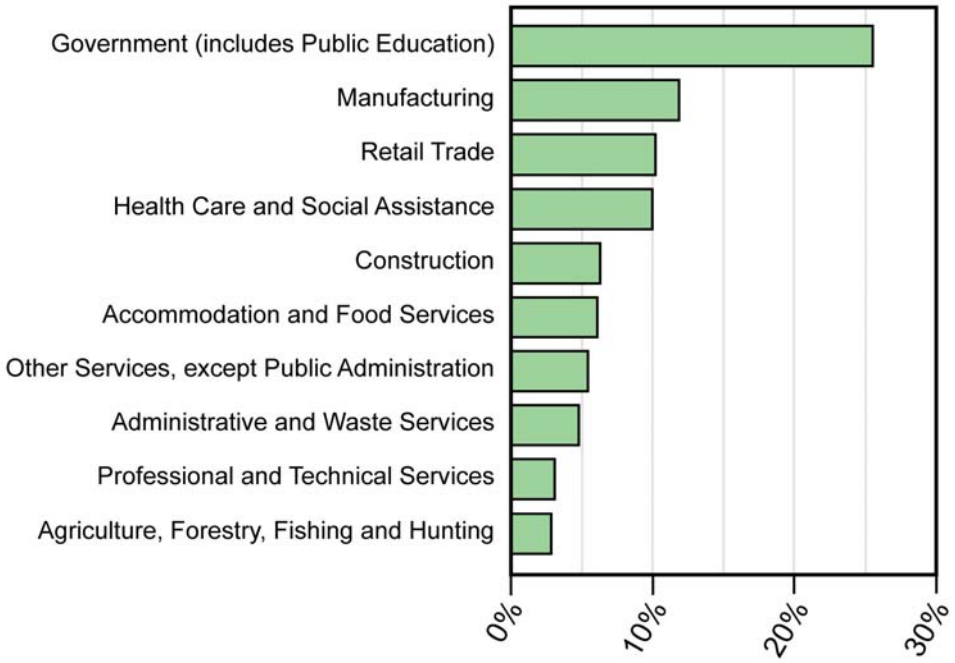


Source: U.S. Department of Labor, Bureau of Labor Statistics

Apart from the unemployed, there is a significant number of military retirees and spouses of soldiers who are available for work in the region. As many as 97 percent of military spouses have a high school diploma and as many as 87 percent want to pursue further education.

The distribution of industry employment provides an overview of the regional industrial structure in the Fort Bragg region. Figure 4 shows the occupational distribution of the existing labor force. The largest employer in the region is government: federal, state and local. To some extent these numbers are skewed because it includes military personnel. Manufacturing is the second highest employer and the average wage in the manufacturing sector is much higher ($43,404) compared with the average annual pay of $39,774. Unfortunately, for the past several years, there has been a steady decline in the number of manufacturing jobs. The next largest employer is retail, followed by health care which pays an average salary of $33,900 compared with $24,950 for retail. It is to be noted that most health care jobs pay significantly higher salaries but the inclusion of social assistance depresses the average wage rate.

Figure 4
Percentage of Jobs in the Largest Sectors in the Fort Bragg Region



Source: IMPLAN Report

BRAC is expected to add 40,815 new residents to the region. These will include active duty soldiers, civilian personnel employed by the Army, employees of private defense

contractors, dependents of Army personnel and private contractors, and economic migrants. Of course, since Pope Air Force Base will be closed, the region will lose 3,247 personnel. However, there will be a net increase in active-duty soldiers of 2,361 because the Army will add 5,608 soldiers. The civilian personnel attached to the Air Force and Army is expected to increase to 6,193 and the construction expenditure for residential quarters will increase by $336 million. The U.S Army Forces Command (FORSCOM) and the Army Reserve Command will transfer from Fort McPherson in Atlanta and will require new headquarters. This will necessitate an additional construction expenditure of $289 million. Since the Fort Bragg region has a small number of construction companies, it is highly unlikely that all of the construction demands will be met locally. Our survey of vendors shows that the local content of construction expenditure will be 40 percent for residential and 20 percent for the non-residential construction.

BRAC ECONOMIC IMPACT

We use the IMPLAN input- output software to construct a Fort Bragg Region model which encompasses 11 counties (see Figure 1). The IMPLAN (Impact Analysis for Planning) is the result of the joint efforts of the University of Minnesota and the United States Department of Agriculture's Forest Service. While the model is extensively used in economic impact analysis by the governmental agencies, Chambers of Commerce, academic institutions and economic development agencies, it is based on some key assumptions which are as follows:

Fixed technology. It is assumed that the technology used by the industry whose impact is being analyzed remains unchanged and will not be affected by the impact. In other words, resource –mix is unaffected.

Every firm within the industry uses the same resource mix or technology.

It is assumed that the industry is subject to constant returns to scale. There are no economies or diseconomies associated with the scale of production.

There are no supply constraints. The impact of an industry or an activity will not affect the resource prices. Even if prices are affected, the industry resource buying decisions are unaffected.

The product-mix in an industry remains constant.

The regional purchase coefficient (the amounts of inputs purchased from local vendors) does not change.

These assumptions may seem inordinately restrictive, but they are common to all input-output models. Most researchers (Perryman(2004) and Grimes, Fulton and Bernardelli 2004) conclude that the IMPLAN impact estimates are reasonably accurate so long (1) the scale of activity is not too large to significantly change the total demand for and supply of resources; (2) there is no radical change in technology; (3) regional purchase coefficient remains the same. The most serious error may occur if the regional purchase coefficient has changed and a researcher fails to make an adjustment for it in the model.

There is no evidence that the nature and scale of BRAC related activities are large enough to seriously violate the assumptions mentioned above. We did adjust for the regional purchase coefficient wherever appropriate.

An analysis of the BRAC impact requires the construction of a Fort Bragg Region model which consists of 11 counties (see Figure 1). The construction expenditures with appropriate local purchase content and employment data were entered into the IMPLAN regional input-output model to obtain the direct, indirect and induced effects of jobs and construction expenditures. The results of the IMPLAN impact model are shown in Table 2.

Table 2
Economic Impact of BRAC on the Fort Bragg Region

Impact	Direct	Indirect	Induced	Total
Output	$1,936,761,124	$73,657,288	$370,958,433	$2,381,376,848
Employment	8,158	682	3,822	12,664
Value Added	$ 940,884,822	$ 36,192,822	$205,489,682	$1,182,566,989
Indirect Business Taxes	$1,686,376	$3,817,405	$23,211,405	$28,715,282
Source: IMPLAN Report				

The impact of the BRAC in the Fort Bragg region is expected to be significant in that it will create 12, 662 new jobs and add $1.18 billion in personal income, $2.4 billion in output, and $29 million in indirect business taxes. The indirect and induced effects of initial job creation and construction expenditures are shown separately in Table 3.

Table 3
Indirect and Induced Impact of BRAC on the Fort Bragg Region 2009-2011

Impact	Direct	Indirect + Induced
Output	$1,936,761,124	$444,615,721
Employment	8,158	4,504
Value Added	$ 940,884,822	$444,620,225
Indirect Business Taxes	$1,686,376	$27,028.810
Source: Derived from Table 2		

The counties in close proximity to Fort Bragg (Cumberland, Harnett, Hoke, Moore and Robeson) are considered Tier 1 counties and are likely to receive the maximum impact of BRAC. The irony is that many of the outlying counties have a higher unemployment rate than the Tier 1 counties, but are likely to garner a limited number of the 12,664 jobs which BRAC is expected to bring to this region. Further, the types of jobs created by BRAC will require educational and skills levels which may not be available in Tier 2 counties. How much employment impact each county will receive will depend on the nature of jobs, required skills

and education, distance from the location of jobs, and the existing pattern of employment in each county.

An analysis of employment effects in Table 4 reveals that high levels of job creation will occur in the government sector (50 percent) followed by professional and technical services (17.5 percent), construction (15.7 percent), retail trade (8.4 percent), and food and accommodation sectors (5 percent). The remaining sectors will create less than 10 percent of BRAC jobs.

Table 4
Projected Number of Military–Related Jobs Added in Leading Growth Sectors

Sector	2009-2011
Government	6,382
Construction	1,781
Professional and Technical Services including health care	2,169
Retail Trade	1,064
Accommodation & Food Services	607
Source: Calculated from IMPLAN report	

JOB IMPACT OF BRAC IN THE FORT BRAGG REGION

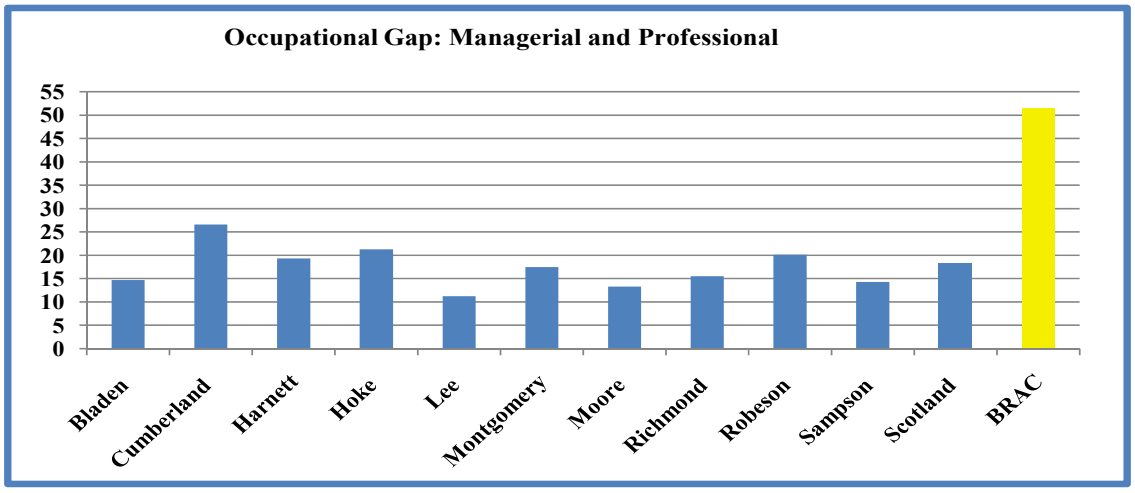
While over 12,000 jobs will be available in the Fort Bragg region, how many of these jobs will be filled by the unemployed workers? It is estimated that 60 percent of the BRAC jobs will require a college degree, 29 percent require a two-year degree with some experience, and the remaining require high school diploma with some relevant experience. To determine which of the counties will be best suited to fill these jobs, we developed an occupational gap model. The essentials of the model are as follows:

For each county, the existing occupational distribution of the region is compared with the upcoming distribution. The comparison shows how the existing distribution will fit the upcoming distribution of jobs. This comparison is indexed by the difference between each category of job for each group (see the following formula).

$$Y = De - Df$$

'Y' is the expected contribution to a category of employment, 'De' is the percentage of the employed labor force in the specific category, and 'Df' is the percentage of the labor force expected for future jobs. If 'Y' is positive, the group is able to contribute. If 'Y' is negative or zero, the group does not have the capacity to contribute at this time. Figure 5 shows that roughly 50 percent of BRAC jobs are expected to require managerial and professional skills. Cumberland, Hoke, and Robeson Counties have the greatest percentage of workers currently capable of performing managerial and professional work.

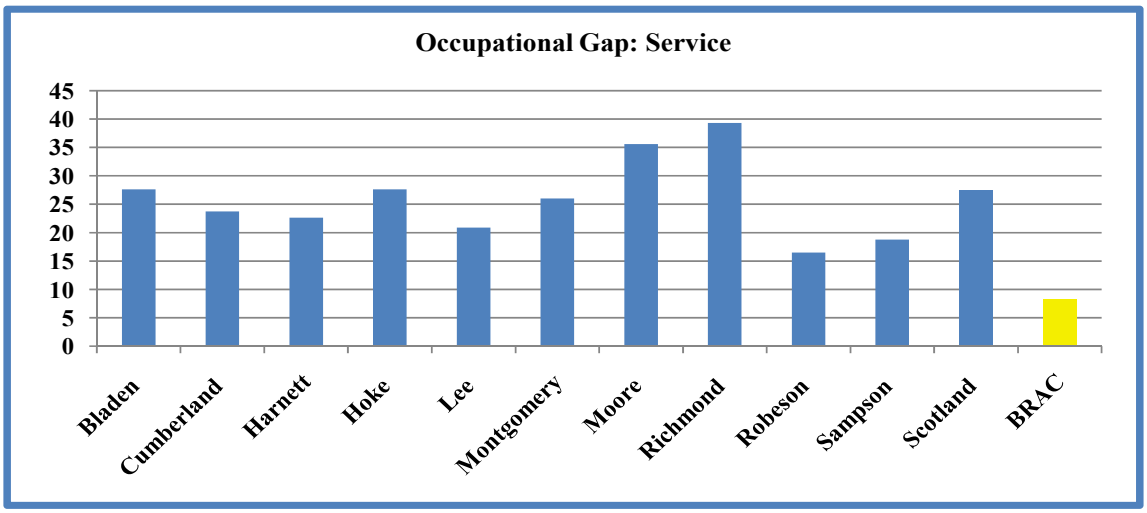
Figure 5: Occupational Gap - Managerial and Professional Service



Source: American Community Survey 2007

Figure 6 shows that across counties, the availability of workers currently capable of performing service related jobs exceeds the projected percentage of service positions that BRAC is expected to generate. Despite the fact that all counties have a labor force able to contribute to service related jobs, it is unlikely that large numbers of workers from surrounding counties will travel significant distances to obtain these jobs because of the depressed wage in most service sectors.

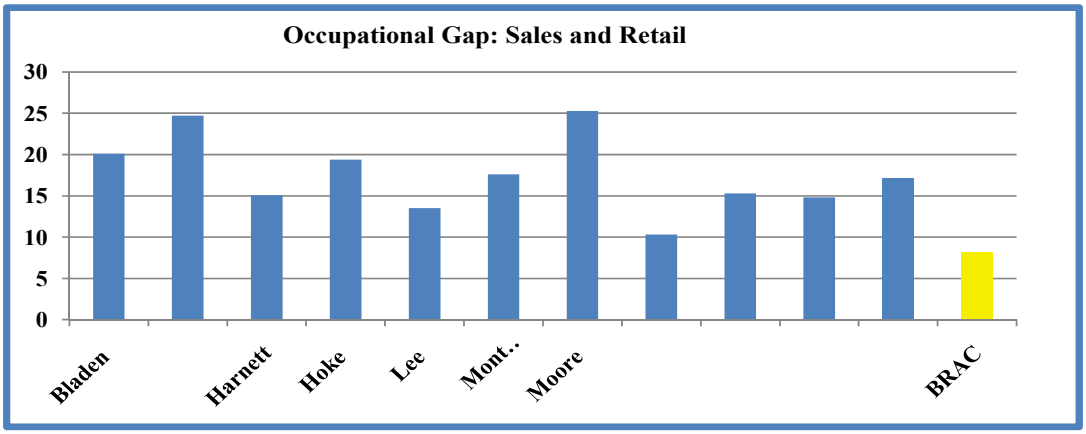
Figure 6: Occupational Gap - Service



Source: American Community Survey, 2007

Figure 7 shows that across counties, workers can easily qualify for the sales and retail jobs generated by BRAC. Again, it is unlikely that large numbers residing in outlying counties will travel to take advantage of the available positions because of the low wages in this industry.

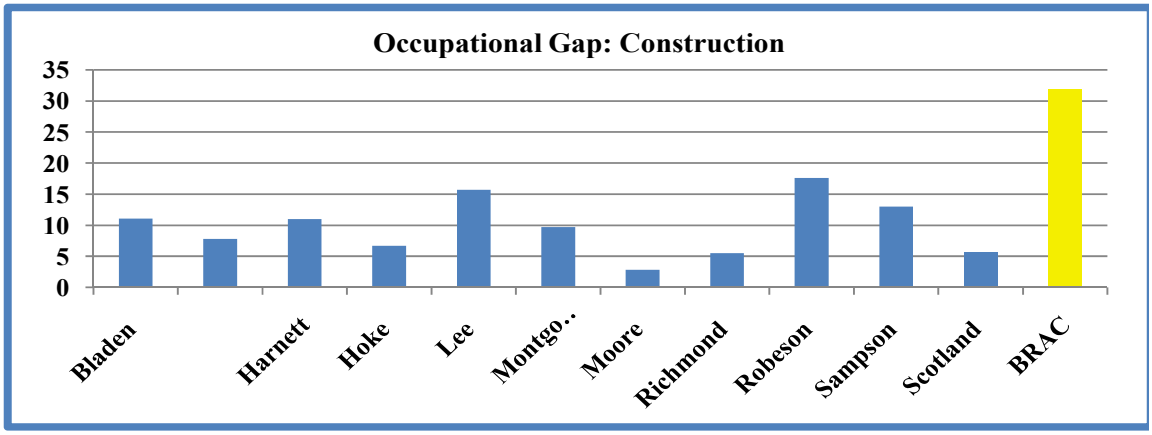
Figure 7: Occupational Gap – Sales and Retail



Source: American Community Survey 2007

More than 16 percent of the jobs generated by BRAC are expected to be in the construction industry (see Figure 8). It is worth noting that the supply of available construction jobs is expected to peak in 2011 and begin to fall. The percentage of the population currently capable of performing construction work is very limited. One strategy would be to retrain workers with production/manufacturing experience to enable them to pursue the available construction positions.

Figure 8: Occupational Gap - Construction



Source: American Community Survey, 2007

OTHER EFFECTS OF BRAC

When 40,000 people move into a region and billions of new investment is added to the economy of the region, its effects go far beyond the economic impact discussed in this paper. One can easily surmise that such a massive movement of people and money will impact demand for housing, social services, education, infrastructure, child care, health care, public safely and emergency services, water, sewer and waste, telecommunications and information technology, and transportation. While we acknowledge these consequences, its discussion is relegated to a sequel of this paper.

SUMMARY AND CONCLUSIONS

The impact of the BRAC in the Fort Bragg region is expected to be significant in that it will create 12,662 new jobs and add $1.18 billion in personal income, $2.4 billion in output, and $29 million in indirect business taxes.

Approximately 50 percent of BRAC related jobs are expected to require professional and technical skills. The findings in this paper demonstrate that the availability of workers in the Fort Bragg region currently capable of performing professional and technical services is, however, limited. There is no dearth of other service personnel. BRAC activities will, however, generate insufficient demand for these services. More than 16 percent of the jobs generated by BRAC are projected to be in the construction industry, which is expected to peak in 2011. However, the percentage of workers trained in construction work is far less than the BRAC projected needs. Since Fort Bragg region has had massive retrenchment in the textile industry, some of these workers could be easily trained for construction work.

END NOTE

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