Population Representation in the Military Services: Fiscal Year 2018 Summary Report

Abstract

Since 1974, the Department of Defense (DOD) has provided this congressionally mandated annual report on the demographic and service-related characteristics of US military personnel. The Population Representation in the Military Services (PopRep) report provides comprehensive, reliable, and consistent data tabulations on military personnel for policy-makers, the media, and the public. This summary report highlights recent and historical personnel trends in the DOD services (the Army, Navy, Marine Corps, and Air Force) and the US Coast Guard, which is part of the Department of Homeland Security. It examines both the active component (AC) and the reserve component (RC) of each service. It describes the demographic and socioeconomic characteristics of military applicants, accessions, enlisted personnel, and officers, referencing data from the tables in the technical appendixes, as well as from previous PopRep reports.

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Preface

Since 1974, the Department of Defense (DOD) has provided this congressionally mandated annual report on the demographic and service-related characteristics of US military personnel. The *Population Representation in the Military Services (PopRep)* report provides comprehensive, reliable, and consistent data tabulations on military personnel for policy-makers, the media, and the public.

This summary report highlights recent and historical personnel trends in the DOD services (the Army, Navy, Marine Corps, and Air Force) and the US Coast Guard, which is part of the Department of Homeland Security. It examines both the active component (AC) and the reserve component (RC) of each service. It describes the demographic and socioeconomic characteristics of military applicants, accessions, enlisted personnel, and officers, referencing data from the tables in the technical appendixes, as well as from previous *PopRep* reports.

A primary purpose of this summary report is to provide an accessible overview of the extensive amount of publicly available information on military personnel. The full selection of fiscal year 2018 (FY18) data tables, as well as *PopRep* reports for FY97 through FY18, can be found at www.cna.org/research/pop-rep. The FY18 technical appendixes (A through E), located on the "Contents" page of the FY18 *PopRep* website, provide FY18 data on the demographics— including education and aptitude—of new recruits (accessions), enlisted personnel, and officers of the AC and RC, as well as historical data on their selected demographic and service-related characteristics. Except where otherwise noted, data are provided by the Defense Manpower Data Center (DMDC). This summary document provides summary figures, tables, and descriptions of the data in the appendix tables. In this document, table references starting with letters refer to tables in the technical appendixes (e.g., Table A-1 refers to the first table in Appendix A), whereas table references without letters (e.g., Table 1) refer to tables in the main text of this summary document.

The main sections of the summary report are organized as follows: Section I summarizes overall endstrength and accessions for FY18 and highlights some relevant demographic trends found throughout the rest of the report. Sections II and III focus specifically on the DOD AC enlisted force and officer corps, respectively. Sections IV and V discuss the DOD RC and US Coast Guard, respectively.

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Contents

Section I:
Executive Summary

Fiscal year 2018 total endstrength and accessions

Each year, Congress sets authorized endstrength—the maximum number of servicemembers allowed—for each service. During a fiscal year (FY), actual endstrength may differ from authorized endstrength because the former officially refers to the number of servicemembers currently in service. In this report, the word *endstrength* refers to actual endstrength as of the last day of the FY, September 30th. To meet authorized endstrength, each service balances retention (those remaining in the service) and attrition (those leaving the service) with accessions (those entering the service). After years of drawing down, the endstrength of the Department of Defense (DOD) active component (AC), the largest military component, has become relatively stable since FY10 (see Figure 1). Table 1 shows each service's AC and reserve component (RC) endstrengths—the sum of enlisted members, commissioned officers, and warrant officers—for FY16 through FY18. The table also shows FY18 endstrength by personnel type (enlisted members, commissioned officers, and warrant officers).

Figure 1.   Total active component endstrength, by service, FY73–FY18
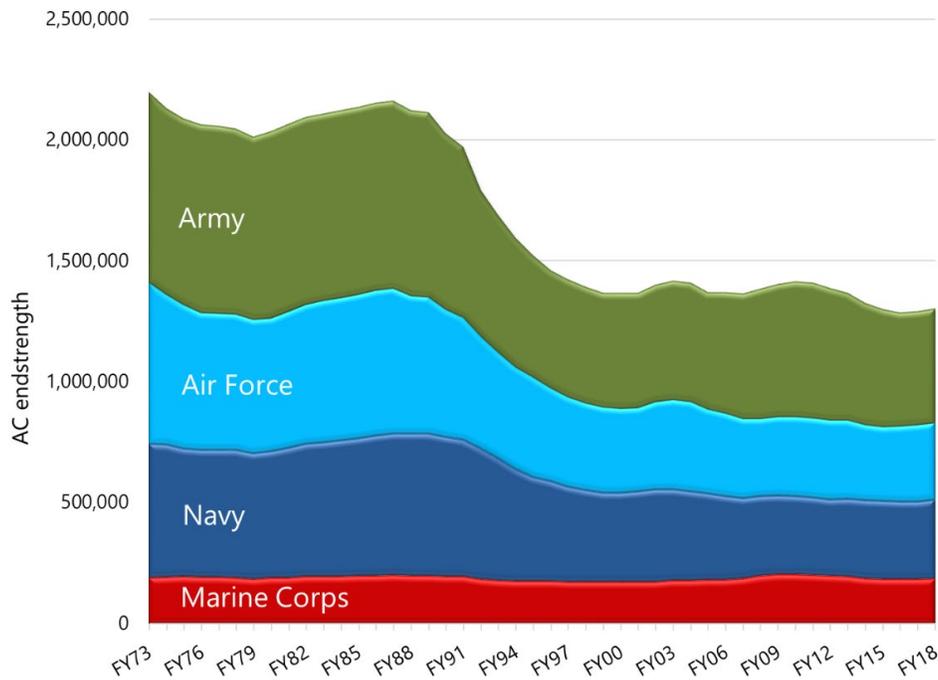
Source: Table D-39.

Table 1.   Actual endstrength, by service and personnel type, FY16–FY18

Component/ service	Endstrength			FY18 endstrength, by personnel type		
	FY16	**FY17**	**FY18**	**Enlisted**	**Commissioned Officers**	**Warrant Officers**
DOD AC						
Army	471,271	472,047	471,990	379,675	78,046	14,269
Navy	320,101	319,492	325,395	270,658	53,002	1,735
Marine Corps	183,501	184,401	185,415	164,083	19,182	2,150
Air Force [a]	313,723	318,580	321,618	258,978	62,640	0
Total	**1,288,596**	**1,294,520**	**1,304,418**	**1,073,394**	**212,870**	**18,154**
DOD RC [b]						
ARNG	341,589	343,603	335,204	289,679	36,850	8,675
USAR	198,395	194,318	188,811	150,921	34,348	3,542
USNR	57,980	57,824	58,196	44,087	14,019	90
USMCR	38,517	38,682	38,333	33,876	4,212	245
ANG	105,887	105,670	107,469	92,068	15,401	0
USAFR	69,364	68,798	68,703	54,987	13,716	0
Total	**811,732**	**808,895**	**796,716**	**665,618**	**118,546**	**12,552**
US Coast Guard						
AC	39,597	41,553	41,132	32,755	6,646	1,731
RC	6,573	6,239	6,126	5,097	921	108
Total	**46,170**	**47,792**	**47,258**	**37,852**	**7,567**	**1,839**

Source: Tables D-11, D-16, D-20, D-21, D-40, D-41, E-13, E-16, E-19, E-24, E-26, and E-29.
[a] The Air Force does not have warrant officers.
[b] The RC consists of the Army National Guard (ARNG), the US Army Reserve (USAR), the US Navy Reserve (USNR), the US Marine Corps Reserve (USMCR), the Air National Guard (ANG), and the US Air Force Reserve (USAFR).

In FY18, there were more than 1.3 million military personnel in DOD's AC and about 797,000 in its RC. The Army continues to be the largest of DOD's military services, with an FY18 AC endstrength of about 472,000; the Marine Corps is the smallest, with an AC endstrength of about 185,000. FY18 DOD AC endstrength was almost 10,000 more than in FY17 and 16,000 more than in FY16. In this period, the Army's AC endstrength decreased by less than 1 percent, while that of the Air Force rose by 2.5 percent. Army AC endstrength, however, still is significantly larger than that of the other DOD services; it was about 2.5 times the size of the Marine Corps and about 1.5 times larger than the Navy and the Air Force. Over the past three years, AC enlisted endstrength has risen for the Marine Corps (up 1.0 percent) and fallen slightly for the Navy (down 1.7 percent).

The DOD RC has two National Guard elements—the Army National Guard (ARNG) and the Air National Guard (ANG)—and four reserve elements—the US Army Reserve (USAR), the US Navy Reserve (USNR), the US Marine Corps Reserve (USMCR), and the US Air Force Reserve (USAFR). In FY18, the RC made up about 37 percent of DOD's total endstrength. Over the past three years, the DOD RC has decreased by over 15,000 members (nearly 2 percent). The Army has the largest share of the DOD RC; its guard and reserve forces accounted for 66 percent of DOD RC endstrength in FY18.

Enlisted personnel make up the majority of DOD's total endstrength. In FY18, enlisted personnel constituted 83 percent of DOD AC endstrength and 84 percent of DOD RC endstrength. Among officers, commissioned officers made up about 92 and 90 percent of DOD AC and RC officers, respectively, in FY18; the remaining 8 and 10 percent were warrant officers.[1] Overall, the Army and the Air Force had the largest AC officer corps, both in total size (92,315 and 62,640) and in percentage of each of the service's total AC endstrength (19.5 and 19.4 percent) in FY18. For comparison, AC officers make up 16.8 percent and 11.5 percent of total AC endstrength in the Navy and Marine Corps, respectively.

The US Coast Guard, which falls under the Department of Homeland Security, is the smallest of the five armed services. For comparison, the US Coast Guard had an AC endstrength of 41,132 in FY18, about 22 percent the size of the Marine Corps' AC. US Coast Guard RC endstrength was over 6,100 in FY18, roughly 16 percent of the size of the USMCR, the smallest DOD RC element. Between FY16 and FY18, the US Coast Guard's total endstrength grew by over 1,000, or 2.4 percent. Like the DOD services, enlisted personnel represented the majority of the US Coast Guard's FY18 total endstrength (80 percent) followed by commissioned officers (16 percent) and warrant officers (4 percent).

Table 2 shows the number of DOD enlisted accessions and officer gains for the past three FYs, by component and service. For enlisted personnel, we include non-prior-service (NPS) and prior-service (PS) accessions.[2] For officers, accessions include commissioned and warrant officer gains. The percentages of PS enlisted and warrant officers are shown, respectively, in parentheses below the numerical accessions and officer gains.

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[1] Warrant officers are designated by warrants as opposed to commissions and are generally technical specialists. Most warrant officers are prior enlisted members, but some are direct appointments.

[2] PS accessions are typically those who have previously served in any of the DOD services at some point in their pasts. The Marine Corps is an exception to this definition; it defines PS accessions as those who have previously served in the Marine Corps.

Table 2.   Enlisted accessions and officer gains, by service and personnel type, FY16–FY18

Component/ service	Enlisted (% PS in parentheses)			Officers (% Warrants in parentheses)		
	FY16	**FY17**	**FY18**	**FY16**	**FY17**	**FY18**
DOD AC						
Army	62,362	67,215	69,099	6,619	7,888	7,895
	(5.9)	(7.4)	(8.1)	(15.7)	(14.4)	(15.6)
Navy	30,624	35,099	38,860	4,241	4,193	4,271
	(0.5)	(0.4)	(0.3)	(4.8)	(4.7)	(4.5)
Marine	30,378	31,867	31,412	1,817	1,942	1,867
Corps	(0.3)	(0.4)	(0.3)	(10.8)	(12.5)	(16.2)
Air Force [a]	32,279	31,044	30,430	4,188	4,518	4,992
	(1.1)	(1.3)	(1.4)	(0.0)	(0.0)	(0.0)
Total	**155,643**	**165,225**	**169,801**	**16,865**	**18,541**	**19,025**
	(2.7)	**(3.4)**	**(3.7)**	**(8.5)**	**(8.5)**	**(9.1)**
DOD RC [b]						
ARNG	41,608	41,437	40,559	3,895	4,119	4,143
	(29.4)	(27.0)	(22.7)	(15.9)	(16.6)	(18.4)
USAR	26,337	23,276	19,342	4,953	4,665	4,104
	(46.6)	(49.2)	(46.3)	(7.2)	(6.6)	(8.4)
USNR	10,690	10,572	9,373	1,670	1,740	1,426
	(89.0)	(79.7)	(81.8)	(0.7)	(0.8)	(1.0)
USMCR	8,617	8,743	8,667	997	904	970
	(37.3)	(36.3)	(34.7)	(3.3)	(5.3)	(2.5)
ANG	8,268	8,309	8,290	1,308	1,233	1,252
	(43.0)	(41.4)	(40.8)	(0.0)	(0.0)	(0.0)
USAFR	7,552	7,443	7,480	1,493	1,371	1,479
	(63.1)	(61.8)	(59.0)	(0.0)	(0.0)	(0.0)
Total	**103,072**	**99,780**	**93,711**	**14,316**	**14,032**	**13,374**
	(44.2)	**(42.4)**	**(39.1)**	**(7.1)**	**(7.5)**	**(8.6)**
US Coast Guard						
AC	3,323	3,660	3,422	447	455	677
	(3.7)	(3.5)	(3.3)	(42.3)	(44.2)	(28.5)
RC	610	782	863	136	135	169
	(74.3)	(52.8)	(53.7)	(3.7)	(4.4)	(7.7)
Total	**3,933**	**4,442**	**4,285**	**583**	**590**	**846**
	(14.7)	**(12.2)**	**(13.5)**	**(33.3)**	**(35.1)**	**(24.3)**

Source: Tables B-14, C-3, C-10, C-18, C-28, D-16, D-38, D-40, E-5, E-10, E-18, E-19, E-20, E-22, E-26, and E-29 for FY16-FY18.
Note: Enlisted accessions include both non-prior-service (NPS) and prior-service (PS) accessions.
[a] The Air Force has no warrant officers.
[b] The RC consists of the Army National Guard (ARNG), the US Army Reserve (USAR), the US Navy Reserve (USNR), the US Marine Corps Reserve (USMCR), the Air National Guard (ANG), and the US Air Force Reserve (USAFR).

DOD AC enlisted accessions have grown each year between FY16 and FY18, from roughly 155,600 to 169,800—a 9 percent increase. The Navy exhibited the largest growth in accessions during this period; its AC enlisted accessions grew by 27 percent over the past three FYs. The Air Force was the only service to see a decline in enlisted accessions over this period, decreasing by 6 percent. By comparison, the Army and Marine Corps accessions grew by 10.8 percent and 3.4 percent, respectively. Over the past three FYs, total AC officer gains for DOD have grown by 13 percent. All of the services experienced increases in AC officer gains between FY16 and FY18. The Army and Air Force had the largest growth in this period; AC officer gains grew by 19 percent for both services.

Despite the consistent growth in AC enlisted accessions and officer gains in recent years, RC accessions and gains both have steadily declined. Between FY16 and FY18, RC enlisted accessions fell by 9 percent; RC officer gains fell by 6.5 percent. In total, AC and RC combined endstrength has risen by less than 1,000 since FY16.

US Coast Guard AC and RC enlisted accessions and officer gains increased between FY16 and FY18. Total US Coast Guard enlisted accessions increased by almost 9 percent, while total officer gains increased by 45.1 percent.

Demographic highlights

A key mission of the *Population Representation in the Military Services (PopRep)* report is to provide a thorough description of the armed services' demographic composition. This subsection highlights demographic trends that are discussed in more detail throughout the remainder of this report.

In FY18, female representation reached its highest level ever in the history of the US armed services. Across the DOD services, the female percentage reached 16 percent among AC enlisted members and almost 19 percent among AC commissioned officers. FY18 was the seventh consecutive year that female representation grew among DOD AC enlisted members and the eleventh consecutive year it grew among DOD AC officers. Among commissioned officer gains, approximately 22 percent were female. Similarly, the percentage of female new enlisted accessions has grown steadily from 16.2 percent in FY12 to 18.8 percent in FY18. These trends in female representation likely are the result of a number of steps taken by DOD in recent years to attract more female recruits, such as opening all occupations and units to

women without exceptions,[3] expanding maternity leave policies,[4] and increasing numbers of female recruiters.[5]

Hispanic representation also increased compared to FY17. Specifically, the percentage of servicemembers who identify as Hispanic increased for both enlisted personnel and officers in the RC and AC. Representation was highest for AC enlisted personnel at 18.8 percent. In general, Hispanics still are underrepresented in the enlisted force relative to the civilian benchmark of 22 percent. The Marine Corps—where 27 percent of the enlisted force identifies as Hispanic—is the only service in which Hispanics are overrepresented relative to the civilian benchmark.

In the DOD AC enlisted force, representation of racial minorities almost matches that of the civilian benchmark at 27 percent. The representation varies by service: the Navy has the highest overrepresentation of racial minorities (37 percent) while the Marine Corps has the lowest (16 percent). Overall, there is an overrepresentation of black servicemembers compared to the civilian benchmark (17 percent versus 15 percent) and an underrepresentation of Asian servicemembers (4 percent versus 6 percent). One notable diversity factor in the military that differs from the civilian workforce is the intersection of gender and race/ethnicity. Among DOD AC enlisted and commissioned officers, women are more racially and ethnically diverse than men. The dominance of racial and ethnic minorities among female servicemembers also is found in FY18 female enlisted accessions and officer gains. These gender differences are large, are found in every service, and are the continuation of a gender-racial distribution seen in prior years. Broadly, the percentage of accessions and endstrength within each service that identifies as a racial or ethnic minority is typically 5 to 10 percentage points higher for women than for men.

Despite missing its recruiting goal in FY18, the Army accessed its highest number of enlisted servicemembers since FY10.[6] The Army gained its greatest number of new officers since FY11.

[3] See https://www.defense.gov/News/Article/Article/632536/carter-opens-all-military-occupations-positions-to-women/.

[4] See http://www.defense.gov/News/Article/Article/645958/carter-announces-12-weeks-paid-military-maternity-leave-other-benefits/.

[5] See http://www.usatoday.com/story/news/nation/2015/10/14/army-recruiting-women-combat/73885956/.

[6] See https://www.armytimes.com/news/your-army/2018/09/21/the-army-is-supposed-to-be-growing-but-this-year-it-didnt-at-all/.

At the same time, the percentage of Army AC NPS accessions that were high quality increased, passing 60 percent for the first time in five years.[7]

In FY18, the US military continued to exceed the DOD recruit quality benchmarks of 90 percent with Tier 1 educational credentials (e.g., high school diplomas) and 60 percent with Armed Forces Qualification Test (AFQT) scores at or above the 50th percentile. Overall, 97 percent of AC enlisted accessions held Tier 1 education credentials and 70 percent had AFQT scores at or above the 50th percentile in FY18. Among RC enlisted accessions, 96 percent held Tier 1 education credentials and 66 percent had AFQT scores at or above the 50th percentile. These AFQT scores at or above the 50th percentile exceed the civilian population by substantial amounts; only 51 percent of the civilian population scores in the top half of the ability distribution.[8] The percentage of high-quality accessions—those with a high school diploma (Tier 1 education credential) and AFQT at or above the 50th percentile—declined steadily for the Navy and Air Force over the past six years. In FY18 alone, the percentage of accessions identified as high quality fell by 8 percentage points in the Navy compared to FY17. These changes may in part be driven by the economy's steady recovery from the Great Recession, which has made employment outside of the services increasingly attractive to potential recruits.

The share of AC enlisted accessions that came from the South increased for the sixth straight year. While the South is home to less than 38 percent of the country's population of 18-to-24-year-olds, it provided more than 46 percent of accessions in FY18, its highest share historically. In other words, southern accessions are overrepresented relative to their 18-to-24-year-old population, providing more accessions than their population share would indicate. Conversely, the percentage of accessions originating from the Midwest fell for the twelfth consecutive year, reaching a historic low of 15.5 percent. Those from the Northeast are even more underrepresented, providing only 70 percent of the numbers that their population share would indicate.

For the RC, the share of NPS gains with an AFQT score at or above 50 increased in the Army National Guard, the US Army Reserves, and the US Navy Reserves. Most notably, the percentage of gains with AFQT scores at or above 50 increased by over 10 percentage points in the US Navy Reserve, from 52 percent to 62.4 percent. The RC has a larger percentage of women than the AC (25.5 percent versus 18.8 percent). RC personnel are older than AC personnel, but servicemembers in both components are considerably younger than members of the civilian

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[7] DOD defines high-quality accessions as those who access with a high school degree (Tier 1 education credential) or greater and an AFQT score at or above the 50th percentile.

[8] When the AFQT was normed to the civilian population in 1997, 52 percent of men and 50 percent of women scored in the top half of the ability distribution.

labor force. RC members, both enlisted and officers, are less likely to be Asian or Hispanic relative to both AC members and the civilian population.

The US Coast Guard experienced its sixth consecutive increase in accessions, reaching about 4,000 for FY18. That is the highest number of accessions into the Coast Guard since FY07. Almost 80 percent of Coast Guard AC NPS accessions were considered high quality, higher than any of the services except the Air Force. The Coast Guard also had the highest female share of officer gains (31 percent).

Section II:
DOD Active Component Enlisted Corps

This section gives an overview of the size and demographics of DOD AC enlisted members and accessions. It begins with a historical description of enlisted endstrength by service, followed by discussions of the quality, geographic source, and family income of NPS enlisted accessions, both historically and in FY18.[9] We then discuss age, gender, racial, and ethnic demographics of enlisted members and accessions, as well as the distribution of these enlisted members across occupations and paygrades.

Total enlisted endstrength, applicants, and accessions

Endstrength

The AC's enlisted endstrength was 1,073,394 in FY18, accounting for 82 percent of total AC endstrength for the year. Figure 2 shows AC enlisted endstrength by service over the past 45 years.

Figure 2.   AC enlisted endstrength, by service, FY73–FY18
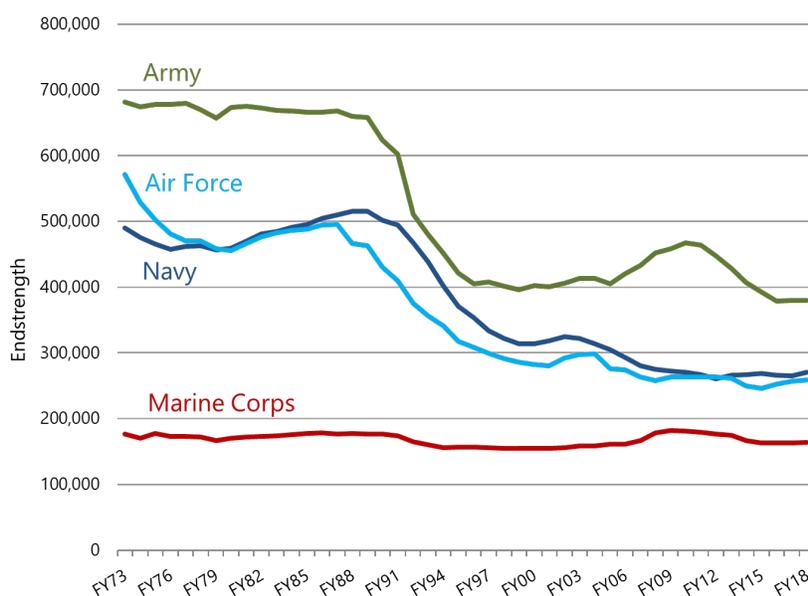
Source: Table D-11.

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[9] NPS accessions typically are those who have no prior experience with a DOD service; however, the Marine Corps considers those with no prior Marine Corps experience as NPS.

At the beginning of the All-Volunteer Force (AVF) in FY73, 1.9 million servicemembers were in the DOD AC enlisted force. The end of the Cold War in the early 1990s led to a significant drop in force size and, from FY97 to FY18, the enlisted force fluctuated between 1.1 million and 1.2 million servicemembers. The wars in Iraq and Afghanistan increased the size of the Army and the Marine Corps, but this increase was offset, at least partly, by decreases in the Air Force and the Navy. Reflecting reduced operational commitments, the Army and Marine Corps drew down their forces in the early 2010s; their endstrengths have leveled off in recent years.

The Marine Corps has been the smallest of the DOD services for the past 50 years. Despite all services shrinking in the 1990s, the Marine Corps decreased the least and, by FY08, its enlisted force matched its size at the beginning of the AVF. By FY18, the Marine Corps' enlisted force was 93 percent of its FY73 size. In contrast, the enlisted forces in the Air Force, Navy, and Army were 45, 55, and 56 percent of their respective sizes in FY73.

Applicants and NPS accessions

We now turn to enlisted applicants and NPS accessions across all DOD services for FY81 through FY18. Both the number of applicants and the number of accessions generally have fallen with small increases in their respective numbers in the past few years.[10] The percentage of enlisted applicants accessed grew from 38 percent in FY81 to a high of 66 percent in FY13, a sign of improved efficiencies among the Services recruiting forces. A steady decrease in the number of applicants also drove the increase in percentage of enlisted applicants accessed (see Figure 3). While total accessions in FY18 were roughly half of those in FY81, the total number of applicants in FY18 was less than a third of those in FY81. In FY18, the Military Entrance Processing Stations processed 252,619 applicants, and 163,582 (65 percent) became NPS accessions into the four services (see Figure 3).

A number of reasons exist for why an applicant for enlisted service may not be accessed. Many applicants simply change their minds and decide not to enter military service. Other reasons may include having a low aptitude-test score, a disqualifying medical or physical condition, too many dependents, disqualifying tattoos, a history of criminal activity, or testing positive or having a history of disqualifying drug use. However, in certain cases when an applicant is otherwise exceptionally qualified they may be granted an enlistment waiver.

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[10] DMDC applicant data come from the Military Entrance Processing Stations (MEPSs). Applicants cannot go directly to a MEPS; they must be sent by recruiters. Given the paperwork associated with sending applicants to the MEPSs, not all those who want to enlist will be sent and counted as applicants.

Figure 3. AC enlisted applicants, NPS enlisted accessions, and the percentage of applicants accessed, FY81–FY18
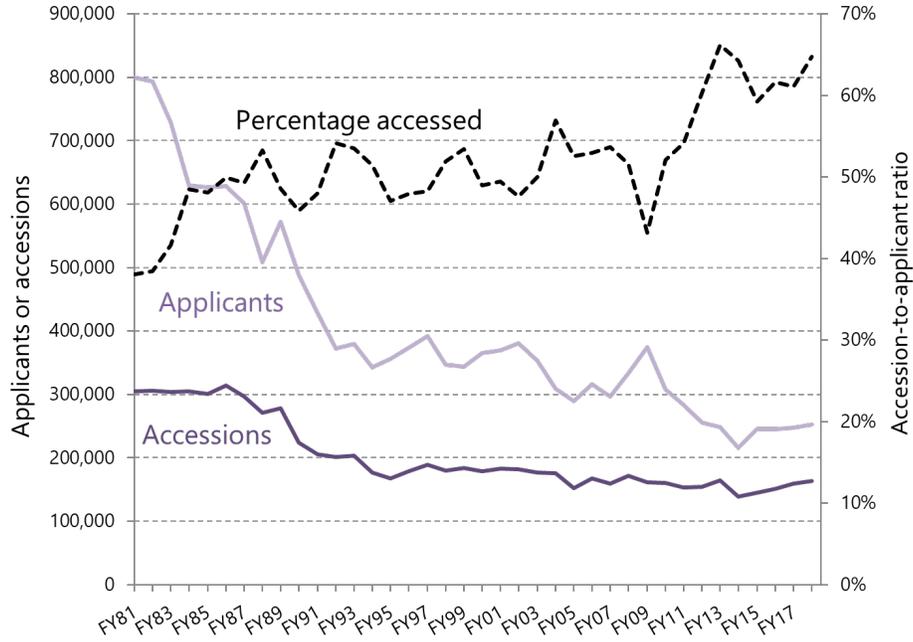
Source: Table D-3.
Note: Enlisted accessions include only NPS enlisted personnel.

Quality, geographic source, and neighborhood income of NPS enlisted accessions

Next, we describe the characteristics of enlisted applicants and NPS accessions in the AC enlisted force.[11] We describe their quality and geographic backgrounds. We also discuss age and the neighborhood household income distributions for NPS accessions.

Quality

DOD sets quality benchmarks for the aptitude and educational credentials of enlisted recruits. The Armed Forces Qualification Test, a nationally normed aptitude test of math and verbal

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[11] We focus this discussion on AC NPS (vice PS) accessions. In FY18, AC PS accessions represented only 3.7 percent of AC accessions (see tables B-12–B-14 for information on AC PS accessions).

skills, is used to predict training success and on-the-job performance. The DOD benchmark is to have 60 percent of accessions score at the 50th percentile or higher on the AFQT. In FY18, 71 percent of AC NPS accessions scored above the 50th percentile.[12]

In Figure 4, we show the percentage of FY18 applicants and enlisted accessions who scored at or above the 50th percentile on the AFQT. In every service, a higher percentage of accessions (dark-colored bars) than applicants (light-colored bars) scored at or above the 50th percentile. Both applicants and accessions scored considerably higher on the AFQT than did the 18-to-23-year-old civilian population (represented by the black dotted line). The Air Force had the highest percentage of applicants and accessions scoring at the 50th percentile or above (71 and 81 percent, respectively) on the AFQT, followed by the Navy (62 and 75 percent), the Marine Corps (63 and 70 percent) and the Army (52 and 64 percent).

Figure 4. **Percentages of AC NPS enlisted applicants and accessions scoring at or above the 50th percentile on the AFQT, by service, FY18**
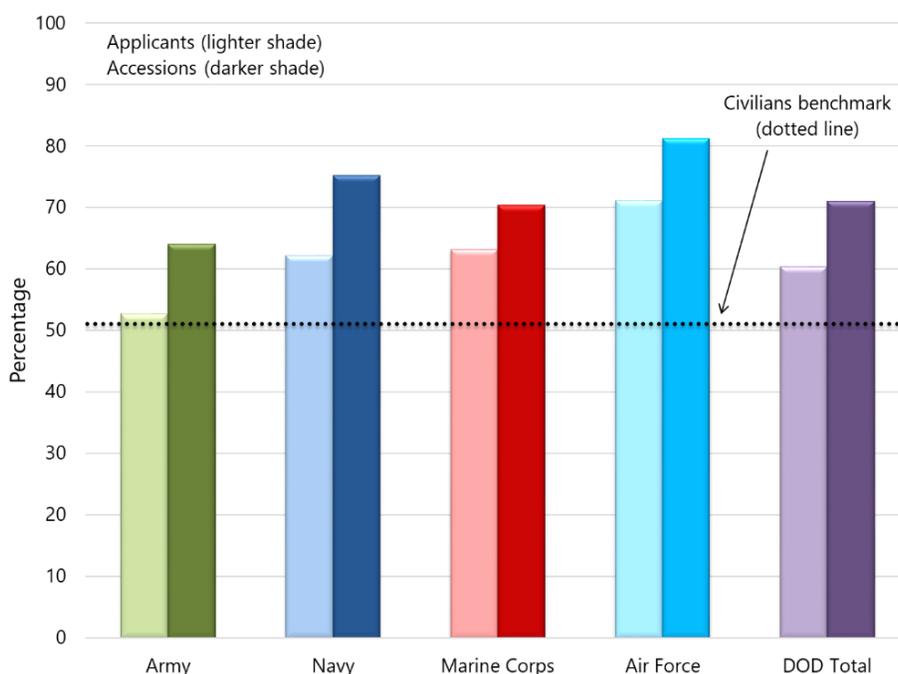
Source: Tables A-4 and B-4.
Note: Civilian benchmark is from 1997 Profile of American Youth Study (see http://official-asvab.com/PAY97_res.htm).

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[12] When the AFQT was normed to the civilian population in 1997, 52 percent of men and 50 percent of women scored in the top half of the ability distribution.

In addition to AFQT requirements, DOD requires that at least 90 percent of recruits have Tier 1 education credentials. Tier 1 recruits are primarily high school *diploma* graduates but include people with educational backgrounds beyond high school, as well as those who have earned adult education diplomas, those with at least one semester of college, and homeschoolers. Other educational backgrounds include Tier 2 recruits (those with alternative high school credentials and primarily GED certificates) and Tier 3 recruits (no secondary school credentials). The services seek Tier 1 recruits because high school diploma graduates are more likely than recruits with other credentials to complete their first terms of service.[13] In FY18, 97 percent of DOD NPS enlisted accessions held Tier 1 credentials; nearly all of Marine Corps and Air Force accessions were Tier 1, followed by 98 percent of Navy accessions, and 95 percent of Army accessions.

Recruits who have both Tier 1 education credentials and AFQT scores in the top 50th percentiles are classified as high quality. All of the services try to access as many high-quality recruits as possible. Because 97 percent of DOD NPS FY18 accessions had Tier 1 educational credentials, the main delineation for becoming a high-quality applicant or accession is AFQT score. When comparing the percentage of high-quality accessions since the beginning of the AVF, we observe some sharp quality changes, as well as an overall trend toward increasing percentages of high-quality recruits (see Figure 5).

Despite unfortunate fluctuations in recruiting budgets resulting in short-term setbacks in recruit quality (particularly in the Army), the quality of accessions in all services generally increased through the mid-2000s. In recent years, however, recruit quality slightly declined for most services (the Air Force experienced the greatest decline during the 2010s), likely because of improvements in the US civilian labor market. Nevertheless, the majority of NPS accessions are high quality: In FY18, the percentage of high-quality recruits was 81 percent in the Air Force, 73 percent in the Navy, 70 percent in the Marine Corps, and 60 percent in the Army.

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[13] See Richard Buddin (1984), *Analysis of Early Military Attrition Behavior*, RAND, R-2069-MIL; Federico E. Garcia et al. (2001), *Evaluation of the Pilot Program from Home School and ChalleNGe Program Recruits*, CNA, D0004598.A2; and Jennie W. Wenger and Apriel Hodari (2004), *Predictors of Attrition: Attitudes, Behaviors, and Educational Credentials*, CNA, D0010146.A2/Final.

Figure 5.   Percentage of high-quality AC NPS enlisted accessions, by service, FY73–FY18
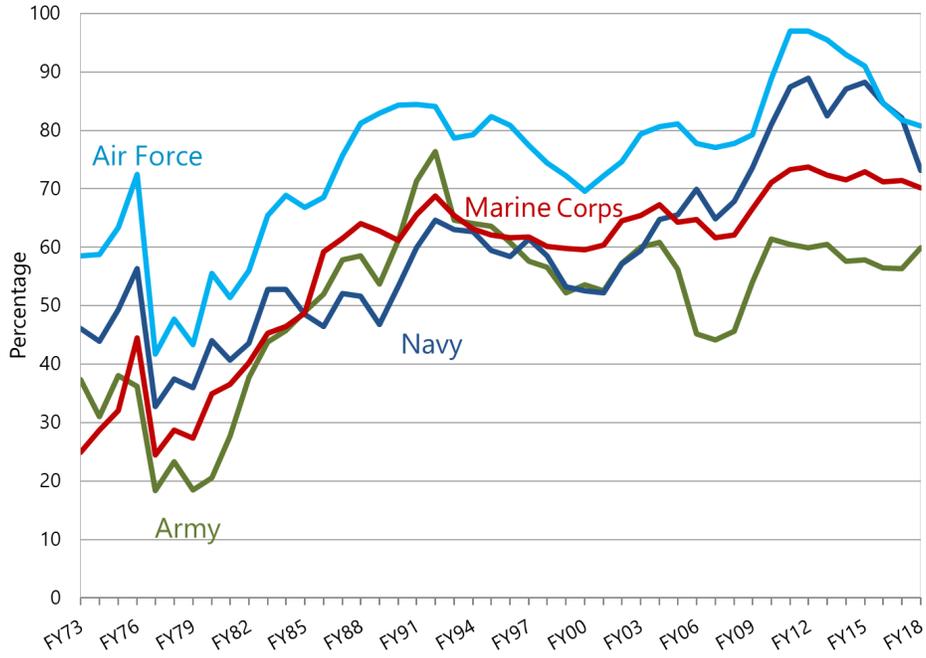

Source: Table D-9.

Geographic source

The Census Bureau divides the country into four regions:[14]

- Northeast—includes New England and Middle Atlantic division states

- Midwest—includes East North Central and West North Central division states

- South—includes South Atlantic, East South Central, and West South Central division states

- West—includes Mountain and Pacific division states

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[14] See https://www.census.gov/geo/reference/webatlas/divisions.html. For completeness, accessions from US territories, possessions, or "unknown" regions are grouped together in the "other" category.

Figure 6 shows the geographic distribution of AC NPS enlisted accessions across the Census regions since FY73.[15] We observe differences in the regional distribution of AC NPS enlisted accessions before and after FY85. Until about FY85, roughly 35 percent of AC NPS enlisted accessions came from the South and 25 percent from the Midwest, while the remaining 40 percent of accessions came from the West and the Northeast. After FY85, accessions were increasingly drawn more heavily from the South and the West and less so from the Northeast and Midwest. This partly reflects general population trends because states in the South and the West have made up an increasingly larger share of the US population. As recruiting commands determine where to place recruiters across the country, they account for geographic shifts in the population as well as the propensity to serve in each region.

Figure 6.   Geographic distribution of NPS enlisted AC accessions, FY73–FY18
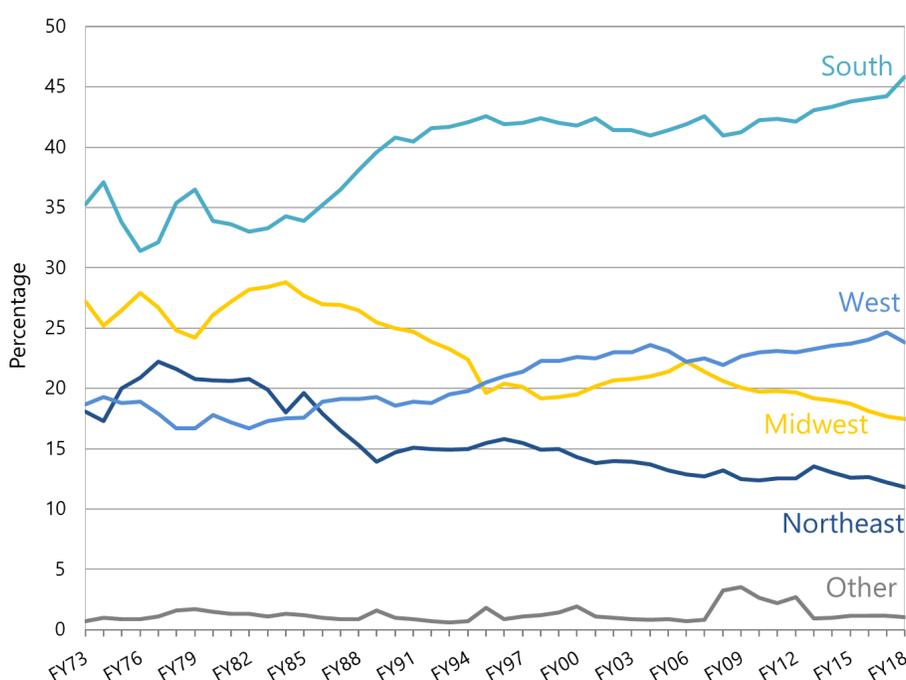
Source: Table D-10.

Figure 6 shows that the four regions do not contribute equal shares of total accessions, nor do they contribute equal shares of the US 18-to-24-year-old population. To determine whether regions are under- or overrepresented among DOD AC NCP accessions, Figure 7 shows the

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[15] We do not include data on the geographic representation of officer gains. Officers primarily are recruited from colleges and universities and their geographic locations would reflect the location of these universities and not necessarily the regions in which the officers grew up.

accession share of each region for FY18 (darker bars) along with the share of the country's 18-to-24-year-old population that resides in that region (lighter bars). While the South contributed the largest percentage of accessions (46 percent), it also has the largest of the country's 18-to-24-year-olds (38 percent). The accession share for the South, however, exceeded the population share, suggesting that relative to its population of 18-to-24-year-olds, the South was overrepresented in NPS accessions. Conversely, the Midwest and Northeast were underrepresented in NPS accessions relative to their populations of 18-to-24-year-olds.

Figure 7. **Accession share versus geographic population share of 18-to-24-year-olds, by region, FY18**
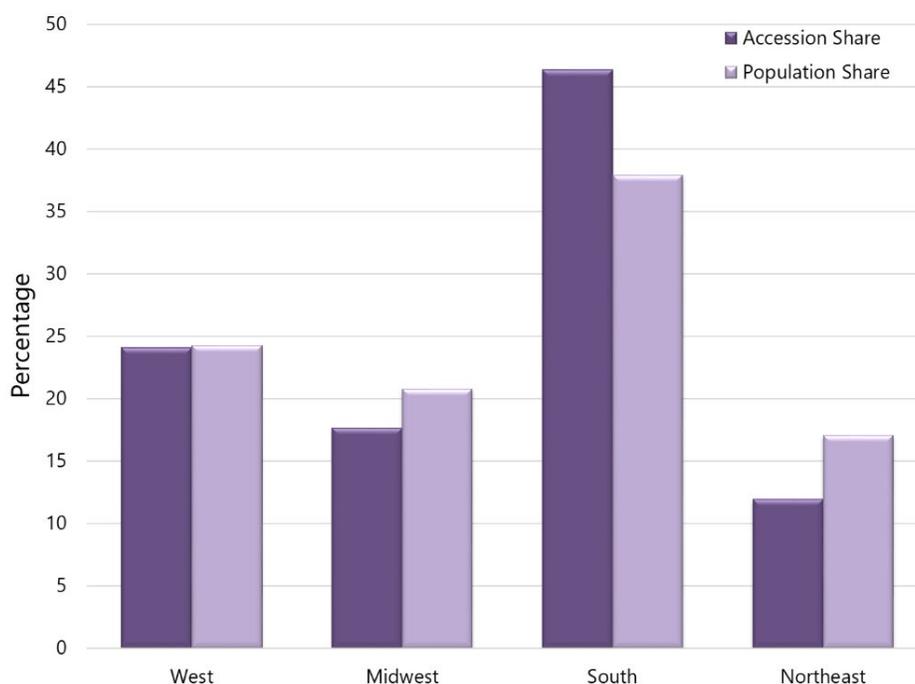
Source: Table B-46.

Figure 8 integrates the state-level geographic distribution of the US population data with the distribution of DOD NPS recruits. More precisely, it shows the ratio of a state's accession share (the number of accessions from that state divided by the total number of accessions) to the state's share of the US 18-to-24-year-old population (the number of 18-to-24-year-olds from the state divided by the total US 18-to-24-year-old population). This is called the state's representation ratio. When viewing Figure 8, keep in mind the following three points:

- A representation ratio of 1 implies that the state's share of DOD accessions was equal to its share of 18-to-24-year-olds.

- A representation ratio greater than 1 implies overrepresentation—the state's share of DOD accessions was larger than its share of the 18-to-24-year-old population.

- A ratio of less than 1 implies underrepresentation—the state's share of DOD accessions was smaller than its share of the 18-to-24-year-old population.

Figure 8.   AC NPS enlisted accession representation ratio, by state, FY18

Representation Ratio
- 0.26 - 0.65
- 0.65 - 0.93
- 0.93 - 1.07
- 1.07 - 1.24
- 1.24 - 1.54

Source: Table B-46.
Note: The representation ratio is calculated by dividing a given state's FY18 NPS accession share (number of accessions from the state divided by total accessions) by the state's 18-to-24-year-old population share (number of 18-to-24-year-olds from the state divided by the total US 18-to-24-year-old population). Representation ratio ranges are left inclusive, meaning the range of 0.75 to 0.95 includes states with a representation ratio of 0.75 and 0.94999, but not 0.95. Ranges in the heat map are chosen to be centered on 1 and to contain roughly equivalent numbers of states. All ranges include 8 to 12 states.

The FY18 state representation ratios ranged from 0.26 (District of Columbia) to 1.54 (South Carolina). In FY18, Colorado, Oregon, Ohio, Mississippi, and New Hampshire all had ratios close to 1—meaning their shares of AC NPS enlisted accessions were relatively close to their shares of the 18-to-24-year-old population. Overall, about half of states can be considered overrepresented among accessions (ratios greater than 1), and about half of states and the

District of Columbia could be considered underrepresented (ratios less than 1). Table 3 shows the top five largest and smallest representation ratios. South Carolina had the highest ratio (most overrepresented among accessions), and the District of Columbia contributed the lowest ratio (most underrepresented among accessions).

Table 3. Five highest and lowest enlisted NPS representation ratios, by state, FY18

Top 5	Ratio	Bottom 5	Ratio
South Carolina	1.54	District of Columbia	0.26
Florida	1.41	North Dakota	0.45
Hawaii	1.40	Massachusetts	0.57
Georgia	1.40	Utah	0.58
Alabama	1.35	Rhode Island	0.59

Source: Table B-46.
Note: The representation ratio is calculated by dividing a given state's FY18 NPS accession share (number of accessions from the state divided by total accessions) by the state's 18-to-24-year-old population share (number of 18-to-24-year-olds from the state divided by the total US 18-to-24-year-old population).

Differences in the representation ratios reflect differences in the distribution of enlistment qualification rates and propensities, as well as recruiting resources across the country. To illustrate, Figure 9 shows the percentage of accessions from each state who were high quality, while Table 4 shows the states with the highest and lowest percentages of high-quality accessions. North Dakota had the highest percentage of high-quality AC enlisted accessions in FY18 (80 percent), and Mississippi had the lowest (after the District of Columbia) (57 percent). It is worth noting that South Carolina had the highest representation ratio in FY18, meaning a lot of recruits accessed into the services from South Carolina relative to South Carolina's youth population. Conversely, it also had one of the lowest percentages of recruits who were identified as high quality. Most of the states with higher percentages of high-quality accessions had relatively low representation ratios. Notably, North Dakota had both the second lowest percentage of total accessions and the highest percentage of high-quality accessions.

Figure 9. Percentage of high-quality AC NPS enlisted accessions, by state, FY18

Percent of Accessions
that are High Quality

- 53% - 67%
- 67% - 70%
- 70% - 73%
- 73% - 75%
- 75% - 81%

Source: Table B-46.
Note: Accession percentage ranges are left inclusive, meaning the range of 67% to 70% includes states with a high-quality percentage of 67 percent and 69.999 percent, but not 70 percent. Accession percentage ranges in the heat map are chosen to contain roughly equivalent numbers of states. All ranges include 9 to 11 states.

Table 4. States with highest and lowest percentages of high-quality accessions, FY18

Top 5	% High quality	Bottom 5	% High quality
North Dakota	80.5	District of Columbia	53.8
South Dakota	78.5	Mississippi	57.0
Oregon	76.2	Alabama	59.4
Minnesota	76.0	Georgia	61.1
Vermont	76.0	South Carolina	61.2

Source: Table B-46.

Neighborhood income

At the beginning of the AVF, there was concern about socioeconomic representation in the force. Researchers found that, for the most part, accessions in the AVF's early years were representative of the US population in terms of socioeconomic backgrounds.[16] More recent studies report similar findings on socioeconomic characteristics, such as neighborhood income, for the 1990s and early years of this century.[17] Because information on household or family income is not collected from recruits, these studies used proxies for recruits' household income. For example, in a 2012 study, Lien et al. used the median income for recruits' census tracts as a proxy for recruit household income.[18] In short, they measured "neighborhood affluence," or how well off recruits' neighborhoods were. Each neighborhood is synonymous with a census tract.[19]

Following the approach of Lien et al., Figure 10 shows FY18 AC NPS enlisted accessions by the median income quintile of their home-of-record census tracts.[20] The 20 percent line defines each income quintile based on civilian census tract-level median household income data. Relative to all households, FY18 NPS accessions were underrepresented in census tracts with the lowest and the highest median incomes, while those in the middle three quintiles were overrepresented. This distribution closely mirrors those from recent years. Lower income neighborhoods tend to have fewer people qualified to serve. In FY18, for example, virtually all NPS accessions were high school diploma graduates, and high school dropout rates are higher in low-income neighborhoods. For the highest neighborhood median-income quintile, the lower representation probably is due to higher college attendance rates among youth in these census tracts.[21]

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[16] See, for example, Richard N. Cooper (1997), *Military Manpower and the All-Volunteer Force*, RAND, R-1450-ARPA.

[17] See, for example, Shanea J. Watkins and James Sherk (2008), *Who Serves in the U.S. Military? Demographic Characteristics of Enlisted Troops and Officers*, Heritage Foundation, CDA 08-05.

[18] Diana S. Lien et al. (2012), *An Investigation of FY10 and FY11 Enlisted Accessions' Socioeconomic Characteristics,* CNA, DRM-2012-U-001362-Final.

[19] In comparison to quintiles constructed from household income, quintiles constructed from median census tract income will be biased toward the mean of household income.

[20] The quintile ranges are based on all households in census tracts with non-missing median household incomes. FY18 AC NPS enlisted accession data were provided by DMDC and linked by census tract to median household income data from the Census Bureau's 2013–2017 American Community Survey.

[21] See https://www.census.gov/newsroom/blogs/random-samplings/2013/12/discover-your-neighborhood-with-census-explorer.html.

Figure 10. Neighborhood affluence (median census tract household income) for AC NPS enlisted accessions, FY18
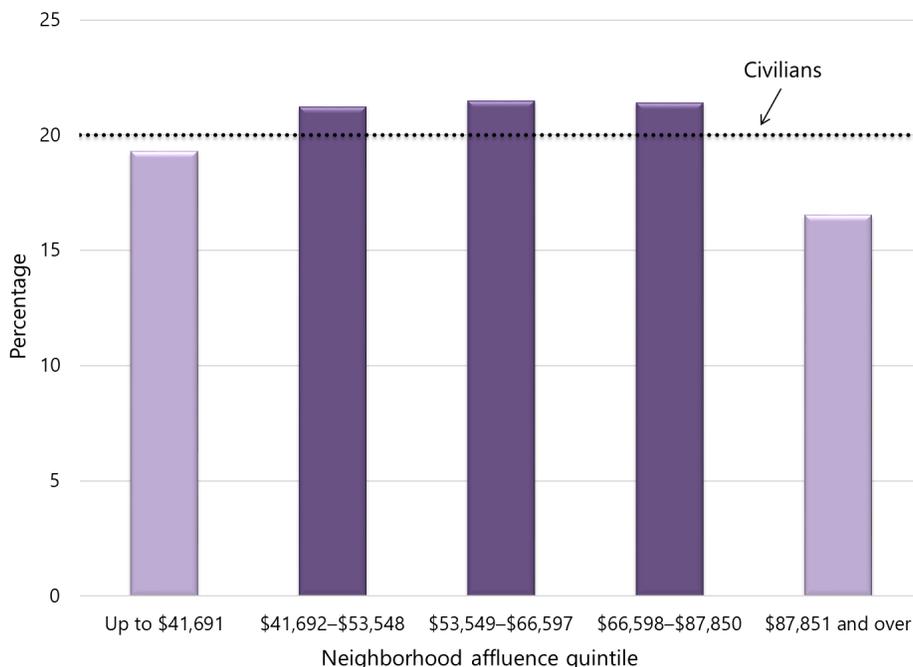
Source: Table B-41.
Note: These quintiles were constructed using 2014–2018 American Community Survey (ACS) data at the census tract level. FY18 NPS home-of-record accession data from DMDC were used to link NPS accessions with the census tract data.

Age, gender, race, and ethnicity of enlisted personnel

This subsection begins by showing the age distribution of DOD NPS AC accessions across the four services. It then details the current demographics and demographic trends among AC enlisted personnel with respect to gender, racial, and ethnic composition. This is followed by a discussion of occupation and paygrade patterns across gender and racial and ethnic minorities.

Age

Similar to previous years, there were significant differences across the services in the age distributions of AC NPS enlisted accessions across the DOD services in FY18 (see Figure 11). Marine Corps accessions were much younger than those in the other services; just over half of Marine Corps accessions were in the 17-to-18-year-old age group, and virtually all of them

were age 18.[22] Those who are age 20 and younger made up 84 percent of NPS accessions in the Marine Corps, 65 percent in the Air Force and the Army, and 69 percent in the Navy. While these percentages vary slightly across years, the same general distribution typically exists.

Figure 11.   AC NPS enlisted accessions, by age group and service, FY18
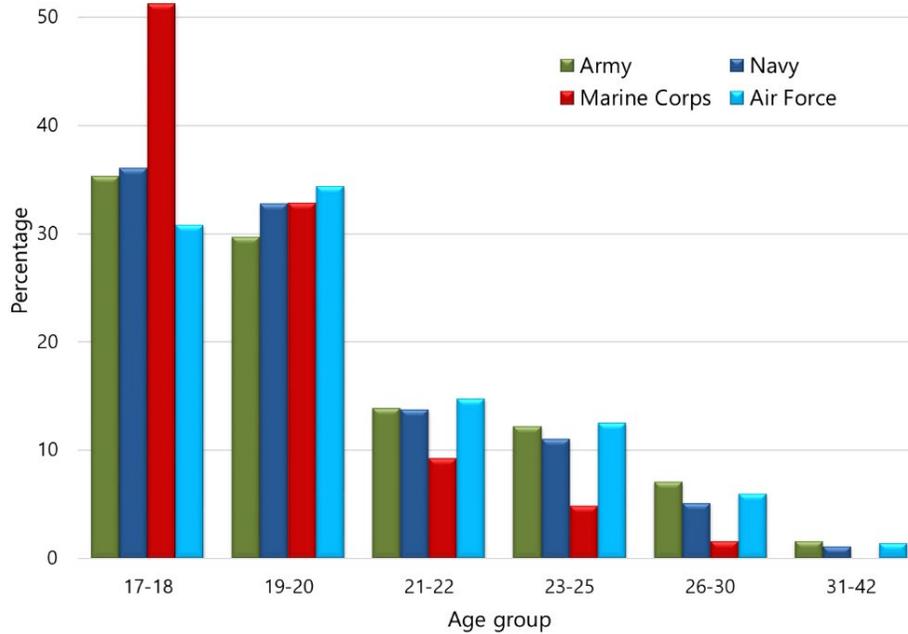
Source: Table B-1.

Gender

The female share rose in FY18 for both accessions and enlisted members for nearly every service. Figure 12 shows the changes in the percentage of female AC enlisted members by service and across DOD. At the start of the AVF, women represented roughly 3 percent of AC enlisted members, and female representation steadily grew until FY03. Between FY03 and FY10, female representation in the AC enlisted force declined to 14 percent. Since FY10, however, female representation steadily increased in the AC enlisted force, reaching its highest

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[22] Accessions cannot be younger than 17, and a 17-year-old accession must have parental consent to enter military service. In Table B-1, we see that 3.8 percent of accessions were age 17. DOD sets the maximum age for NPS accessions at 42. The Army briefly raised its maximum age limit to 42, but reverted to age 35 in 2011. In 2014, the Air Force raised its maximum age from 27 to 39. The Navy and Marine Corps have NPS accession maximum age limits of 34 and 28, respectively.

point in history—16.2 percent—in FY18. The Marine Corps and Navy also set historic highs with 8.7 and 19.8 percent, respectively.

Female representation among enlisted accessions followed a similar trend to that of AC NPS enlisted members. Figure 13 shows the changes in the percentage of female enlisted AC NPS accessions for each service and across DOD. At the beginning of the AVF, women represented less than 10 percent of DOD NPS enlisted accessions; that percentage increased through FY00, peaking at 18.8 percent, before steadily declining to 15.5 percent in FY05. Since the mid-2000s, the female representation steadily increased and resumed its peak of 18.8 percent in FY18.

Until FY08, the Air Force had the highest enlisted female representation rates of the service. However, female representation in accessions declined steadily in the Air Force and Army from FY00 to FY12. Contrary to this trend, the Navy experienced steady growth in female representation among its NPS accessions since FY05 and, in turn, its overall enlisted force. In FY18, the Navy and Air Force had nearly identical female representation in both accessions and endstrength.

Female representation in the Marine Corps' AC NPS enlisted accessions has been lower than the other services, but it began a steady increase in FY93, mirroring the increase in female representation among enlisted Marines. In FY18, female representation among AC NPS enlisted accessions was highest in the Navy (24.4 percent), followed by the Air Force (24.0 percent), the Army (17.1 percent), and the Marine Corps (10.5 percent).

Figure 12. Female percentage, AC enlisted members, by service, FY73–FY18
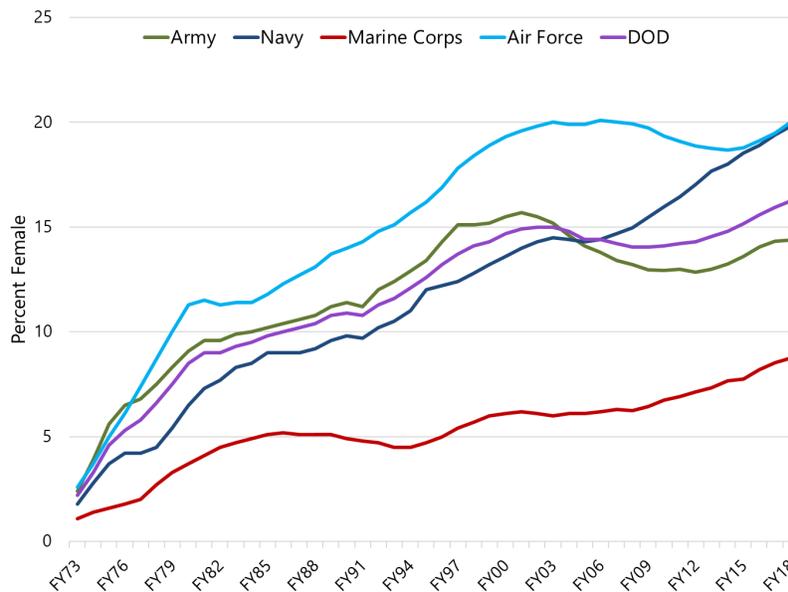
Source: Table D-13.

Figure 13. Female percentage, AC NPS enlisted accessions, by service, FY73–FY18
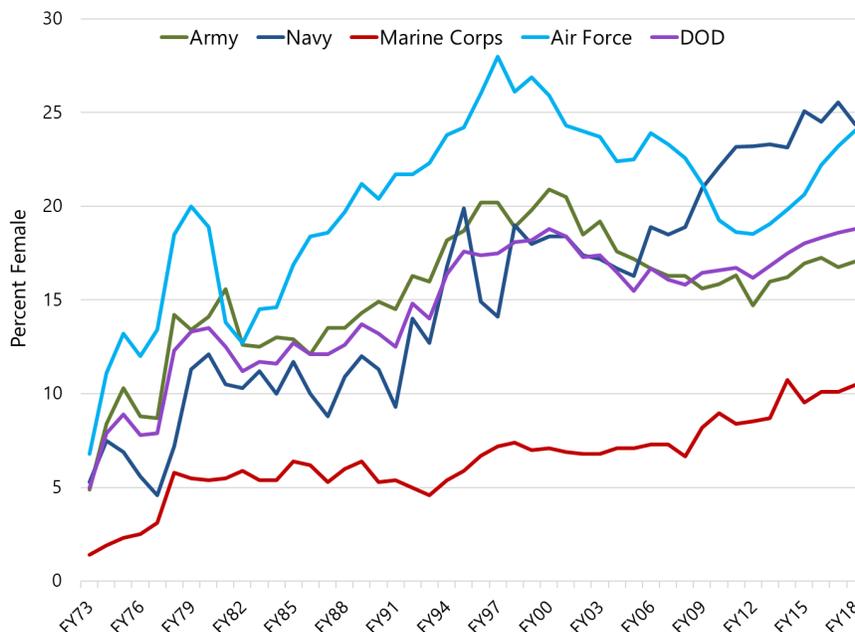
Source: Table D-5.

Race and ethnicity

The next subsections present the racial and ethnic diversity of AC enlisted personnel and accessions. Before FY03, self-identified race and ethnicity were reported in combined categories (e.g., non-Hispanic white or non-Hispanic black). Since FY03, race and ethnicity have been reported separately. Because race and ethnicity are separate fields, a single person can be defined as a minority in both fields.

Black accessions over time

Until the first Gulf War, the percentage of non-Hispanic blacks was considerably larger among DOD accessions than in the comparably aged civilian population. There was a decline in non-Hispanic black accessions after the first Gulf War in 1990 and again in the mid-2000s, but the percentage of black accessions has increased since. Blacks now account for 17.4 percent of AC NPS enlisted accessions—a greater percentage than in the 18-to-24-year-old civilian population (15.2 percent).

There are service differences in the percentage of non-Hispanic black enlisted accessions, particularly in the early years of the AVF (see Figure 14). At the start of the AVF, percentages in the Army and the Marine Corps exceeded civilian percentages. In the mid-1980s, however, percentages in the Navy rose, while they fell in the Marine Corps and the Air Force. In FY18, in

all services except the Marine Corps, the percentage of black enlisted accessions exceeded comparable civilian percentages.

Figure 14. Percentages of black AC NPS enlisted accessions, by service, FY73–FY18
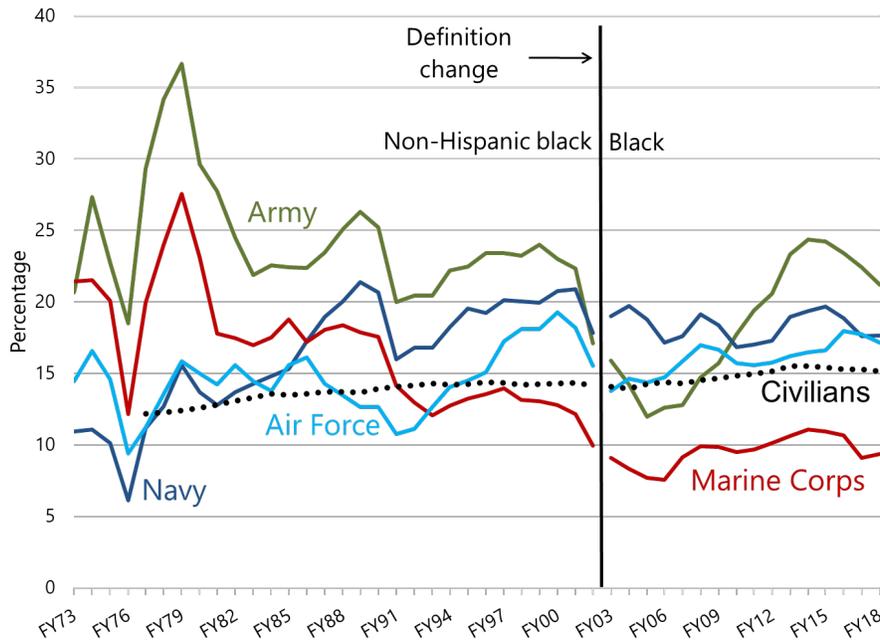
Source: Tables D-23 and D-26.

Since 1997, the Office of Management and Budget (OMB) has required that federal agencies use a minimum of five racial categories when categorizing a person's race: (1) white, (2) black or African-American, (3) American Indian or Alaska Native, (4) Asian, and (5) Native Hawaiian or Other Pacific Islander. DOD uses these five self-identified racial categories—separately and in combination—as codes to characterize recruits' racial backgrounds. Asians are the fastest growing racial group in the US, but they remain a relatively small percentage in the military.[23]

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[23] Pew Research Center, 2017 (https://www.pewresearch.org/fact-tank/2017/09/08/key-facts-about-asian-americans/).

Figure 15 shows the percentage of enlisted members who were racial minorities (i.e., not white) in each service by gender.[24] Racial minorities make up 24.1 percent of the civilian benchmark population but 30.1 percent of DOD's FY18 enlisted forces.

Figure 15. Percentage of AC enlisted members who were minority races, by gender, service, and civilian benchmark, FY18
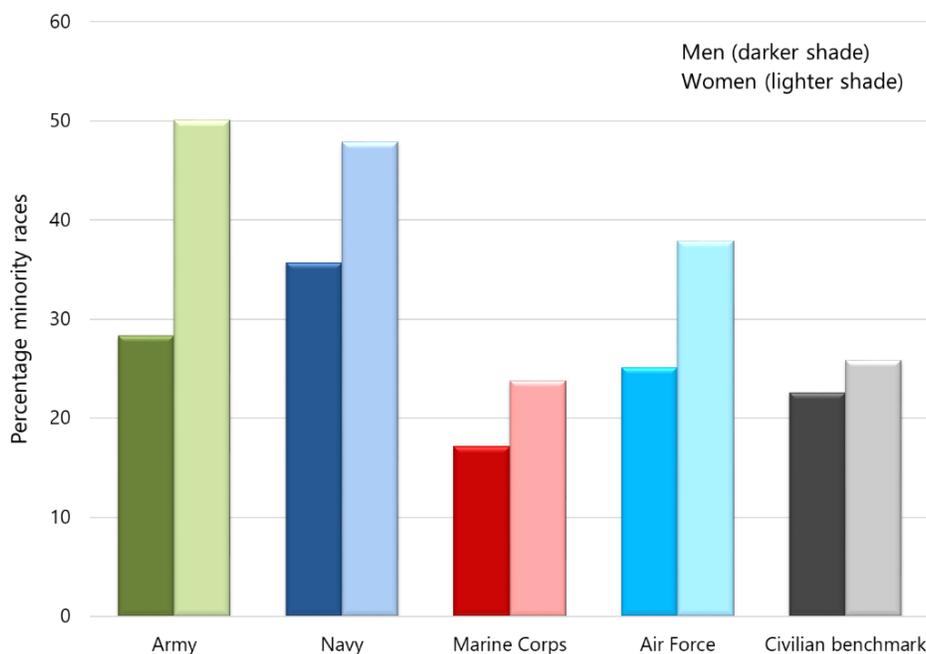
Source: Table B-17.
Note: The civilian benchmark is the 18-to-44-year-old civilian labor force. Those of unknown race are proportionally distributed as those with known races.

Figure 15 also shows that there are gender differences in racial representation in the AC enlisted force. In the civilian labor force, 22.6 percent of men and 25.8 percent of women were categorized as racial minorities. However, enlisted women in the AC are even more racially diverse than their male counterparts. The Army distinctly displays this: its percentage of

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[24] We assume that the distribution of servicemembers whose race is unknown follows their service's racial distribution, and we assign those selecting two or more racial groups to the minority category. Servicemembers with unknown race represent 3 to 4 percent of enlisted endstrength in each service. Servicemembers selecting two or more races represent substantial percentages in the Navy (8 percent) and the Air Force (5 percent) and a smaller percentage in the Marine Corps (1 percent). The Army does not report data on the number of AC enlisted personnel in the "two or more" category.

enlisted racial minority women is almost double its percentage of enlisted racial minority men. The overrepresentation of racial minority women in the enlisted force is related to their higher representation in AC NPS accessions, as well as higher minority female retention rates.

Figure 16 shows the percentage of enlisted *accessions* who were racial minorities in each service by gender. We see the same rough levels and differences by service and gender in Figure 16 as we did in Figure 15. Recruits from racially diverse backgrounds constituted 25.4 percent of DOD AC NPS accessions in FY18.[25] In comparison, racially diverse people represented 26.7 percent of the civilian benchmark population, the 18-to-24-year-old civilian noninstitutionalized population. Thus, AC NPS accessions were slightly more racially diverse than the benchmark population. DOD's overall statistic, however, hides interesting differences by service and gender. The Navy is the most racially diverse, while the Marine Corps is the least racially diverse. Male accessions are less racially diverse than female accessions. For example, non-white women represented 39.0 percent of female Army accessions in FY18, while non-white men represented 24.4 percent of male Army accessions. These service findings are in contrast to the civilian benchmark, which shows only small gender differences (27.1 percent female and 26.4 percent male).

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[25] To explore diversity in the enlisted force, we adjusted for the small number of those of unknown race. We assume that the distribution of recruits with unknown race followed their service's racial distribution. In the Army, Marine Corps, and Air Force, less than 1 percent of AC NPS accessions for each service have an unknown racial background; the Navy has 9.1 percent of AC NPS accessions reporting unknown racial background. Similarly, the percentage of enlisted recruits selecting two or more races is highest in the Navy (4.2 percent), followed by the Air Force (4.0 percent), the Marine Corps (2.8 percent), and the Army (0.1 percent).

Figure 16. Percentage of minority races among AC NPS enlisted accessions, by gender, service, and civilian benchmark, FY18
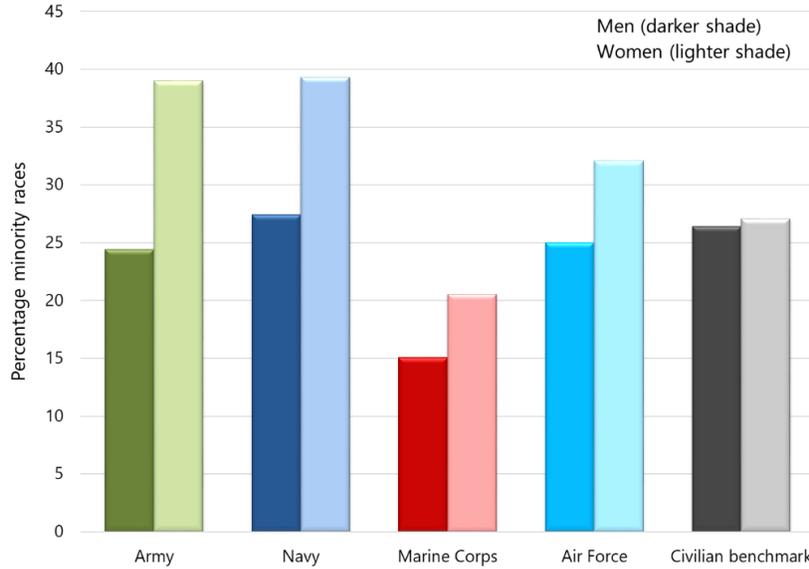
Source: Table B-10.
Note: The civilian benchmark is the 18-to-24-year-old population. Those of unknown race are proportionally distributed as those with known races.

Ethnic diversity in FY18

OMB requires federal agencies to use two ethnic categories: (1) Hispanic or Latino and (2) not Hispanic or Latino. Because ethnicity and race are separate fields, a single person can be defined as a minority in either field. Although there is some overlap, it still is interesting to examine gender differences in ethnic identifications for AC enlisted personnel in each service. Figure 17 shows the percentage of men and women who identified as Hispanic by service and the civilian benchmark population (18-to-44-year-olds) in FY18. Similar to the patterns in racial minorities, servicewomen are considerably more likely than servicemen to be Hispanic. Hispanics made up the following percentages of the FY18 DOD enlisted and civilian labor forces:[26]

- 19.3 percent of male enlisted force versus 22.7 percent of civilian labor force

- 22.7 percent of female enlisted force versus 22.6 percent of civilian labor force

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[26] We assume that any missing ethnic observations follow each service's overall distribution.

Figure 17. AC NPS accessions: Percentage of Hispanics by gender, service, and civilian benchmark, FY18
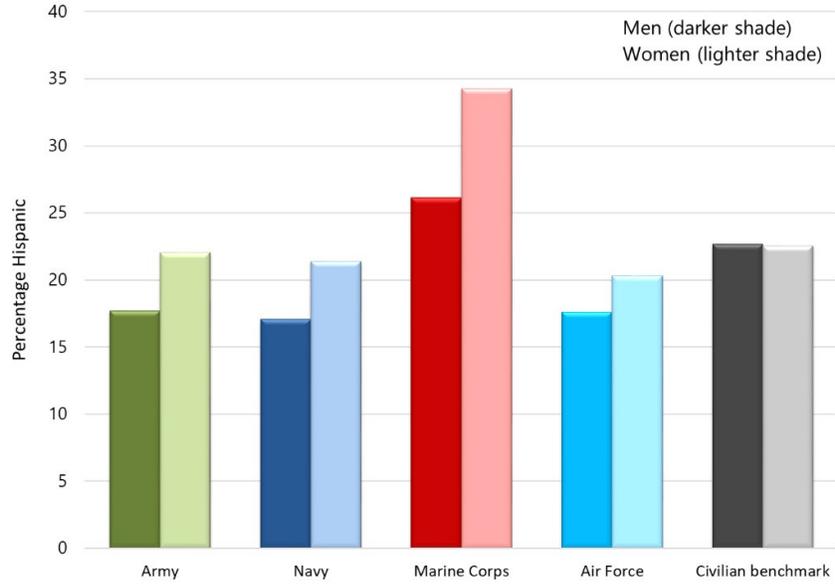
Source: Table B-10.
Note: The civilian benchmark is the 18-to-24-year-old population. Those of unknown ethnicity are distributed as knowns.

The Army has the highest Hispanic representation; Hispanics constituted 14.4 percent of the male enlisted force and 17.5 percent of the female enlisted force in FY18. Relative to the civilian benchmark, however, Hispanic men and women are underrepresented across the services' enlisted forces.

Occupations of enlisted personnel

By gender

Figure 18 shows the enlisted force occupational distribution by gender in FY18. The three most common occupational groups for women were administrators (25 percent), medical (15 percent), and supply (14 percent). The top three occupational groups for men were electrical (22 percent), infantry/gun crews/seamanship (18 percent), and supply (11 percent). These occupational differences between men and women are similar to those in previous years, and gender differences in the occupational distribution of the enlisted force are well known. The lack of women in warfighting occupations is likely the result of both people's preferences and prior restrictions on women's service in some of these occupations.

Figure 18.   Occupational distribution of the AC enlisted force, by gender, FY18
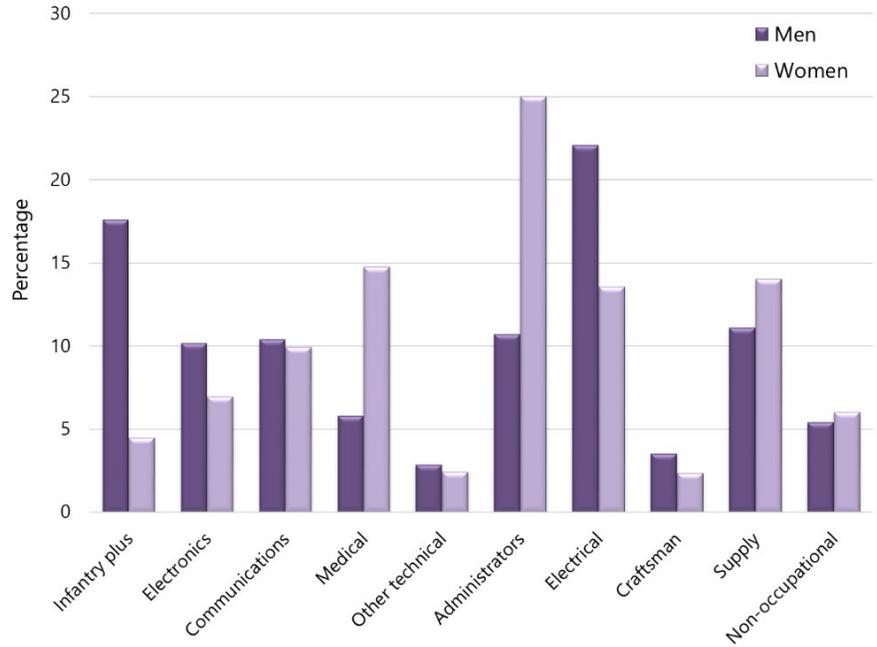
Source: Table B-20.
Note: Infantry plus includes infantry, gun crews, and seamanship occupations. Although women were not in the infantry prior to the lifting of restrictions, they did serve in gun, aircrew, and seamanship occupations.

By race

Although most occupational analyses of the enlisted force have focused on gender differences, there also are large racial differences. To further explore these differences, we divided the enlisted force into two categories (white and all other non-white minorities), both because some racial groups are very small and because we wanted to illustrate broad differences.[27] In Table 5, we highlight the largest differences with gray shading (greater than 5 percentage points).

Almost one-third of racially diverse women in the enlisted force are in administrative occupations compared with less than 20 percent of white women. The next largest differences are in communications (13.7 percent of white women versus 7.9 percent of racially diverse women) and in medical (16.2 percent of white women versus 14.0 percent of racially diverse women). Non-white men are about twice as likely to be in administrative occupations.

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[27] The racially diverse category is predominantly composed of servicemembers who identify as black.

Conversely, white men are much more likely than non-white men to be in infantry, gun crews, and seamanship occupations.

Table 5.   Occupational distribution of the enlisted force, by gender and race, FY18

Occupational group	White men	Racially diverse men	White women	Racially diverse women
Electronics	10.0%	10.5%	7.5%	6.7%
Medical	4.8%	7.0%	16.2%	14.0%
Electrical	22.2%	22.0%	14.0%	13.4%
Craftsmen	3.4%	3.7%	2.3%	2.4%
Supply	9.8%	12.7%	13.9%	14.2%
Communications	12.0%	8.7%	13.7%	7.9%
Other technical	3.4%	2.2%	3.5%	1.9%
Administrative	7.4%	14.6%	17.1%	29.5%
Infantry, gun crews, and seamanship [a]	21.3%	13.3%	4.9%	4.3%
Nonoccupational [b]	5.6%	5.3%	7.0%	5.6%

Source: Table B-20.
Notes: The largest differences are highlighted in gray in the table.
[a] Although women were not in the infantry prior to the lifting the restrictions, they did serve in gun, aircrew, and seamanship occupations.
[b] Nonoccupational includes students, patients, those with unassigned duties, and unknowns.

Paygrades of enlisted personnel

In this subsection, representation is evaluated in two ways: by comparison with the civilian workforce and by grade representation relative to overall military representation. Table 6 illustrates the FY18 paygrade distribution for women, racial minorities, and Hispanics. For comparison, Table 6 also shows the representation of these groups for DOD overall and the civilian benchmark (the US 18-to-44-year-old population). Because there is very little lateral entry into military service, these paygrade distributions reflect both current and past accession and retention patterns. Relative to the civilian workforce benchmark of 47.2 percent female, servicewomen are underrepresented in all military enlisted paygrades. Relative to the overall DOD percentage of 16.2 for women in the enlisted force, however, women are underrepresented in the senior paygrades (E7+), slightly underrepresented in the mid-level paygrades (E5–E6), and slightly overrepresented in the junior paygrades (E1–E4).

Table 6. Percentage of AC NPS enlisted personnel by paygrade, gender, race, and ethnicity and civilian benchmark, FY18

Demographic group	E1–E4	E5–E6	E7+	Overall (E1–E9)	Civilian benchmark
Women	17.3	15.6	13.5	16.2	47.2
Racial minorities	28.3	32.7	30.5	30.1	24.1
Hispanics	20.7	17.3	14.9	18.8	19.5

Source: Tables B-17 and B-37.
Note: The civilian benchmark is the 18-to-44-year-old civilian labor force. To calculate minority percentages, we assume that those of unknown race and Hispanic background are distributed the same way as those of known backgrounds.

For racial minorities, the picture is reversed. Relative to the civilian labor market benchmark of 24.1 percent, racial minorities are overrepresented in all military enlisted paygrades. However, relative to their overall military representation at 30.1 percent, racial minorities are underrepresented in the junior paygrades and overrepresented in the mid-level paygrades. These minority paygrade distributions reflect the fact that recent racial minority accession percentages, particularly for black accessions, have been lower than historical percentages, and some minority groups (such as blacks) have higher retention.

Hispanics are overrepresented in junior enlisted paygrades and underrepresented in mid-level and senior enlisted paygrades relative to their overall military representation of nearly 18 percent. At paygrades E4 and above, however, enlisted Hispanics are especially underrepresented in the military relative to their civilian labor market percentage of 19.5 percent.

Section III:
DOD Active Component Commissioned Officer Corps

This section gives an overview of the size and demographics of DOD AC officers and officer gains. It begins with a historical description of officer endstrength by service. This is followed by discussions of the distribution of gender, racial, and ethnic traits of AC officers and officer gains.

Total commissioned officer endstrength

Figure 19 shows AC commissioned officer endstrength by service over the past 43 years. Starting from a high of 300,000 at the start of the AVF, the commissioned officer corps fell to 260,000 by FY80, grew to 292,000 by FY86, fell to 201,000 by FY01, and grew to 219,000 by FY12. In FY18, the commissioned officer corps was just under 213,000, similar in size to the corps of FY15, FY04, and FY97 (see appendix Table D-16). Commissioned officer gains followed similar patterns. In percentage terms, officer gains have fallen more than officer corps endstrength since the start of the AVF, resulting in a more experienced commissioned officer corps.

We saw earlier that, since the AVF began in 1973, the Army has had the highest number of AC enlisted personnel. For commissioned officers, however, the Air Force had the highest number until FY07, when the Army overtook it. In FY18, AC Army commissioned officer endstrength was slightly over 15,400 larger than that of the AC Air Force commissioned officer endstrength.

Figure 19. AC commissioned officer endstrength, by service, FY73–FY18
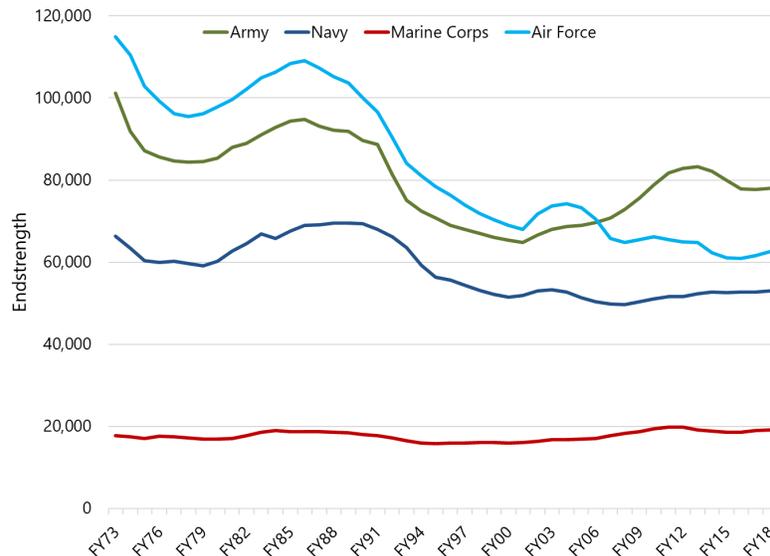
Source: Table D-16.

Gender, race, and ethnicity of commissioned officers

Gender

Figure 20 shows changes in female representation among AC commissioned officers for each of the services and for DOD overall. Female representation among the AC officer corps has steadily increased since the beginning of the AVF from 4.2 percent in FY73 to 18.7 percent in FY18. Each of the services generally follows this same trend, with the exception of the Marine Corps, which had a low and relatively steady female representation among AC officers from FY74 to FY92 and increasing female representation after FY92. In FY18, the Air Force had the highest female representation among AC officers at 21 percent, followed by the Navy and Army (around 19 percent) and the Marine Corps (8 percent).

Figure 20. Female percentage, DOD AC officer corps, by service, FY73–FY18
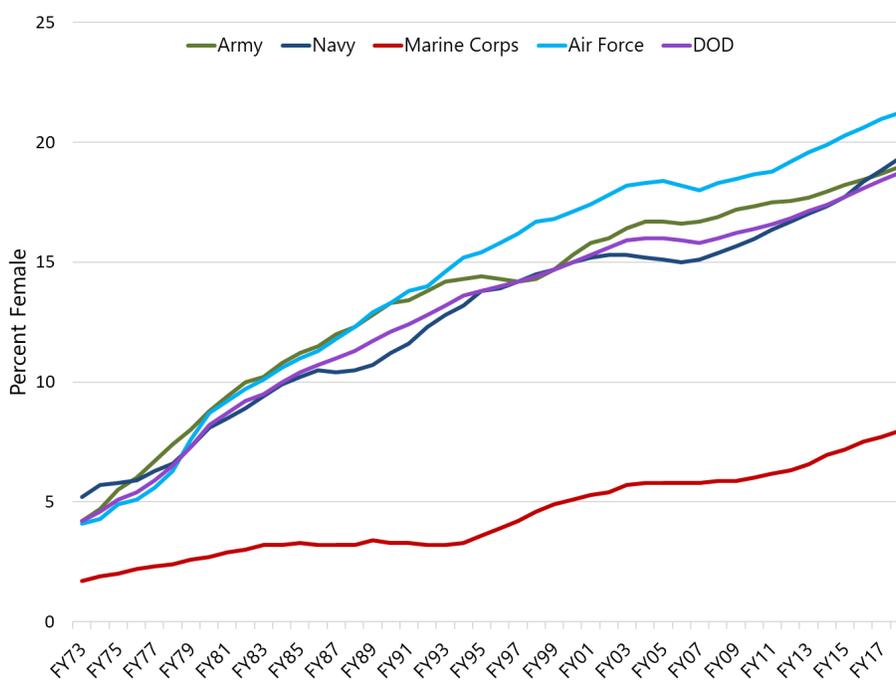
Source: Table D-19.

Female representation in the services' AC officer gains follows patterns similar to those among the AC officer corps: female representation has been increasing over time, the Air Force has the highest female representation, and the Marine Corps has the lowest (see Figure 21). This

suggests that changes in female representation are driven primarily by changes in the representation among officer gains as opposed to changes in female retention rates. In FY18, female representation in officer gains was highest for the Air Force at 25.4 percent, followed by the Navy (24.4 percent), the Army (22.7), and the Marine Corps (10.7 percent).

Figure 21. Female percentage among DOD AC officer gains, by service, FY73–FY18
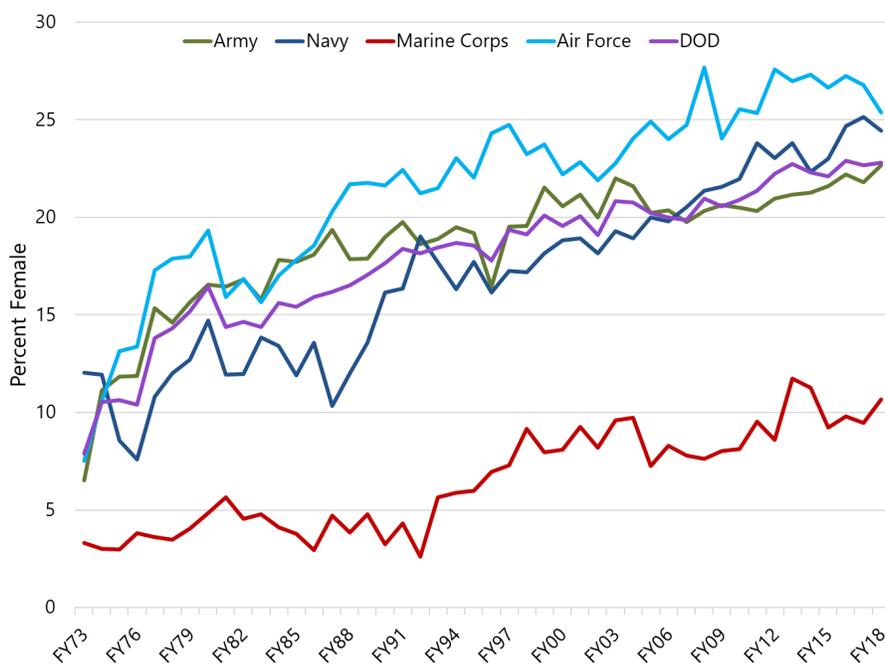
Source: Table D-19.

Race

Figure 22 shows the racial minority percentages for AC commissioned officers in each of the services.[28] The civilian benchmark, the 21-to-49-year-old college graduate civilian labor force, has a slightly larger proportion of non-white men than women. These differences in the civilian labor force, however, are minimal relative to the racial minority gender differences for commissioned officers in each of the four services. In the Army, 18 percent of male officers are

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[28] For the remainder of this subsection, we consider a recruit a racial minority only if he or she identifies with a race other than white. Note that personnel who are ethnically Hispanic but do not identify as black or American Indian often identify as white.

not white, compared to 32 percent of female officers.[29] Each of the services displays the pattern of female officers being more racially diverse than male officers.

Female commissioned officer gains in each of the services are also much more likely to be racial minorities than male commissioned officer gains. This is counter to the civilian benchmark (the US 18-to-49-year-old college graduate population[30]) where there was a small difference between male and female racial diversity (see Figure 23). The distribution of racial minorities in the officer corps is reflected among FY18 officer gains. Minority women in the Army, Navy, and Air Force are overrepresented in the officer corps gains relative to the civilian benchmark. The remaining groups in both the officer corps overall and gains all exhibit underrepresentation relative to the civilian benchmark.

Figure 22. Percentage of minority races in the AC commissioned officer corps, by gender, service, and civilian benchmark, FY18
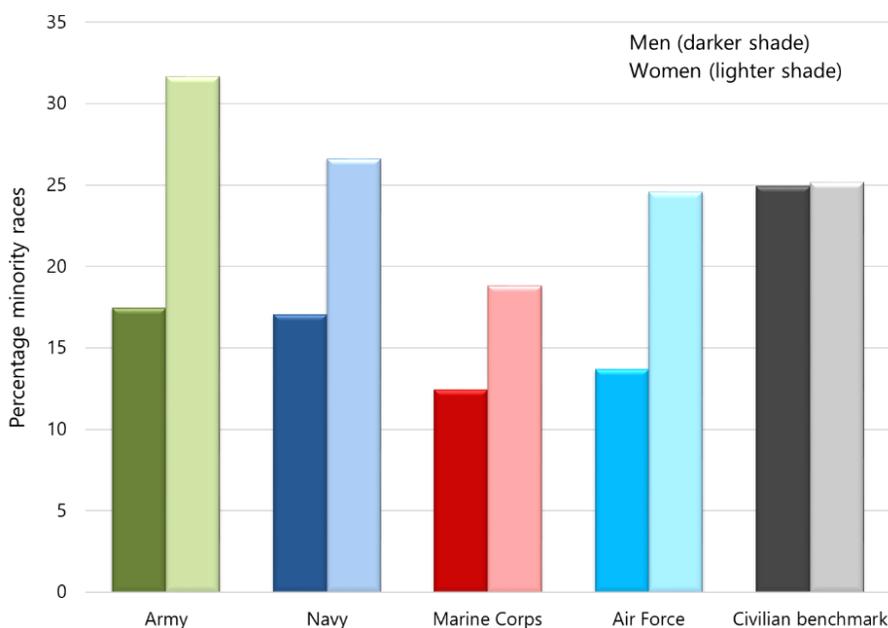
Source: Table B-25.
Note: The civilian benchmark is the 21-to-49-year-old college graduate labor force. Those of unknown race are distributed as knowns.

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[29] We use the same methodology for commissioned officers that we used for enlisted personnel. We assume that any missing information for a service is distributed in the same way as the non-missing information, and we treat those who selected two or more racial categories as racial minorities. For both men and women, the largest racial minority in the college-educated benchmark population is Asians.

[30] Women in these age groups are slightly more likely than men to be college graduates.

Figure 23. Percentage of minority races among AC commissioned officer gains, by gender, service, and civilian benchmark, FY18
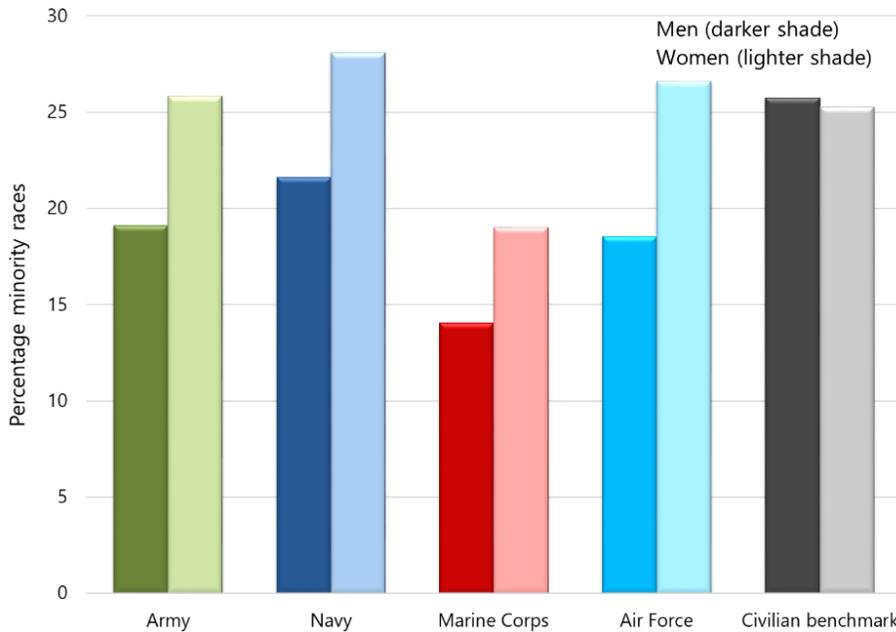
Source: Table B-25.
Note: The civilian benchmark is the 21-to-49-year-old college graduate population. Those of unknown race are distributed as knowns.

Ethnicity

Figure 24 shows Hispanic representation in the commissioned officer corps for each service. Similar to racial minority representation, Hispanic representation is generally greater among female officers than male officers, and Hispanic representation among male officers is lower than that among the male civilian benchmark population (21-to-49-year-old college graduates). However, there also were differences from the racial minority trends. For example, Hispanic women in the Marine Corps are overrepresented (as opposed to underrepresented racial minorities) relative to the civilian benchmark.

Figure 25 shows the percentages of officer gains by service that identify as Hispanic. The patterns in gains closely follow those seen in the officer corps. Marine Corps female gains are the most likely to be Hispanic (12.4 percent). With the exception of the Army, the percentage female Hispanic gains are all greater than the civilian benchmark. Similarly, male officer gains were below the civilian benchmark for all services.

Following the patterns that we found in the officer corps, female commissioned officer gains are more likely to be Hispanic than are male commissioned officer gains, though the gender differences usually are smaller than those for racial minorities. In fact, throughout DOD, the proportion of female commissioned officer gains who identify as Hispanic is roughly equivalent to that of the civilian benchmark. In contrast, male commissioned officer gains were less likely to identify as Hispanic (7.9 percent of gains versus 9.7 percent of civilians).

Figure 24. Percentage of Hispanics in the AC commissioned officer corps, by gender, service, and civilian benchmark, FY18
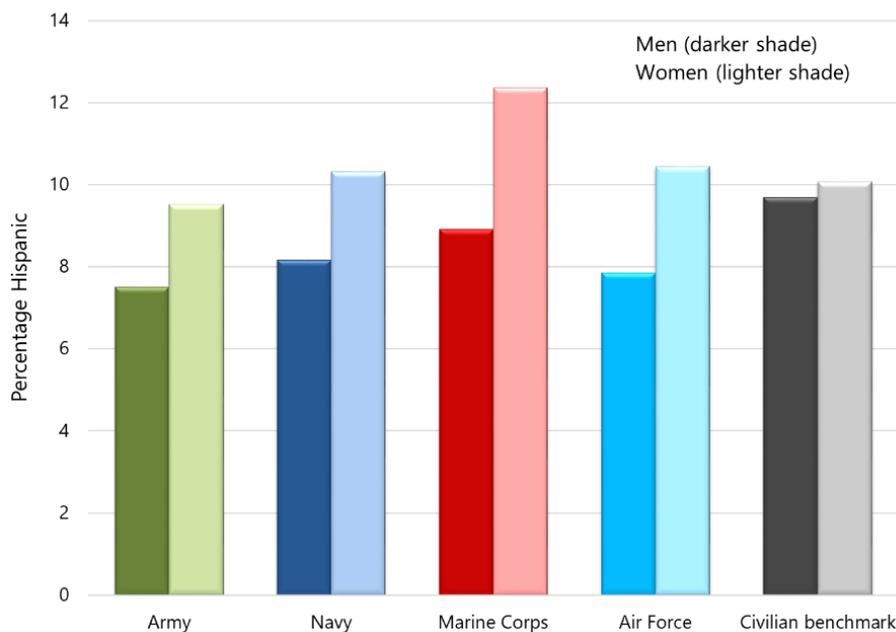
Source: Source: Table B-25.
Note: The civilian benchmark is the 21-to-49-year-old college graduate labor force. Those of unknown race are distributed as knowns.

Figure 25. Percentage of Hispanics among AC commissioned officer gains, by gender, service, and civilian benchmark, FY18
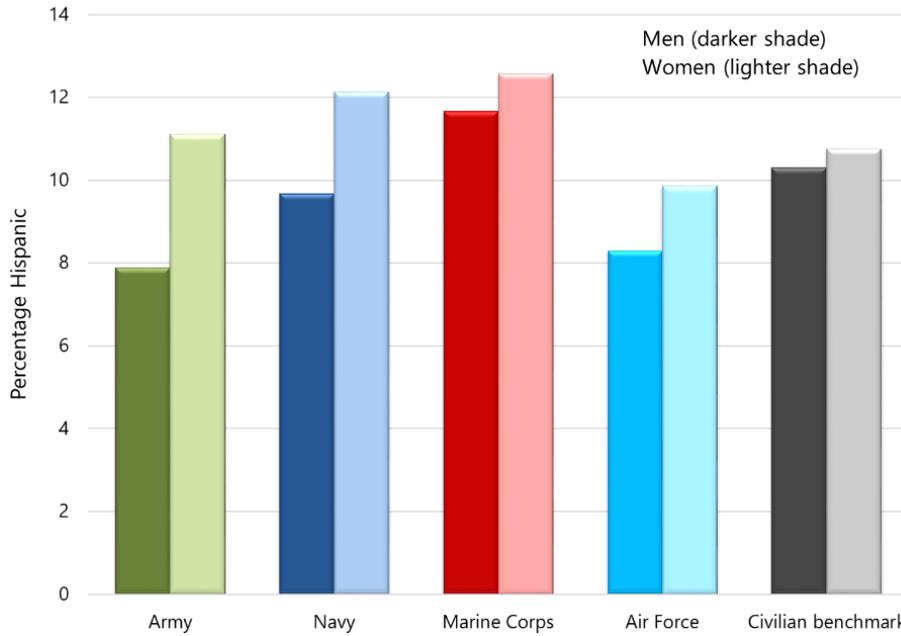
Source: Table B-25.
Note: The civilian benchmark is the 21-to-49-year-old college graduate labor force. Those of unknown race are distributed as knowns.

Paygrades of commissioned officers

This subsection breaks down the percentages of women, racial minorities, and ethnic minorities that fall into different officer paygrade bands. In general, the percentage of women, the percentage of racial minorities, and the percentage of Hispanics fall as paygrade increases. All three groups shown in Table 7 are overrepresented in the junior paygrades (O1–O3), but underrepresented in the mid-level (O4–O6) and senior (O7+) paygrades relative to their overall percentage of commissioned officers. Relative to their civilian labor force benchmark (college graduates aged 21 to 49), however, all three groups are underrepresented in the commissioned officer corps. This is particularly true for women, who make up just over half of the comparable civilian labor force, but only about 18 percent of the AC officer corps.

Table 7. Percentage of AC commissioned officers by paygrade, gender, race, and ethnicity and civilian benchmark, FY18

Demographic group	O1-O3	O4-O6	O7+	Overall (O1-O10)	Civilian benchmark
Women	20.6	15.9	7.4	18.7	51.7
Racial minorities	24.0	21.1	12.3	22.8	25.5
Hispanics	8.7	6.3	2.3	7.7	9.9

Source: Tables B-25 and B-39.

Note: The civilian benchmark is the 21-to-49-year-old college graduate labor force. To calculate minority percentages, we assume that those of unknown race and ethnicity are distributed the same way as those of known backgrounds.

Section IV:
DOD Reserve Component

Total RC endstrength

The DOD reserve component (RC) consists of six elements: the Army National Guard (ARNG), the US Army Reserve (USAR), the US Navy Reserve (USNR), the US Marine Corps Reserve (USMCR), the Air National Guard (ANG), and the US Air Force Reserve (USAFR). In FY18, the RC was 61 percent of the size of the AC. Total RC endstrength was 796,716, which breaks into the following categories:

- 665,618 RC enlisted (83.5 percent of RC endstrength)

- 118,546 RC commissioned officers (14.9 percent of RC endstrength)

- 12,552 RC warrant officers (1.6 percent of RC endstrength)

Virtually all RC warrant officers (97.3 percent) are in the Army's guard and reserve components. There are none in the Air Force's guard or reserve components and few in either the Navy or Marine Corps Reserve.

Figure 26 shows total RC endstrength by service from FY97 through FY18. Total RC endstrength has steadily declined over the past 20 years, falling for an eighth consecutive year in FY18 to 796,716. While the Navy, Marine Corps, and Air Force reserves have experienced small fluctuations in recent years (both growth and decline), the Army has experienced consistent declines in RC endstrength resulting in a decrease in total RC endstrength across DOD. Although the AC has few prior-service (PS) enlisted accessions, many RC enlisted gains are PS personnel. In FY18, over 39 percent of RC enlisted gains were PS personnel (refer back to Table 2).[31]

In terms of relative size, about two-thirds of DOD RC endstrength resides in the Army's RC (ARNG and USAR). The Air Force, Navy, and Marine Corps make up the remaining one-third. More than half—55.6 percent—of DOD RC endstrength is in National Guard units. The ARNG is by far the largest reserve element, with 42.1 percent of DOD RC personnel. The smallest reserve element is the USMCR, with less than 5 percent of all DOD RC personnel.[32] Figure 27 shows the historical distribution of DOD RC endstrength (enlisted personnel plus commissioned and warrant officers) across the six service reserve elements.

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[31] RC accession data from DMDC are available only as gains—that is, the addition of a record that was not in the previous FY file.

[32] If one broadens the definition of RC to include the Coast Guard, the Coast Guard's RC of 6,126 is the smallest component.

Figure 26. RC endstrength, by service, FY97–FY18
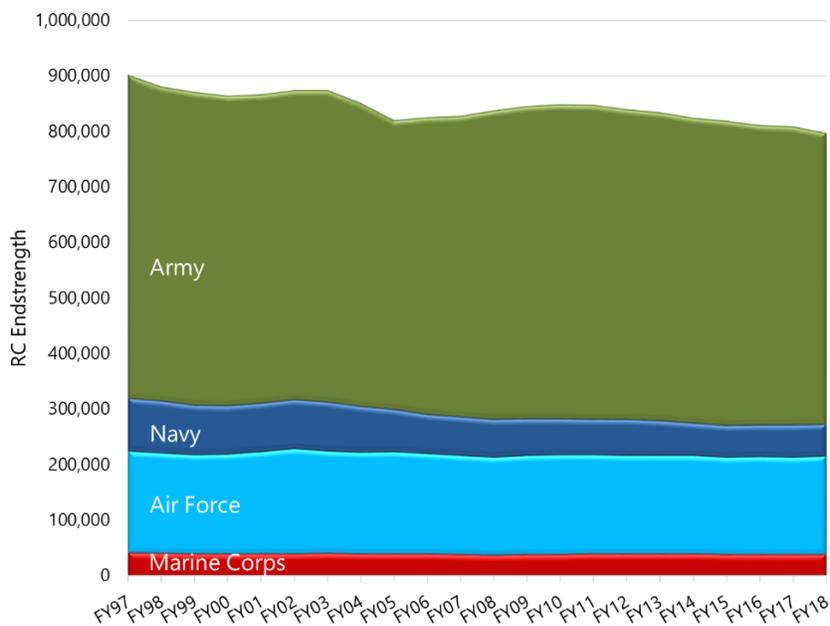
Source: Table D-39.

Figure 27. RC percentages, by service reserve element, FY97–FY18
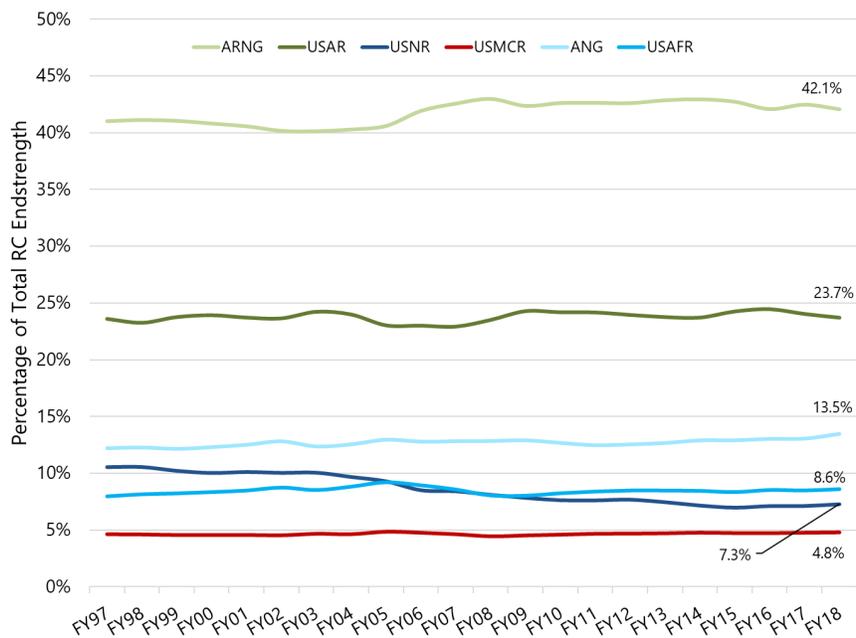
Source: Tables D-20 and D-21.

Comparisons of RC and AC demographic characteristics

Members' age

There are large differences in the age distribution of AC and RC enlisted members. The left panel of Figure 28 shows enlisted personnel, and the right shows commissioned officers. The bars extending to the left side of each panel illustrate the AC age distribution, while the right side shows the RC distribution. Looking first at enlisted personnel, it is clear that the AC enlisted force is younger than the RC enlisted: almost 10 percent of enlisted reservists are 45 years old or older, while the percentage for the AC enlisted force is under 2 percent. The differences for officers are equally dramatic; while 28 percent of RC officers are age 45 or older, the comparable percentage in the AC is only 13 percent.

Figure 28. DOD AC and RC age distributions, enlisted and officers, FY18
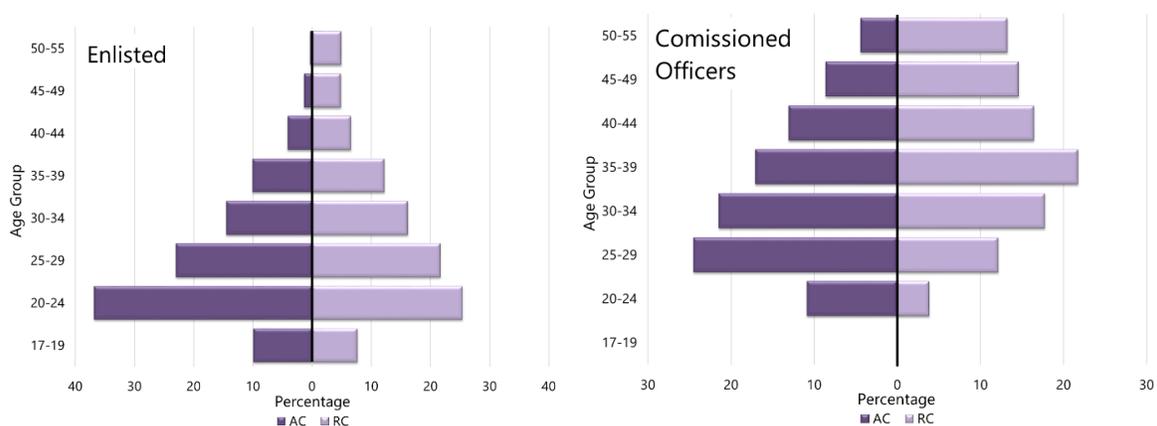
Source: Tables B-15, C-11, B-22, and C-17.

Quality of NPS enlisted gains

As in the AC, RC gains are mostly those with Tier 1 education credentials and AFQT scores at or above the 50th percentile. In FY18, the RC had a slightly smaller proportion of Tier 1 enlisted gains than the AC; 96.0 percent of RC enlisted gains were Tier 1 compared with 97.4 percent of NPS AC enlisted accessions. Overall, 66.0 percent of all NPS RC enlisted gains had AFQT scores at or above the 50th percentile in FY18, compared with 71.1 percent of NPS AC accessions.

Table 8 shows the percentage of RC NPS gains who held Tier 1 education credentials and had AFQT scores in the 50th percentile or higher in FY18. For all of the reserve and guard components, over 90 percent of NPS enlisted gains were classified as Tier 1, and over 60 percent scored at or above the 50th percentile on the AFQT. As in FY17, the Air Force's reserve and guard components had the highest percentages of Tier 1 and high AFQT-scoring NPS enlisted gains; the Navy had the lowest.

Table 8.   Quality of RC NPS enlisted gains, FY18

Quality measure	ARNG	USAR	USNR	USMCR	ANG	USAFR	DOD
Tier 1	95.8	94.6	90.6	96.3	99.6	99.5	96.0
AFQT 50+	63.1	63.5	62.4	74.0	75.2	76.9	66.0

Source: Tables C-4 and C-6.

Married rates, gender, race, and ethnicity

Married rates

There are some notable differences in married rates between RC and AC personnel. Overall, despite RC personnel being generally older than their AC counterparts, RC personnel are less likely to be married than AC personnel, and their age-specific married rates are closer to those of civilians than to AC personnel (within age and gender groups in Table 9 we bold categories with the highest married rates).

Table 9.   Percentage of married AC and RC enlisted personnel, with civilian comparisons by single years of age, FY18

	Enlisted men			Enlisted women		
Age	AC	RC	Civilian	AC	RC	Civilian
20	**13.3**	1.9	2.8	**22.8**	4.3	6.0
25	**48.4**	22.0	18.8	**47.7**	24.1	22.4
30	**72.1**	51.0	43.5	**57.6**	43.0	47.9
35	**83.3**	68.5	61.7	**62.9**	53.4	57.8
40	**86.8**	75.4	69.3	60.6	54.7	**61.6**

Source: Tables B-16 and C-12.
Note: The civilian data are for the civilian labor force age 17 to 55 and are from the Bureau of Labor Statistics' Current Population Survey, September 2015.

The most striking differences are at younger ages. For example, at age 20, both AC enlisted men and AC enlisted women were 3 to 7 times more likely than reservists or the civilian benchmark to be married. Even at older ages, AC enlisted men are more likely than RC enlisted men to be married, and RC enlisted men are more likely than comparable civilians to be married. The

ordering of age-specific married rates from highest to lowest depends on age. At age 20, the order is AC, civilians, and RC for both men and women. For men ages 25 and older, the order is AC, RC, and civilians. As in previous years, the RC marriage rates are lower than civilian rates for women age 30 and older.

Gender

Like the AC, the RC strives for a diverse force. For enlisted personnel and officers, the RC has a higher percentage of female personnel than the AC. In FY18, the RC enlisted force was 20.1 percent female, while the AC enlisted force was 16.2 percent female. Within the RC's enlisted forces, the percentage of women varied from a high of 27.1 percent for the USAFR to a low 3.5 percent for the USMCR. For commissioned officers, the AC was 18.7 percent female, whereas the RC was 20.5 percent female, and the percentages varied from a high of 27.0 percent in the USAFR to a low of 7.5 percent in the USMCR.[33]

Race and ethnicity

In FY18, the AC enlisted force was more racially diverse than the RC enlisted force, but AC and RC commissioned officer comparisons show roughly equal racial and ethnic diversity (see Table 10).[34] The civilian comparison group for commissioned officers includes only college graduates. Both RC and AC commissioned officer percentages for blacks are close to the civilian benchmark. However, Asians and Hispanics are underrepresented in both the enlisted and officer populations of the RC. This underrepresentation of Asian and Hispanic servicemembers is also seen in the AC.

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[33] See Tables B-16 and C-11 for enlisted personnel and Tables B-23 and C-18 for commissioned officers.

[34] Unknown racial and ethnic backgrounds are distributed the same way as the known racial and ethnic backgrounds.

Table 10. AC and RC race and ethnicity percentage distributions for enlisted personnel and commissioned officers, FY18

Race/ethnicity	Enlisted personnel			Commissioned officers		
	AC	RC	Civilians	AC	RC	Civilians
Race						
White	69.9	74.4	76.2	82.1	82.5	76.5
Black	19.6	18.0	13.4	8.7	10.1	10.2
Asian	4.5	4.3	6.5	5.8	4.8	11.0
Other	6.0	3.3	3.8	3.4	2.7	2.3
Ethnicity						
Hispanic	18.8	14.8	19.4	8.3	7.2	9.4

Source: Tables C-13, C-20, B-17, and B-25. We used the portion of the source tables that distributed unknown race and ethnicities as known race and ethnicities.

Note: The racial category "other" includes American Indian/Alaska Native, Native Hawaiian/Pacific Islander, and two or more races. The civilian data include the 18-to-55-year-old civilian labor force for enlisted personnel and 21-to-59-year-old civilian college graduates for commissioned officers.

Section V:
US Coast Guard

Table 11 shows the breakdown of the Coast Guard's FY18 AC and RC endstrength. Overall, the Coast Guard is less than one-fourth the size of the Marine Corps, making it the smallest of the five armed services. Part of the Department of Homeland Security (DHS) in peacetime, the Coast Guard may be called in wartime to join the Navy and, therefore, would fall under DOD jurisdiction.[35]

Table 11.   Coast Guard endstrength, FY18

Personnel category	AC	RC
Enlisted personnel	32,755	5,097
Commissioned officers	6,646	921
Warrant officers	1,731	108
Total	**41,132**	**6,126**

Source: Tables E-12, E-15, E-19, E-24, E-26, and E-29.

Number and quality of AC NPS enlisted accessions

The number of US Coast Guard accessions has experienced greater year-to-year fluctuations in percentage terms than the DOD services (see Figure 29). NPS accessions were around 3,500 yearly from FY05 to FY09. Since FY10, NPS accessions have decreased (FY10), increased (FY11), and decreased again (FY12 and FY13), before increasing to their pre-FY10 levels, reaching 3,308 in FY18. The US Coast Guard's 114 PS accessions in FY18 accounted for just over 3 percent of total accessions.

Like the DOD services, the US Coast Guard seeks high-quality recruits—those with AFQT scores at or above the 50th percentile and Tier 1 educational credentials. And, like the other services, the Coast Guard had a successful recruiting year in FY18. Figure 30 illustrates this, comparing US Coast Guard recruiting achievement with the DOD AC services. Nearly 80 percent of US Coast Guard enlisted recruits scored in the top half of the AFQT distribution, and 98 percent had Tier 1 educational credentials. The US Coast Guard, Navy, and the Air Force had the highest percentages of high-quality recruits in FY18.

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[35] Title 14 of the United States Code governs the process by which authority over the Coast Guard may be transferred to DOD in wartime.

Figure 29. Coast Guard AC NPS and PS accessions, FY05–FY18
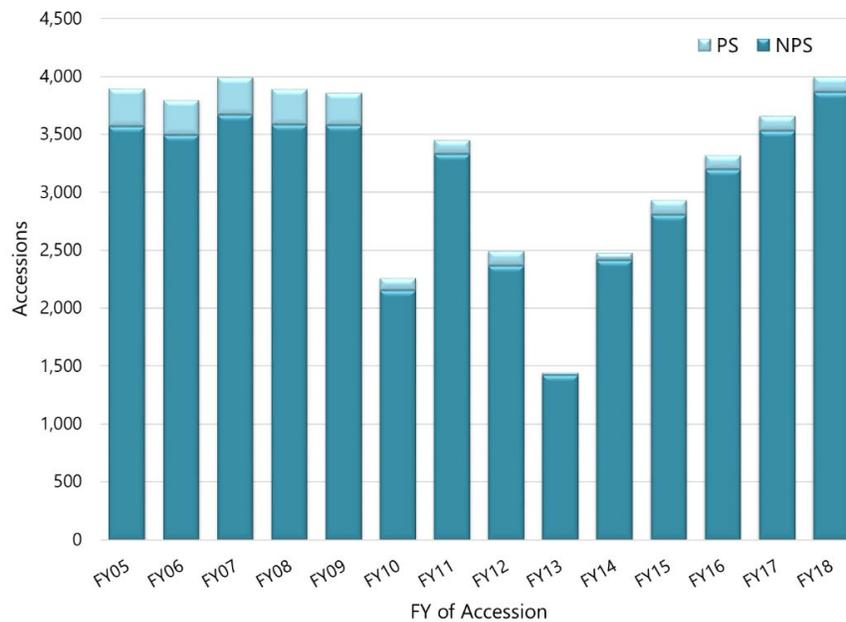
Source: Table E-7 and E-11.

Figure 30. Quality of AC NPS enlisted accessions, by service, FY18
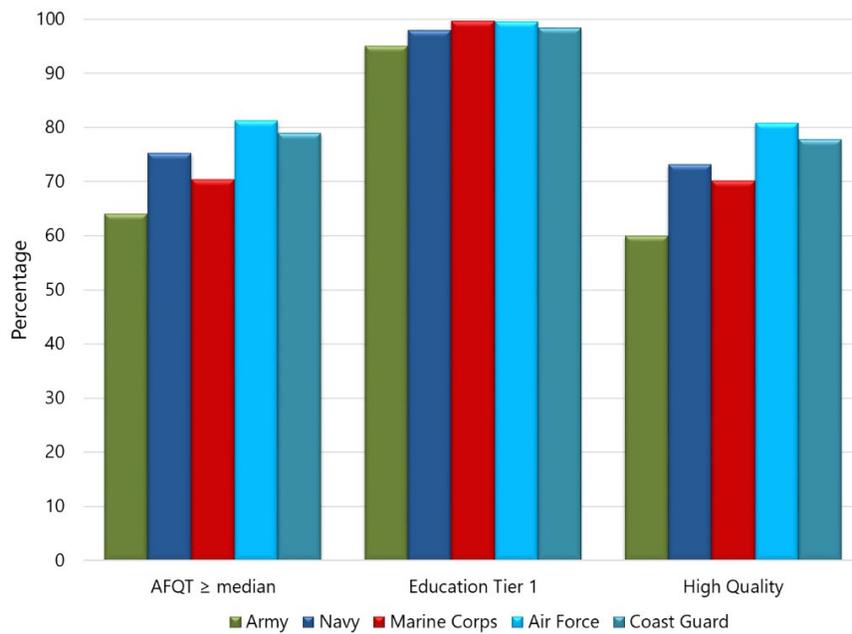
Source: Tables B-4, B-6, B-8, E-7, E-8, and E-9.

Gender, Race, and Ethnicity in the US Coast Guard

In FY18, the Coast Guard's percentage of female officer gains (31.0 percent) led DOD's (22.8 percent), but its percentage of NPS female enlisted accessions (12.9 percent) was less than DOD's (18.8 percent). The US Coast Guard has a larger percentage of women in the officer corps (23.0 percent) than in the enlisted force (13.1 percent). This is similar to differences found in the AC Army, Navy, and Air Force, but it differs from the Marine Corps in which the percentages of women in the AC enlisted force and the AC officer corps were similar.

The DOD RC has a higher percentage of women in both the enlisted force and the officer corps than does the DOD AC. That pattern continues in the US Coast Guard, with women constituting 16.2 percent of RC enlisted members (compared to 13.1 percent in the AC) and 24.4 percent of RC commissioned officers (compared to 23.0 percent in the AC).

Compared to the civilian population, white non-Hispanics are overrepresented in the US Coast Guard's AC NPS enlisted accessions and commissioned officer gains, as well as in the Coast Guard's enlisted and commissioned officer corps.[36]

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[36] We distribute those who did not affiliate with a particular race or ethnicity in a similar way to those with known racial and ethnic backgrounds.

Section VI:
Conclusion

As mandated by Congress, DOD has provided the *Population Representation in the Military Services (PopRep)* report on the demographic and service-related characteristics of US military personnel every year since 1974. Though AC endstrength fell consistently from FY10 to FY16, the past two years have shown consecutive growth. In FY18, there were more than 1.3 million military personnel in DOD's AC and about 797,000 in its RC. The Army is the largest of DOD's military services, with a total endstrength of nearly 1 million, distributed approximately equally between the AC and RC. The Marine Corps is the smallest DOD service, with a total endstrength of almost 224,000 (around 83 percent of whom are in the AC). The US Coast Guard is the smallest of the US armed services with an FY18 total endstrength of over 47,000 (87 percent of whom are in the AC).

FY18 was the tenth consecutive year that female representation grew among DOD enlisted members, and the eleventh consecutive year that it grew among DOD officers. Female representation reached its highest level ever in the history of the US armed services, rising to 16.2 percent among enlisted members and 18.7 percent among officers.

The US military continued to exceed the DOD recruit quality benchmarks of 90 percent Tier 1 educational credentials and 60 percent with AFQT scores at or above the 50th percentile. Overall, 96 percent of AC enlisted accessions held Tier 1 education credentials and 71 percent had AFQT scores at or above the 50th percentile. This comes despite a continued fall in some services in the number of accessions who are high quality—meaning they hold at least a high school degree *and* scored at or above the 50th percentile on the AFQT. The percentage of AC accessions deemed high quality fell for a third and seventh consecutive year in the Navy and Air Force, respectively.

The share of DOD NPS AC accessions coming from the South increased for a tenth straight year. Accessions from the Midwest are underrepresented, and those from the Northeast are even more underrepresented, providing a smaller percentage of accessions than their general population shares would indicate. The percentage of AC accessions originating from the South surpassed 45 percent for the first time.

RC endstrength fell in FY18 for the eighth consecutive year. The share of NPS gains with an AFQT score above 50 increased in the Army National Guard, the US Army Reserves, and the US Navy Reserves. Most notably, the percentage of gains with AFQT over 50 increased by over 10 percent in the US Navy Reserve, from 52 percent to 62.4 percent.

The US Coast Guard had a sixth consecutive year of increases in accessions, reaching about 4,000 for FY18, its highest level since FY07. Almost 80 percent of Coast Guard AC NPS accessions were considered high quality, higher than any of the services except the Air Force.

Figures

Tables

Abbreviations

AC	active component
ACS	American Community Survey
AFQT	Armed Forces Qualification Test
ANG	Air National Guard
ARNG	Army National Guard
AVF	All-Volunteer Force
DHS	Department of Homeland Security
DMDC	Defense Manpower Data Center
DOD	Department of Defense
FY	fiscal year
MEPS	Military Entrance Processing Station
NPS	non-prior-service
OMB	Office of Management and Budget
PopRep	Population Representation
PS	prior-service
RC	reserve component
USAFR	US Air Force Reserve
USAR	US Army Reserve
USMCR	US Marine Corps Reserve
USNR	US Navy Reserve

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