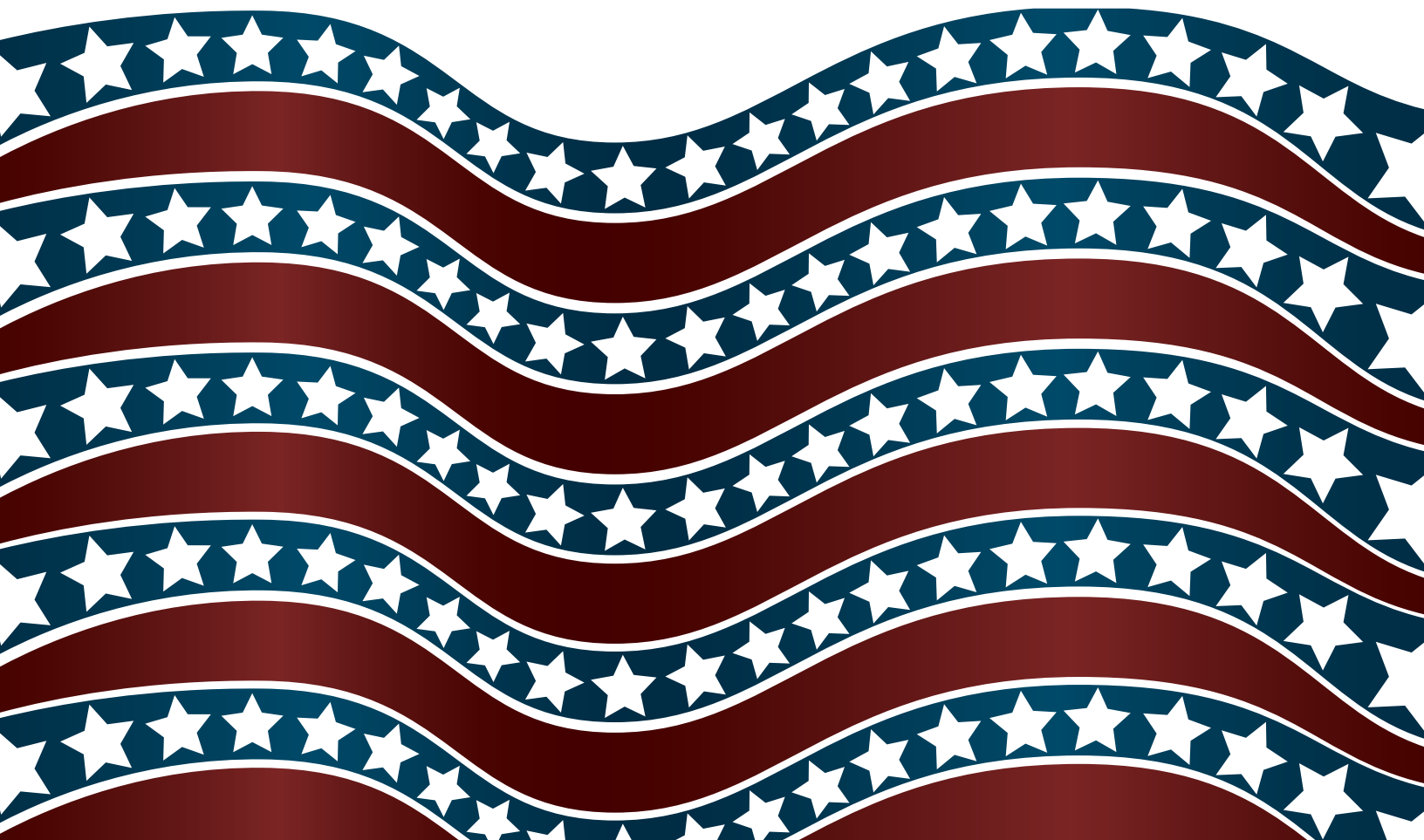


State of Illinois
Pat Quinn, Governor

Department of Employment Security
Jay Rowell, Director



Analysis of Illinois' Enlisted Veterans' Military Skills and Postsecondary Education Data



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Introduction

This article is based on data sources originally compiled for “The Transition of Illinois Veterans from Military Discharge to Stable Civilian Employment” report produced by the Illinois Department of Employment Security and linked here: <http://www.ides.illinois.gov/page.aspx?item=2290>.

The main purpose of this paper is to perform a detailed analysis of postsecondary education data related to Illinois' enlisted veterans. The education data for veterans is compared to national enrollment data for the general public and with military occupational skills data in an effort to identify any significant relationships. Officers were excluded from the study because they received their primary college education prior to their role in the military and the education data obtained for the original research project is likely incomplete on this segment of the military. That same research identified the primary issue regarding the transition of discharges from the military to civilian employment lies within the enlisted ranks.

The source of the education data for enlisted veterans is the National Student Clearinghouse [same as that

used in the original report]. The data covers those veterans discharged for Illinois only (both regular services and reserve/guard discharges for 2003-05) that completed degrees. It is compared to national data on all individuals enrolled in postsecondary education for 2007-08, ages 35 and under, by education major field¹. These two data sources are both separated by education major field with the veterans completing their degrees in the same time frame as the enrollment data was measured. The overwhelming majority of the enlisted veterans completing degrees in this time frame would be under age 35. (Note: The proportion of individuals enrolled in a major field that also complete a degree in that field may not be equal across majors.)

The education data is later converted from the 38 major fields by combining fields that require similar backgrounds into 11 major divisions. This makes it easier to analyze the correlation between occupational skills developed in the military (using Department of Defense (DOD) occupational data) and the degrees in education fields completed by the enlisted ranks generally after discharge. Since the DOD data has much better coverage for veterans from the regular services all of the data on reserve/guard discharges have been excluded from this portion of the study.

National College Enrollment Data Compared to Degrees Earned by Discharged Illinois Veterans

Table 1 shows the 38 major fields of study in education (Classification of Instructional Programs, or CIPs as recognized by the education community) along with a column of data representing the proportion of individuals in the nation, ages 35 and under, and their enrollment by major field; and

a column of data with the proportion of Illinois veterans (discharged from the enlisted ranks in 2003-05) that have earned a degree by major field. Cells are colored gray if the proportion in the respective column is at least 25 percent higher than the proportion in the opposite column. The analysis provides information on whether a comparative advantage exists within education fields for either of the two groups.

Table 1. Comparison of National Enrollment Data (2007-08 for the General Public Age 35 and Under) in Postsecondary Education with Degrees Earned by Illinois Veterans from the Enlisted Ranks (Discharged in 2003-05 from both Regular Services and Reserve/Guard)

Major Field of Study	% of National Enrollment	% of Degrees Earned by Illinois Veterans
Agriculture and related sciences	0.6%	0.7%
Architecture and planning	0.6%	0.3%
Area, ethnic, cultural, and gender studies	0.1%	0.1%
Arts, visual and performing	4.3%	1.8%
Biological and biomedical sciences	3.7%	1.7%
Business	18.3%	20.6%
Communication and journalism	2.3%	1.9%
Communications technologies	0.2%	0.8%
Computer and information sciences	3.5%	4.9%
Construction trades	0.5%	0.3%
Education	10.0%	4.9%
Engineering	4.4%	3.9%
Engineering technologies	1.7%	3.4%
English language and literature	1.4%	1.0%
Family and consumer sciences	0.9%	0.5%
Health professions and related sciences	15.1%	8.4%
History	1.0%	1.7%
Languages, literature, and linguistics	0.6%	0.4%
Law and legal studies	1.6%	2.8%
Liberal arts and sciences, general studies, and humanities	8.9%	8.8%
Library science	0.2%	0.0%
Mathematics and statistics	0.7%	0.6%
Mechanic and repair technologies	0.9%	3.0%
Military technologies	0.0%	0.2%
Multi/interdisciplinary studies	1.3%	0.6%
Natural resources and conservation	0.3%	0.6%
Parks, recreation, and fitness	0.9%	1.1%
Personal and culinary services	1.6%	0.2%
Philosophy and religion	0.5%	0.5%
Physical sciences	1.2%	1.0%
Precision production trades	0.2%	0.1%
Psychology	3.8%	2.9%
Public administration and social services	1.3%	1.4%
Science technologies	0.2%	0.4%
Security and protective services	3.2%	9.3%
Social sciences	3.4%	5.7%
Theological studies and religious vocations	0.4%	0.0%
Transportation and materials moving	0.2%	3.5%

Data Sources: National Education Statistics (Table 242 for 2007-08 / Includes Undergraduates in 2- and 4-year institutions plus graduate and first-professional); Illinois Department of Veterans' Affairs; National Student Clearinghouse



The veterans from the enlisted ranks appear to be attracted to education at higher rates in the fields of: 1) communications technologies; 2) computer and information sciences; 3) engineering technologies; 4) history; 5) law and legal studies; 6) mechanic and repair technologies; 7) military technologies; 8) natural resources and conservation; 9) science technologies; 10) security and protective services; 11) social sciences; and 12) transportation and materials moving.

The dominance of veterans in many of the technical fields, security and protective services, and transportation are not surprising. The higher rate in law and legal studies is a little unexpected, however this field includes both the paralegal and law majors. The experience of traveling the world could provide an impetus for interest in the history, social sciences, and natural resources and conservation fields for the veterans.

In contrast the average college student appears to be more likely than a recently discharged veteran to be engaged in the fields of: 1) architecture and planning; 2) area, ethnic, cultural, and gender studies; 3) arts, visual and performing; 4)

biological and biomedical sciences; 5) construction trades; 6) education; 7) English language and literature; 8) family and consumer sciences; 9) health professions and related sciences; 10) languages, literature, and linguistics; 11) liberal arts and sciences, general studies, and humanities; 12) multi/interdisciplinary studies; 13) personal and culinary services; 14) precision production trades; 15) psychology; and 16) theological studies and religious vocations.

Some of the dominance of the non-veterans may be a surprise in these fields, but what the data represents should also be reinforced. Many of the military medical professionals in a field such as health professions and related sciences would likely be officers and they would not be counted in this data. Some of the majors in these fields may require more than four years of postsecondary education to obtain success and that may be a deterrent to individuals who have already spent some post-high school years in the military. Another consideration is that a certain proportion of the general public enrolled in a field like personal and culinary services may not have a degree as their objective.

Table 2. Definition of Education Major Divisions

<p>Agricultural and Natural Resources – (Agriculture and Related Sciences; Natural Resources and Conservation)</p>
<p>Architecture, Computers, Engineering, Science, & Communications Technologies – (Architecture and Planning; Communications Technologies; Computer and Information Sciences; Engineering; Engineering Technologies; Math and Statistics; Military Technologies; Physical Sciences; Science Technologies)</p>
<p>Liberal Arts and Sciences / Social Sciences / Miscellaneous – (Area, Ethnic, Cultural and Gender Studies; Arts, Visual and Performing; Communications and Journalism; Education; English Language and Literature; Family and Consumer Sciences; History; Languages, Literature, and Linguistics; Liberal Arts and Sciences, General Studies, and Humanities; Library Science; Multi/Interdisciplinary Studies; Parks, Recreation, and Fitness; Philosophy and Religion; Psychology; Social Sciences; Theological Studies and Religious Vocations)</p>
<p>Health and Biology – (Biological and Biomedical Sciences; Health Professions and Related Clinical Sciences)</p>
<p>Construction, Mechanic and Repair Technologies and Precision Production – (Construction Trades; Mechanic and Repair Technologies; Precision Production Trades)</p>
<p>Business – (Business)</p>
<p>Law – (Law and Legal Studies)</p>
<p>Personal and Culinary Services – (Personal and Culinary Services)</p>
<p>Security Services – (Security and Protective Services)</p>
<p>Transportation – (Transportation and Materials Moving)</p>
<p>Government – (Public Administration and Social Services)</p>

Combining Education Major Fields into Broader Education Major Divisions

The 38 education major fields were combined into 11 broader education major divisions in order to simplify the study of the relationship between higher education and the occupational skills developed in the military. The groupings used for rest of the analysis in the paper are defined in Table 2. (Note: Due to the Department of Defense data issue discussed previously, the remaining analysis includes veterans from the enlisted ranks of the regular services only.)

Military occupational categories are more specific titles and are defined within broader military occupational groups.

Education Majors in which Veterans in Certain Military Jobs Have High Proportion of Degrees

Table 3, on the following page, provides a list of occupational categories (within the occupational group that is also listed) that account for at least 5 percent of the total degrees that were earned within a particular education major division.

Using the first row as an example, 25.8 percent of the degrees earned by Illinois veterans (discharged from the enlisted ranks of the regular services from 2003-05) in the education major division of agricultural and natural resources came from those that had the military occupational category code of infantry.

Table 3. List of Occupational Categories in which Veterans have Earned at least 5 percent of Degrees within a Particular Education Major Division

Agricultural and Natural Resources		
Occupational Group Title	Occupational Category Title	% of Major Div
Infantry, Gun Crews, and Seamanship Specialists	Infantry	25.8%
Electrical/Mechanical Equipment Repairers	Occupational Category not coded	12.9%
Other Technical and Allied Specialists	Technical Specialists, N.E.C.	6.5%
Electrical/Mechanical Equipment Repairers	Shipboard Propulsion	6.5%
Craftworkers	Construction	6.5%
Non-Occupational (Training)	Non-Occupational (Training)	6.5%
Architecture, Computers, Engineering, Science, & Communications Technologies		
Occupational Group Title	Occupational Category Title	% of Major Div
Electronic Equipment Repairs	Occupational Category not coded	11.8%
Functional Support and Administration	Data Processing	8.0%
Electrical/Mechanical Equipment Repairers	Power Generating Equipment	8.0%
Electrical/Mechanical Equipment Repairers	Occupational Category not coded	7.3%
Liberal Arts and Sciences / Social Sciences / Miscellaneous		
Occupational Group Title	Occupational Category Title	% of Major Div
Infantry, Gun Crews, and Seamanship Specialists	Infantry	10.3%
Functional Support and Administration	Other Functional Support	6.0%
Electrical/Mechanical Equipment Repairers	Occupational Category not coded	5.9%
Health Care Specialists	Occupational Category not coded	5.8%
Electronic Equipment Repairs	Occupational Category not coded	5.2%
Health and Biology		
Occupational Group Title	Occupational Category Title	% of Major Div
Health Care Specialists	Occupational Category not coded	18.7%
Infantry, Gun Crews, and Seamanship Specialists	Infantry	6.9%
Non-Occupational (Training)	Non-Occupational (Training)	6.7%
Functional Support and Administration	Other Functional Support	5.9%
Electrical/Mechanical Equipment Repairers	Occupational Category not coded	5.6%
Electronic Equipment Repairs	Occupational Category not coded	5.1%
Construction, Mechanic and Repair Technologies and Precision Production		
Occupational Group Title	Occupational Category Title	% of Major Div
Electrical/Mechanical Equipment Repairers	Occupational Category not coded	21.1%
Electronic Equipment Repairs	Other Electronic Equipment	9.3%
Electrical/Mechanical Equipment Repairers	Automotive	7.5%
Non-Occupational (Training)	Non-Occupational (Training)	6.2%
Business		
Occupational Group Title	Occupational Category Title	% of Major Div
Functional Support and Administration	Other Functional Support	10.3%
Infantry, Gun Crews, and Seamanship Specialists	Infantry	8.2%
Electronic Equipment Repairs	Occupational Category not coded	6.4%
Law		
Occupational Group Title	Occupational Category Title	% of Major Div
Infantry, Gun Crews, and Seamanship Specialists	Infantry	10.2%
Functional Support and Administration	Administration	10.2%
Non-Occupational (Training)	Non-Occupational (Training)	8.2%
Infantry, Gun Crews, and Seamanship Specialists	Installation Security	6.1%
Communications and Intelligence Specialists	Intelligence	6.1%

Some strong correlations exist between military occupational codes and education majors. The data reveal that the military occupational categories that supply technical education major divisions such as architecture, computers, engineering, science, and communications technologies as well as construction, mechanic and repair technologies and precision production tend also to be technical in nature. The military occupational categories supplying this pool of degree-earners include data processing, power generating equipment and automotive.

Other correlations exist between military occupational codes and education major divisions, including: 1) the health care specialists occupational group and a degree in the education division of health and biology; 2) the functional support and administration occupational group and a degree in the education division of business; 3) the occupational category of law enforcement and a degree in security services; 4) and the occupational categories of radar and traffic control / automotive paired with degrees in transportation.

Military Occupations with High Concentration of Degrees in Same Education Major

Table 4 provides a list of occupational categories (within the occupational group that is also listed) in which at least 15 percent of the degree-earning veterans in a particular military occupational category have degrees in the same educational major division.

Using the first row as an example, 51.5 percent of the degrees earned by Illinois veterans (discharged from the enlisted ranks of the regular services from 2003-05) in the military occupational category code of power generating equipment were in the education major division of architecture, computers, engineering, science, and communications technologies.

The correlations may be more transparent utilizing this data table where large concentrations of veterans from a particular military occupational

Table 4. List of Military Occupational Categories in which at least 15 percent of the Degree-Earning Veterans in that Same Category have Degrees in the Same Education Major Division

Architecture, Computers, Engineering, Science, & Communications Technologies		
Occupational Group Title	Occupational Category Title	% of Occ Cat
Electrical/Mechanical Equipment Repairers	Power Generating Equipment	51.5%
Functional Support and Administration	Data Processing	44.2%
Electronic Equipment Repairs	ADP Computers	35.3%
Communications and Intelligence Specialists	Communications Center Operations	29.4%
Electrical/Mechanical Equipment Repairers	Wire Communications	27.6%
Electronic Equipment Repairs	Other Electronic Equipment	25.0%
Other Technical and Allied Specialists	Weather	25.0%
Craftworkers	Utilities	20.0%
Communications and Intelligence Specialists	Intelligence	19.3%
Communications and Intelligence Specialists	Signal Intelligence/Electronic Warfare	18.3%
Electronic Equipment Repairs	Missile Guidance, Control and Checkout	17.6%
Communications and Intelligence Specialists	Combat Operations Control	17.0%
Craftworkers	Construction	16.7%
Infantry, Gun Crews, and Seamanship Specialists	Combat Engineering	15.2%

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Table 4. List of Military Occupational Categories in which at least 15 percent of the Degree-Earning Veterans in that Same Category have Degrees in the Same Education Major Division

Liberal Arts and Sciences / Social Sciences / Miscellaneous		
Occupational Group Title	Occupational Category Title	% of Occ Cat
Functional Support and Administration	Information and Education	75.0%
Electronic Equipment Repairs	Sonar Equipment	60.0%
Communications and Intelligence Specialists	Signal Intelligence/Electronic Warfare	55.0%
Other Technical and Allied Specialists	Musicians	53.8%
Infantry, Gun Crews, and Seamanship Specialists	Combat Engineering	50.0%
Health Care Specialists	Medical Administration and Logistics	50.0%
Electronic Equipment Repairs	Missile Guidance, Control and Checkout	47.1%
Infantry, Gun Crews, and Seamanship Specialists	Armor and Amphibious	46.9%
Craftworkers	Other Craftworkers, N.E.C.	44.4%
Infantry, Gun Crews, and Seamanship Specialists	Infantry	41.7%
Electrical/Mechanical Equipment Repairers	Armament and Munitions	40.8%
Service and Supply Handlers	Motor Transport	40.7%
Communications and Intelligence Specialists	Intelligence	40.4%
Service and Supply Handlers	Material Receipt, Storage and Issue	40.0%
Other Technical and Allied Specialists	Mapping, Surveying, Drafting, and Illustrating	40.0%
Infantry, Gun Crews, and Seamanship Specialists	Artillery/Gunnery, Rockets and Missiles	38.9%
Health Care Specialists	Dental Care	38.9%
Service and Supply Handlers	Law Enforcement	38.6%
Functional Support and Administration	Clerical/Personnel	37.9%
Infantry, Gun Crews, and Seamanship Specialists	Installation Security	37.7%
Communications and Intelligence Specialists	Radar and Traffic Control	37.7%
Electronic Equipment Repairs	ADP Computers	37.3%
Other Technical and Allied Specialists	Technical Specialists, N.E.C.	36.8%
Electrical/Mechanical Equipment Repairers	Automotive	36.2%
Service and Supply Handlers	Forward Area Equipment Support	36.0%
Electrical/Mechanical Equipment Repairers	Shipboard Propulsion	35.7%
Non-Occupational (Training)	Non-Occupational (Training)	32.9%
Functional Support and Administration	Administration	32.9%
Infantry, Gun Crews, and Seamanship Specialists	Seamanship	31.4%
Functional Support and Administration	Other Functional Support	31.3%
Electrical/Mechanical Equipment Repairers	Wire Communications	31.0%
Communications and Intelligence Specialists	Combat Operations Control	29.8%
Craftworkers	Construction	29.2%
Functional Support and Administration	Accounting, Finance and Disbursing	27.6%
Electronic Equipment Repairs	Other Electronic Equipment	25.0%
Other Technical and Allied Specialists	Weather	25.0%
Infantry, Gun Crews, and Seamanship Specialists	Air Crew	23.5%
Functional Support and Administration	Data Processing	23.4%
Craftworkers	Utilities	20.0%
Electrical/Mechanical Equipment Repairers	Power Generating Equipment	16.7%

Transportation

Occupational Group Title	Occupational Category Title	% of Occ Cat
Communications and Intelligence Specialists	Radar and Traffic Control	17.0%

Table continued on next page....

Table 4. List of Military Occupational Categories in which at least 15 percent of the Degree-Earning Veterans in that Same Category have Degrees in the Same Education Major Division

Health and Biology		
Occupational Group Title	Occupational Category Title	% of Occ Cat
Health Care Specialists	Ancillary Medical Support	55.0%
Health Care Specialists	Biomedical Sciences and Allied Health	43.5%
Health Care Specialists	Medical Administration and Logistics	35.7%
Health Care Specialists	Dental Care	33.3%
Infantry, Gun Crews, and Seamanship Specialists	Seamanship	28.6%
Non-Occupational (Training)	Non-Occupational (Training)	16.1%
Craftworkers	Utilities	16.0%
Electrical/Mechanical Equipment Repairers	Power Generating Equipment	15.2%
Construction, Mechanic and Repair Technologies and Precision Production		
Occupational Group Title	Occupational Category Title	% of Occ Cat
Electronic Equipment Repairs	Other Electronic Equipment	23.4%
Service and Supply Handlers	Forward Area Equipment Support	16.0%
Business		
Occupational Group Title	Occupational Category Title	% of Occ Cat
Functional Support and Administration	Accounting, Finance and Disbursing	48.3%
Functional Support and Administration	Clerical/Personnel	44.8%
Electronic Equipment Repairs	Fire Control Electronic Systems (Non-Missile)	40.0%
Other Technical and Allied Specialists	Weather	31.3%
Functional Support and Administration	Other Functional Support	25.5%
Functional Support and Administration	Administration	25.0%
Infantry, Gun Crews, and Seamanship Specialists	Armor and Amphibious	25.0%
Communications and Intelligence Specialists	Radar and Traffic Control	24.5%
Infantry, Gun Crews, and Seamanship Specialists	Air Crew	23.5%
Communications and Intelligence Specialists	Communications Center Operations	23.5%
Communications and Intelligence Specialists	Combat Operations Control	23.4%
Craftworkers	Construction	22.9%
Infantry, Gun Crews, and Seamanship Specialists	Artillery/Gunnery, Rockets and Missiles	21.1%
Service and Supply Handlers	Forward Area Equipment Support	20.0%
Functional Support and Administration	Data Processing	18.2%
Electrical/Mechanical Equipment Repairers	Wire Communications	17.2%
Communications and Intelligence Specialists	Signal Intelligence/Electronic Warfare	16.7%
Service and Supply Handlers	Motor Transport	16.7%
Electrical/Mechanical Equipment Repairers	Shipboard Propulsion	16.1%
Infantry, Gun Crews, and Seamanship Specialists	Infantry	15.8%
Infantry, Gun Crews, and Seamanship Specialists	Installation Security	15.1%
Security Services		
Occupational Group Title	Occupational Category Title	% of Occ Cat
Craftworkers	Other Craftworkers, N.E.C.	44.4%
Other Technical and Allied Specialists	Technical Specialists, N.E.C.	36.8%
Infantry, Gun Crews, and Seamanship Specialists	Installation Security	28.3%
Service and Supply Handlers	Law Enforcement	25.7%
Infantry, Gun Crews, and Seamanship Specialists	Infantry	17.3%
Infantry, Gun Crews, and Seamanship Specialists	Seamanship	17.1%
Service and Supply Handlers	Motor Transport	16.7%

category earn their degree in the same education major division. Besides the example already mentioned, other cases include: 1) 44.2 percent of those with degrees that have data processing as their military occupational code got their degree in the architecture, computers, engineering, science and communications technologies division; 2) 75.0 percent of those with an information and education military occupational code earned degrees in the liberal arts and sciences / social sciences / miscellaneous education division; 3) 55.0 percent of those with an ancillary medical support occupational code earned degrees in health and biology; and 4) 48.3 percent of those with an accounting, finance, and disbursing military background earned degrees in business.

Summary

The data seems to support the concept that individuals with a military background have a comparative advantage in some educational fields, and perhaps a disadvantage in others, likely based on their aptitude prior to entering the military and the training they received while in the military.

The veterans had higher rates of degree completion than the general public had in education enrollment in several fields. These included the technical fields of communications technologies; computer and information sciences; engineering technologies; and mechanic and repair technologies; as well as other fields such as security and protective services; transportation and materials moving; history; and law and legal studies. Students from non-military backgrounds appear to have an advantage in other fields including architecture and planning; area, ethnic, cultural, and gender studies; visual and

performing arts; biological and biomedical sciences; construction trades; education; health professions; personal and culinary services; and precision production trades.

Strong correlations also exist between skill sets developed in military occupations and education majors. The data show that the technical military occupational categories tend to provide a regular supply of students into technical education major divisions such as architecture, computers, engineering, science, and communications technologies as well as construction, mechanic and repair technologies and precision production. Similar relationships between military occupation and education major exist in the fields of health care, business, security services, and transportation.

One explanation is the differences in the proportional breakout of employment in occupational categories for the military² and civilian³ sectors (Data references for civilian (Bureau of Labor Statistics) and military (U.S. Department of Defense, Defense Manpower Data Center)). Even though the definitions for occupational categories are distinct, some differences can be easily identified. As an example, the proportion of occupational employment in the military that is combat specialty/ protective service related is much higher than the proportion of protective services jobs in the civilian sector. Likewise the proportion of employment for mechanics/electrical repairers is much higher in the military, which is also the case with transportation and material handling. These concentrations of trained labor would seem to allow for a natural transition to the civilian sector in those particular occupational categories.

End Notes:

1 U.S. Department of Education; National Center for Education Statistics; Digest of Education Statistics; 2010 Tables (Table 242); <http://nces.ed.gov> .

2 U.S. Bureau of Labor Statistics; Occupational Outlook Handbook, 2010-2011 Edition; Table 2 (January 2009); Data Source: U.S. Department of Defense; Defense Manpower Data Center; <http://www.bls.gov/oco/ocos249.htm> .

3 U.S. Bureau of Labor Statistics; May 2010 National Occupational Employment and Wage Estimates; http://stats.bls.gov/oes/current/oes_nat.htm.