The Qualified Candidate Population: Estimating the Nation's Eligible Population for Marine Corps Officer Service

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Photography Credit: Marine Corps Base Camp Pendleton, CA - United States Marine Corps officer candidates from Orange County, Los Angeles and San Diego complete an obstacle course during Officer Candidate School Prep aboard the installation April 11. OCS Prep is a three-day event modeled to help candidates prepare for the mental and physical challenges of OCS. (U.S. Marine Corps photo by Sgt Vanessa Jimenez)

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Abstract

Over the past several years, the Department of Defense has asked the services to pursue expanded opportunities for women in the military. To support this effort, the Marine Corps started a deliberate and measured effort to examine the possible integration of women into ground combat units and military occupational specialties (MOSs): the Marine Corps Force Integration Plan (MCFIP). As the Corps considers expanding opportunities for women, it asked CNA to assist in identifying concentrations of women who are likely to qualify for service in the Marine Corps' officer corps. In this report, we provide school-level and county-level estimates of the Qualified Candidate Population (QCP) separately for all racial/ethnic and gender subpopulations. We find that QCP continues to be highly concentrated and that the female QCP tends to be in the same locations as the male QCP.

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Executive Summary

Background

Over the past several years, the Department of Defense has asked the services to pursue expanded opportunities for women in the military. To support this effort, the Marine Corps started a deliberate and measured effort to examine the possible integration of women into ground combat units and military occupational specialties (MOSs): the Marine Corps Force Integration Plan (MCFIP). As the Corps considers expanding opportunities for women, it asked CNA to assist in identifying concentrations of women who are likely to qualify for service in the Marine Corps' officer corps. This will be particularly important if female officer missions increase in the future. In that vein, the Director, Marine Corps Force Innovation Office (MCFIO) asked CNA to estimate the size and location of potential officer candidate pools, with a greater focus on the female population than has historically been the case. In this report, we characterize the population (in terms of size, location, gender, and racial/ethnic identity) eligible for service in the United States Marine Corps (USMC) officer corps.

Approach

We estimate the Qualified Candidate Population (QCP), defined as the number of college graduates who meet the USMC's test score requirements, per college or university (broadly termed "schools" and most appropriate for establishing Platoon Leaders Class (PLC) missions) and per county (most appropriate for establishing Officer Candidate Course (OCC) missions). These estimates are provided separately for all subpopulations defined by race/ethnicity and gender, allowing Marine Corps Recruiting Command (MCRC) to identify those schools and counties that, for example, have high concentrations of qualified black men or qualified Hispanic women. In addition to this standard definition of QCP, we estimate a few modified versions. Namely, we estimate a medically qualified QCP and a medically qualified and propensed QCP; the former takes into account disqualification due to average obesity and diabetes rates and the latter adjusts for these medical disqualifications as well as propensity to serve. These refinements are meant simply to provide MCRC and the USMC with different options to consider as they position Officer Selection

Officers (OSOs), adjust OSO missions, and determine particular schools or areas of the country to target.

We emphasize that our estimates of QCPs are strictly that—*estimates*—because we are limited by the available data in accounting for population sizes and characteristics, disqualification rates, and propensity for service. There are several reasons why a person might not be eligible for USMC officer service, only some of which are tracked in publicly available datasets. All Marine Corps officers must have attained a college degree and scored at least 1000 on the Math and Verbal portions of the SAT, or its equivalent on the American College Test (ACT).[1] These data are available. There are other reasons, however, besides lacking a college degree or having insufficient test scores that a person might not qualify for officer service in the USMC, including drug use history, mental health history, credit problems, and tattoos. Data that would allow us to further reduce our QCP estimates for these disqualification reasons simply do not exist. Thus, in this sense, our unadjusted QCP and medically adjusted QCP estimates may be higher than the actual qualified population. Conversely, our medically qualified and propensed QCP estimates may be *under*estimates of the actual population. This is because some of those who indicate that they have no propensity for military service may, in fact, be misinformed or uninformed about what service entails. In such cases, OSOs can provide the missing information, perhaps causing those with no predilection for service to suddenly consider it.

Findings

We find, as we have found for men in previous years, that QCP is highly concentrated, for both men and women. For example, the top 1 percent of schools in terms of unadjusted female QCP—15 schools—comprise 10 percent of the nation's total unadjusted female QCP. This is due to a combination of these schools' larger sizes and higher test score qualification rates. The high-QCP schools continue to be large, quite competitive, and mostly public. There has been little change over time in the schools that contain the greatest number of the nation's qualified youth.

Our findings regarding both the school-level QCP and county-level QCP indicate that a significant change in OSOs' recruiting strategies, in terms of *where* they recruit, will not be necessary in response to any increases in female officer missions. With a few exceptions, the schools with the highest female QCPs also are among those with the

[1] Although potential officer candidates can qualify for officer service based on their AFQT score, no data are available on the AFQT scores of colleges' enrolled students (likely because most students have not taken it).

highest male QCPs, suggesting that OSOs likely will be able to meet their female missions at the same schools that they are currently targeting for their predominantly male missions. We find that the same is true regarding the location of male and female age-qualified college graduates; those counties that are rich pools for finding qualified men are also rich pools for qualified women. This suggests that increasing the number of female officer candidates might be a matter of changing how an OSO allocates his or her time at a particular school or in a particular locality rather than a change in the schools or localities targeted.

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Glossary

ACS	American Community Survey
ACT	American College Test
BRFSS	Behavioral Risk Factor Surveillance Survey
ERR	Eastern Recruiting Region
IPEDS	Integrated Postsecondary Education Database System
JAMRS	Joint Advertising Market Research and Studies
MCFIO	Marine Corps Force Innovation Office
MCFIP	Marine Corps Force Integration Plan
MCRC	Marine Corps Recruiting Command
MOS	Military Occupational Specialty
OCC	Officer Candidate Course
OSO	Officer Selection Officer
PLC	Platoon Leaders Class
PUMS	Public Use Microdata Sample
QCP	Qualified Candidate Population
SAT	Scholastic Assessment Test (now referred to as simply "SAT")
USMC	United States Marine Corps
WRR	Western Recruiting Region

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Introduction

Over the past several years, the Department of Defense has asked the services to investigate their ability to expand opportunities for women in the military. In support of this initiative, the Marine Corps started a deliberate and measured effort to integrate female Marines into ground combat units and military occupational specialties (MOSs). More recently, the Secretary of Defense rescinded the 1994 Direct Ground Combat Definition and Assignment Rule, making the Service Chiefs responsible for justifying whether any MOSs/billets should remain closed to women. This decision accelerated the Marine Corps' plans to expand opportunities available to female Marines and resulted in the development of the Marine Corps Force Integration Plan (MCFIP), introduced in April 2014. The overall MCFIP objective is to "achieve integration of female Marines into previously closed units and occupational fields by 1 January 2016 as directed by the Secretary of Defense" ([1], p. 1).

This change in policy may affect how Marine Corps Recruiting Command's (MCRC's) Officer Selection Officers (OSOs) and their corresponding recruiting missions are allocated. Currently, MCRC assigns mission based only on the male qualified candidate population (QCP). The QCP is CNA's estimate of the number of men and women who are eligible for service in the Marine Corps' officer corps, based on college graduation rates and standardized test scores.

If greater emphasis is placed on female officer accessions than has historically been the case, however, the female QCP may need to become part of the mission allocation process. In this vein, and as part of a larger MCFIP support effort, the Director of the Marine Corps Force Innovation Office asked CNA to develop updated QCP estimates to potentially ease the Marine Corps' search for qualified female officer candidates, should recruiting missions change. MCRC can use our QCP estimates to determine whether any OSO reallocations may be necessary in order to effectively select more female officer candidates. That is, the QCP estimates provided in this report are intended to serve as an input into MCRC's mission allocation and OSO assignment decisions.

CNA has conducted similar, comprehensive studies in the past, and each has had a slightly different focus. In 2001, QCP was defined as the "test-score qualified, male college graduate population" ([2], p. 1). MCRC used these estimates to assign mission to its OSOs across the nation. CNA then provided updates of these estimates in 2005 and 2006 [3-4]. In 2011, at MCRC's request, CNA provided estimates for *all* test-score-qualified college attendees (separately for men and women), adjusting those estimates to account for some medically disqualifying conditions (namely, obesity and diabetes) and the inclination of young people to join the military [5]. It also estimated the size of the older college graduate population (ages 25-29) who would still qualify for service.

This analysis updates that work and extends it in the following ways:

1. We focus on women more than race/ethnicity. As a result of the MCFIP, the way that OSO missions are allocated may change based on the distribution of potential female officer candidates.

2. We apply the medically qualified and propensity-qualified restrictions to the county-level data for college graduate QCP, as we have previously done with the school-level QCP.

We emphasize that our QCP estimates are, in fact, only *estimates*. There are a number of disqualifiers that we cannot take into account because they are not captured by the data (tattoos, credit problems, etc.). Our QCP estimates only take into account those qualifications for which reasonable data exist.

The remainder of this document is organized as follows. In the next section, we discuss our data sources and methodology for both the school-level QCP (most relevant for establishing Platoon Leaders Course (PLC) missions) and the college graduate QCP (most relevant for establishing Officer Candidate Course (OCC) missions). We then present the school-level QCP estimates, separately for women and men, and by racial/ethnic group-gender combinations (e.g., Hispanic women). We first provide our estimates of the "unadjusted QCP" (which takes only test scores and college completion rates into account), followed by the "medically qualified QCP" (which accounts for disqualification due to obesity and/or diabetes), and finally the "medically qualified and propensed QCP" (which also accounts for propensity to serve). We provide these three separate QCP measures—unadjusted, medically qualified, and medically qualified and propensed—for both the school-level QCP (those who have not yet graduated and can be found at colleges and universities) and the county-level, college-graduate QCP.[2] In the final section, we conclude.

[2] The "unadjusted QCP" metric is based on test scores and completion rates for the college-attending population, but it is based only on having completed a bachelor's degree for the county-level, college-graduate QCP.

QCP: Data Sources and Methodology

In this section, we discuss our data sources and methodology. We estimate two separate types of QCP, and we review each in turn. The first is a school-level QCP that provides, by race and gender, a QCP for each college or university (loosely termed "school" in what follows) that meets our criteria (discussed below). The second is a county-level QCP (again by race and gender) that provides county-level counts of the number of age-qualified college graduates. Thus, the former is a "flow" measure—indicating how many test-score-qualified and age-qualified students graduate from a particular school each year; the latter is a "stock" measure, capturing the total number of age-qualified college graduates that reside in a given county. For each QCP, we also compute a medically qualified version and a medically qualified and propensed version. In this section, we discuss our data sources and our methodology for generating each of these QCPs.

School-level QCP

In this subsection, we review the data sources used to estimate the school-level QCP. In the next subsection, we will review the data used to estimate the county-level counts of qualified college graduates.

Data sources

There are four separate data sources for our school-level QCP calculations: (1) the Integrated Postsecondary Education Database (IPEDS), (2) Barron's Profile of American Colleges, (3) Joint Advertising Market Research & Studies (JAMRS) propensity data, and (4) Behavioral Risk Factor Surveillance System (BRFSS). We now discuss each source and how we use its data.

IPEDS

The National Center for Education Statistics, housed within the U.S. Department of Education, maintains a self-reported database of all higher learning institutions that receive federal student financial aid. This database, IPEDS, provides enrollment, graduation, and test score data, among other information. We restrict our IPEDS sample to degree-granting schools located *within* the United States that have enrolled freshmen and are neither distance learning nor specialty institutions.[3] From IPEDS, we obtain each school's enrollment and graduation data, as well as the 25th and 75th percentiles of test scores in 2012.[4] In addition, the IPEDS enrollment file provides the percentage of students who attend school full-time and the percentage of students who attend school part-time; we restrict our sample to schools where at least 50 percent of the student body attends full-time. Enrollment and completion data are provided separately by gender and racial/ethnic categories. We know, for example, how many black women are enrolled and/or have graduated from a specific institution. Unfortunately, test score data are not available in as much detail—that is, they are provided for the school's population as a whole, but not by demographic subgroup. As previously mentioned, IPEDS provides the 25th (and 75th) percentiles for the SAT and American College Test (ACT) components—this informs us of the test scores below which 25 percent (and 75 percent) of the schools' populations score. The IPEDS data provide us with one additional, important piece of information: the percentage of enrolled students who took the SAT versus the ACT in high school. We use this to determine whether we use the SAT or ACT data for each school.[5]

Barron's Profile of American Colleges

Our second source of institution-level data is the 2013 Barron's Profile of American Colleges [6]. For all accredited four-year schools in the United States, it reports a breakdown of the test score distributions (for 2011–2012 school-year admissions) as well as a competitiveness rating, among other information. Barron's provides a more accurate breakdown of test score ranges than the percentiles provided by IPEDS. In addition to providing median test scores, Barron's also divides the test score distribution into ranges and provides the percentage of admitted students who scored in each of those ranges (see Table 1).

[3] We exclude distance learning institutions because these students are generally not located in a central geographic area where recruiters could locate them. We exclude specialty schools (e.g., culinary, seminary) that are unlikely to be productive sources of officer candidates.

[4] CNA had previously restricted its sample to schools with total enrollment of at least 400 full-time students. At MCRC's request, we no longer make such enrollment restrictions.

[5] See the methodology section for a more in-depth discussion of how these data elements are used.

Table 1. Available Barron's test score data ranges

ACT	SAT[a]
Below 21	Below 500
21-23	500-599
24-26	600-700
27-28	Above 700
Above 28	

Source: Barron's Profile of American Colleges [6].

[a.] Barron's reports the distribution of all three components of the SAT (Critical Reading, Mathematics, and Writing) using the same test score ranges. For the ACT, the composite score is reported.

This breakdown allows us to more accurately estimate what portion of the student population is potentially test score qualified for Marine Corps officer service. For example, for the SAT Mathematics section, we know what percentage of students score over 500. This, together with the percentage that scores over 500 on the Critical Reading section, provides us with a reasonable estimate of the percentage scoring over 1000 on these two sections combined. Specifically, we use the minimum of these two percentages at a given school as an estimate of the percentage of students who scored 1000 or higher on the two components combined. This likely results in an underestimate of the qualified population—college students, for example, who scored 485 on the Math section and 525 on the Critical Reading section would not be counted among our estimate of the qualified population, but would in fact be qualified, since the total score is greater than 1,000. We chose to use a methodology that underestimates the true population, rather than potentially overestimating it.

JAMRS propensity data

The Joint Advertising Market Research and Studies (JAMRS) group has provided the data needed to make propensity adjustments. Specifically, JAMRS provided individual-level data from December 2010 through June 2014 (waves 20 through 28), containing the necessary variables for us to construct U.S. census division propensity metrics, by gender, race/ethnicity, and age group. This data pull was restricted to U.S. citizens who were either attending college at the time of the JAMRS survey or were college graduates—that is, the population eligible for officer service. The specific survey question of interest is that which asks, "How likely is it that you will be serving in the next few years?" Possible responses include "definitely," "probably,"

"probably not," and "definitely not."[6] We use these responses, together with findings from previous studies regarding the probability that people who provide each of these responses ultimately join the military ([7], [8]), to generate propensity-to-enlist "conversion factors" for each gender-race/ethnicity subgroup. Unfortunately, propensity-to-enlistment conversion rates are not available by race/ethnicity and gender. The 2009 report provides them separately by gender; the 2014 report provides them separately by race/ethnicity. We use the 2014 race/ethnicity-specific conversion rates and multiply them by the 2009 ratio of female-to-male conversion rates (for women). Note that the conversion factors we are taking from the literature are for enlisted propensities; it is possible that these factors would differ, within demographic subgroups, for the college-graduate/officer population. No studies exist, however, evaluating the translation of officer corps propensity to actually becoming a commissioned officer. Our step-by-step process for generating census-division-specific propensity factors follows:

1. Calculate, for each demographic subgroup in a census division, the percentage replying "definitely," "probably," "probably not," and "definitely not" to the question, "How likely is it that you will be serving in the next few years?"[7]

2. Calculate, for each demographic subgroup in a census division, the percentage of those in each response category who ultimately enlist, using the racial/ethnic and gender conversion factors.

3. Multiply the percentages derived in step 1 by those derived in step 2, within a response category, demographic subgroup, and census division. This gives us the percentage of a qualified population that we can expect, based on these estimates and assumptions, to join the military.

BRFSS medical data (obesity and diabetes)

The data used to make our medical restrictions comes from the Behavioral Risk Factor Surveillance System, a survey administered by the Centers for Disease Control. We use the calendar year 2013 version of these data because they are the most

[6] Note that the JAMRS propensity we use is the propensity to serve in *any* of the military services, not necessarily the Marine Corps. MCRC has previously suggested that we use this broader definition of propensity, since it considers it OSOs' responsibilities to convince those with any propensity for military service that the Marine Corps is the most desirable service to join. Since many of those youth answering the replying to the JAMRS survey have not had a conversation with a Marine Corps OSO, they may have incomplete information on which to base their Marine Corps-specific response.

[7] We use the probability weights provided by JAMRS to construct these averages.

recent.[8] We are interested in two particular characteristics reported in this dataset: whether a person is obese and/or diabetic. We consider anyone who is obese or diabetic to be medically disqualified for Marine Corps officer service. We account for these two particular medical conditions since those who are obese or diabetic will, undoubtedly, be disqualified for service. For other medical conditions, the severity of the condition determines whether a person is disqualified, and we are therefore not able to translate the prevalence of a medical condition into the prevalence of disqualification. After restricting our BRFSS sample to those who are attending college or have a college degree, we generate national medical disqualification rates—by gender, race/ethnicity, education, and age. We attempted to generate these rates at the census division level, as we did for propensity, but the resulting sample sizes in many demographic subgroups were too small for analysis. Thus, for the QCP that includes race-gender breakouts, the BRFSS rates we used are national rates. We were, however, able to use data at the census level for the gender-only QCP.

Our final data sample

To recap, schools that are included in our QCP estimates are those that:

- Have less than 50 percent of their student body in part-time status
- Are not specialty schools
- Are not distance-learning schools
- Have one of the three possible quality metrics—test score distributions, median test score values, or the school's competitiveness rating—in their data (otherwise, we cannot calculate QCP)
- Have enrollment and completion/graduation data
- Grant degrees
- Are four-year, nonprofit institutions, whether public or private

These restrictions leave us with a sample of 1,489 schools. A fair number of schools are excluded,[9] but a vast majority of students are still included after making our restrictions. Specifically, our sample of 1,489 institutions includes 75 percent of total enrolled full-time students and 93 percent of baccalaureate graduates.

[8] These data can be downloaded here: http://www.cdc.gov/brfss/annual_data/annual_2013.html.

[9] These include community colleges and specialty schools.

Methodology

We use a methodology similar to that used in previous CNA reports [2-5]. Primarily, estimating QCP involves multiplying estimates of the percentage of test-score-qualified graduates at a given institution by the number of graduates, by gender and racial/ethnic group. Being test score qualified is defined on the basis of the Marine Corps' requirements; namely, officer candidates must have a combined SAT Critical Reading/Math score of at least 1000, an ACT composite score of 22, or a combined Math/English ACT score of 45 [9]. That is, for schools that meet our inclusion criteria, we take the number of college graduates, multiply that by the percentage of all graduates at that school who meet at least one of these test score requirements, and arrive at an estimated QCP.

There is one important and unfortunate caveat in this process; the test score qualification rates provided by Barron's and IPEDS are not available by demographic subgroup. Thus, we have an average test score qualification rate for all graduates from a particular institution, which we apply equally to the number of black female graduates, the number of white male graduates, the number of Hispanic male graduates, and so on. We recognize that test score qualification rates will, in reality, vary across these subgroups, but the data necessary for such subgroup-specific calculations simply do not exist.[10]

As an example, consider the black female QCP at Temple University. Table 2 shows how we arrived at this QCP estimate. The IPEDS data inform us that there were 544 black female graduates from Temple University. The Barron's data indicate that—of all enrolled students at Temple University—77 percent of them score 500 or higher on the Critical Reading section of the SAT, and 83 percent score 500 or higher on the SAT Math section. Thus, our test score qualification rate for this school (for all demographic subgroups) is 77 percent, since we use the minimum of the two test score percentages. Multiplying 0.77 by 544 yields a QCP estimate of 418.

[10] For a more complete discussion of how we arrive at our test score qualification rates, see Appendix A.

Table 2. Estimating black female QCP at Temple University

Black female graduates	Percentage scoring 500+ on SAT Critical Reading	Percentage scoring 500+ on SAT Math	Test score qualification rate	QCP estimate
544	77	83	77	418

Source: CNA estimations using Barron's and IPEDS data.

County-level, college-graduate QCP

The main difference between the in-college (Platoon Leaders Class (PLC)) and college graduate (Officer Candidate Course (OCC)) markets lies in when candidates are recruited. While PLCers affiliate with the Marine Corps while they are still in college, OCCers have already completed their college degrees. Thus, these people are not found on college campuses. Our school-level QCP estimates, based on test score qualification and graduation rates, focus on the PLC market. They also would be applicable to the OCC market if college graduates tended to seek employment and stay in the areas where they attended school. However, this frequently is not the case, especially when unemployment rates are higher in the areas where graduates attended school. In fact, evidence suggests that graduates tend to relocate to large metropolitan areas, where jobs are most plentiful (see, for example, [10] and [11]). While a "flow" measure of QCP is most appropriate for the PLC population (it is important to know, per year, how many qualified candidates will graduate, per school), the potential OCC population is better characterized by a "stock" measure—how many college graduates with qualifying test scores exist in a particular location at a particular time. Unfortunately, test score data do not exist for the entire U.S. population. We are limited, therefore, to estimates of the size of the age-qualified (18-29), college-graduate population, by geographic area (in lieu of the age-qualified and test-score-qualified college-graduate population).

In this subsection, we discuss our data sources and methodology for constructing estimates of the county-level, college-graduate QCP. We use four different datasets to estimate the number of college graduates, by county, gender, and race/ethnicity, and adjust these estimates by medical disqualification rates and propensity.

Data sources

We use the following four datasets:

- County-level data from the American Community Survey (ACS) for 2009-2013 (in particular, data from Table B15001—Sex by Age by Educational Attainment for the Population 18 Years and Over[11])
- Public Use Microdata Sample (PUMS) data from the ACS (we use the 5-year 2009-2013 data)[12]
- JAMRS data (same sample as described in the previous subsection)
- BRFSS data (as described in the previous subsection)

Methodology

Our basic methodology for generating the number of age-qualified college graduates by county, gender, and race/ethnicity is as follows:

1. We start with the ACS county-level estimates of the number of men and women who hold a bachelor's degree or above, broken out by the following ACS-provided age groups: 18-24 and 25-34. These data are imperfect in the sense that they don't contain racial/ethnic breakouts and the 25-34 age group is inappropriate for QCP (since officers in the USMC must commission by age 30). Thus, we supplement these data with subgroup-specific averages from the individual-level data (PUMS file).
2. We use the PUMS data to generate a race distribution, by gender, age group, and education category (bachelor's or graduate degree). This tells us, for example, the percentage of all 18- to 24-year-old bachelor-degree-holding men who are black, Hispanic, etc.
3. We use the PUMS data to determine the percentage of all 25- to 34-year-olds who are 25-29. These averages are calculated by state, gender, race/ethnicity, and education category—e.g., the percentage of white, 25-34, female, graduate-degree holders in Alabama who are 25 to 29. Some states had no observations for particular gender-race/ethnicity-education combinations; in these cases, we applied the national rate for that combination to that state.
4. We apply the race distributions generated in step 2 to the county data (after applying the age reductions to the 25-34 group, from step 3). At this point, we

[11] These data can be downloaded here: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk.

[12] These data are available here: http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t.

have county-level estimates of the number of holders of bachelor's and graduate degrees by gender, race/ethnicity, and age group (18-24, 25-29).

5. We generate the QCP for each county by summing the number of age-qualified bachelor's degree holders and the number of age-qualified graduate degree holders, by gender and racial/ethnic group. This final step produces estimates of black male QCP, black female QCP, and so on, for all counties covered by the ACS.

Making propensity and medical adjustments

We make the same medical and propensity adjustments to these data as we made to the school-level QCP. Specifically, we multiply the county-level numbers of college graduates for a particular demographic subgroup by the percentage of people in that demographic subgroup (and with the same level of education), nationwide, who are either obese or diabetic (or both). After having estimated the medically qualified QCP, we further apply the propensity adjustments, as we did for the school-level QCP, discussed earlier. Although we were able to apply different medical disqualification rates for college attendees and college graduates, this was not possible for the propensity estimates.[13] Thus, the propensity rates were calculated for members of the same gender and racial/ethnic group for all counties within a particular census division, and college graduates and college students were averaged together.

[13] This is because the propensity conversion factors, described earlier and based on the 2009 JAMRS report [7], are for both college graduates and college students; the authors did not provide separate estimates by gender *and* education level.

QCP Results

In this section, we highlight our findings from this QCP update. We begin each subsection by discussing results from the unadjusted QCP (without accounting for propensity or medical disqualifications), followed by the medically adjusted QCP and then the medically and propensity-adjusted QCP. In the first subsection, we review findings on the school-level (college-attending) QCP; in the second, we present the county-level (college-graduate) QCP.

School-level QCP

We begin this subsection with a discussion of district-level QCP—calculated simply by summing the individual schools' QCPs within each district. This exercise provides insights as to whether certain districts are particularly better (or worse) off in their "endowment" of potential officer candidates from the different demographic subgroups. Historically, MCRC has used these numbers to apportion its officer mission across the six districts. The remainder of this subsection presents the top QCP schools for the three QCP measures (unadjusted, medically qualified, medically qualified and propensed), both by racial/ethnic-gender group and by gender group alone.

QCP, by district

Overall, the distribution of QCP across MCRC's six recruiting districts has not changed significantly since our last update in 2011. The total QCP, however, has grown significantly since then. Different factors have contributed to this growth. For example, school completions have increased by 14.4 percent since our last study. In addition, average test scores have increased at a number of schools. We now present district-level QCPs by gender only; these QCPs will be followed by those that are also broken out by race/ethnicity.

In Table 3, we see that there is little difference in the percentage distribution of total QCP, female QCP, or male QCP across the districts. The first district, for example, has roughly 23 percent of each of these QCPs. Similarly, the Eastern Recruiting Region (ERR) has roughly 54 percent of male, female, and total QCP, while the Western Recruiting Region (WRR) has roughly 46 percent of each. We also note that, in all districts, female QCP is larger than male QCP; this is because of women's higher college attendance and graduation rates.

Table 3. Unadjusted district-level QCP, by gender[a]

Recruiting region	District	Total QCP	Per-centage	Female QCP	Per-centage	Male QCP	Per-centage
ERR	E01	235,309	22.8%	131,337	22.7%	103,972	22.9%
	E04	163,554	15.9%	92,345	16.0%	71,209	15.7%
	E06	161,003	15.6%	93,166	16.1%	67,837	15.0%
	Subtotal	559,866	54.3%	316,848	54.8%	243,018	53.6%
WRR	W08	117,463	11.4%	65,038	11.3%	52,425	11.6%
	W09	195,229	18.9%	107,861	18.7%	87,368	19.3%
	W12	158,843	15.4%	88,264	15.3%	70,579	15.6%
	Subtotal	471,535	45.7%	261,163	45.3%	210,372	46.5%
	Total	1,031,401		578,011		453,390	

Source: CNA tabulations of Barron's and IPEDS data.

[a] The percentages may not add to 100 due to rounding errors.

In Table 4, we present the districts' shares of the medically qualified QCP, overall and by gender. Although the raw numbers do fall—since there is, by definition, a smaller medically qualified QCP than unadjusted QCP at each school—there is noticeably little change in the percentage of overall QCP that each district has. Thus, making the medical adjustments results in a reduction of QCP, for all groups, but not a change in the distribution of QCP across districts. This is not surprising, since we use national medical disqualification rates due to sample size restrictions. We note that, in both Table 3 and Table 4, the female QCP is larger than the male QCP. This is due to higher college attendance and graduation rates for women.

Table 4. Medically qualified QCP, by gender[a]

Recruiting region	District	Total QCP	Per-centage	Female QCP	Per-centage	Male QCP	Per-centage
ERR	E01	195,269	22.3%	109,806	22.2%	85,463	22.4%
	E04	139,194	15.9%	78,923	15.9%	60,271	15.8%
	E06	137,955	15.7%	80,181	16.2%	57,774	15.1%
	Subtotal	472,418	53.9%	268,910	54.3%	203,509	53.3%
WRR	W08	101,399	11.6%	56,824	11.5%	44,575	11.7%
	W09	168,872	19.2%	93,940	19.0%	74,932	19.6%
	W12	134,617	15.3%	75,651	15.3%	58,966	15.4%
	Subtotal	404,888	46.1%	226,415	45.8%	178,473	46.7%
	Total	877,306		495,325		381,981	

Source: CNA estimations using Barron's, IPEDS, and BRFSS data.

[a] The percentages may not add to 100 due to rounding errors.

Finally, Table 5 presents the medically qualified and propensed QCP for each district (by gender). In this case, we do see a slight shift in the distribution of QCP across districts (and regions). For example, there is a 1-percentage-point shift of QCP out of WRR and into ERR. The most notable district-level QCP shift occurs in the 1st district for ERR and in the 9th district for WRR. The 1st district's share of national QCP decreases from 22 to 18 percent for women, from 22 to 20 percent for men, and from 22 to 20 percent overall. The 9th district's share of national QCP decreases from 19 to 17 percent for women, from 20 to 18 percent for men, and from 19 to 17 percent for total QCP. The national totals for these QCPs are notably lower than they were in our 2011 report [5]. In particular, the medically qualified and propensed QCP appears to have decreased by roughly 27 percent for men and 38 percent for women. We note, however, that these numbers are not directly comparable, since our methodology for propensity changed between the last study and this effort, largely due to the recent availability of more accurate data.[14] In addition, although the QCP numbers have changed rather substantially since 2011, the districts' and regions' percentage shares of national male and female QCPs have largely stayed the same. Most changes in QCP distribution across districts or regions (between the 2011 study and now) are in the range of only a few percentage points. The two exceptions, for medically qualified and propensed female QCP, are the 1st and 6th districts: the 1st district's share of all medically qualified and propensed QCP decreased from 23 percent in 2011 to 18 percent since 2011; the 6th district's share increased from 16 to 20 percent since 2011.

Table 5. Medically qualified and propensed QCP, by gender[a]

Recruiting region	District	Total QCP	Per-centage	Female QCP	Per-centage	Male QCP	Per-centage
ERR	E01	4,523	19.9%	715	17.7%	3,808	20.3%
	E04	3,918	17.2%	722	17.8%	3,196	17.1%
	E06	4,087	17.9%	797	19.7%	3,290	17.6%
	Subtotal	12,528	55.0%	2,234	55.2%	10,294	55.0%
WRR	W08	2,788	12.2%	485	12.0%	2,303	12.3%
	W09	4,029	17.7%	685	16.9%	3,343	17.9%
	W12	3,428	15.1%	644	15.9%	2,784	14.9%
	Subtotal	10,244	45.0%	1,814	44.8%	8,431	45.1%
	Total	22,772		4,047		18,725	

Source: CNA estimations using Barron's, IPEDS, BRFSS, and JAMRS data.

a. The percentages may not add to 100 due to rounding errors.

14 Specifically, we now have information on how propensity varies by race/ethnicity, which was not available at the time of our previous effort.

Table 6 and Table 7 present the QCP breakdown by gender and racial/ethnic group of unadjusted QCP within each district. In all racial/ethnic categories, the female QCP is larger than the male QCP, again because of women's higher college attendance and graduation rates. As expected, there are significantly more blacks in ERR than WRR, whereas the converse is true for Hispanics and other races. The difference is most drastic, however, for blacks: ERR has roughly 70 percent of the black QCP, whereas WRR has 55 percent of the Hispanic QCP and 56 percent of the "other" QCP.[15] Table 8 and 9 present the corresponding medically qualified QCP. Although each district's numbers decrease, in each category, the overall distribution of QCP is relatively unaffected. Specifically, qualified black men are still predominantly found in ERR; qualified Hispanic men are most concentrated in the 1st, 8th, and 12th districts; and qualified "other" men are largely found in WRR's 12th and ERR's 1st districts. Finally, Tables 10 and 11 present the medically qualified and propensed QCPs. The nationwide QCP for white, black, Hispanic, and "other" men after adjusting for propensity is roughly 4 to 5 percent of the medically adjusted QCP. For women, the medically and propensity-adjusted QCP is 1 percent (or less) of the medically adjusted QCP.

The decrease in population size from incorporating propensity is, in all categories, larger for women than for men. This follows from women's lower propensity. It is important to remember that individual propensity can change; thus, some of those who claim little interest in military service could potentially be swayed by OSOs. Many of these people may, in fact, have little understanding of what service in the officer corps would actually entail, and they might become interested if provided with more information. Thus, we view these propensity-adjusted estimates as a lower bound and not as the maximum recruitable population.

[15] Here, and throughout this report, the "other" category includes Asians, American Indians, and those whom the census categorizes as Other.

Table 6. Unadjusted female district-level QCP, by racial/ethnic group[a]

Region	District	White female QCP	Per-centage	Black female QCP	Per-centage	Hispanic female QCP	Per-centage	Other female QCP	Per-centage
ERR	E01	87,288	22.4%	10,077	21.1%	11,182	20.0%	13,642	23.4%
	E04	68,077	17.4%	9,585	20.1%	3,952	7.1%	6,820	11.7%
	E06	60,663	15.5%	14,761	30.9%	9,958	17.8%	5,247	9.0%
	Subtotal	216,029	55.3%	34,424	72.1%	25,092	44.9%	25,709	44.1%
WRR	W08	41,334	10.6%	4,418	9.3%	11,363	20.4%	6,259	10.7%
	W09	86,965	22.3%	6,100	12.8%	4,960	8.9%	6,611	11.4%
	W12	46,101	11.8%	2,814	5.9%	14,416	25.8%	19,661	33.8%
	Subtotal	174,400	44.7%	13,333	27.9%	30,739	55.1%	32,532	55.9%
	Total	390,429		47,757		55,831		58,241	

Source: CNA estimations based on IPEDS and Barron's data.

[a] The percentages may not add to 100 due to rounding errors. In addition, the sum of all the female numbers will not equal the female QCP presented in Table 3, due to females with an "unknown" race/ethnicity.

Table 7. Unadjusted male district-level QCP, by racial/ethnic group[a]

Region	District	White male QCP	Per-centage	Black male QCP	Per-centage	Hispanic male QCP	Per-centage	Other male QCP	Per-centage
ERR	E01	71,996	22.7%	5,947	21.6%	7,304	19.2%	11,188	22.8%
	E04	53,807	17.0%	5,407	19.6%	2,958	7.8%	5,883	12.0%
	E06	47,321	14.9%	7,505	27.3%	6,732	17.7%	4,351	8.9%
	Subtotal	173,124	54.5%	18,859	68.5%	16,993	44.7%	21,422	43.7%
WRR	W08	34,776	11.0%	2,731	9.9%	7,934	20.9%	5,413	11.0%
	W09	71,112	22.4%	4,004	14.6%	3,716	9.8%	5,735	11.7%
	W12	38,417	12.1%	1,922	7.0%	9,361	24.6%	16,449	33.6%
	Subtotal	144,306	45.5%	8,658	31.5%	21,011	55.3%	27,598	56.3%
	Total	317,430		27,516		38,004		49,020	

Source: CNA estimations based on IPEDS and Barron's data.

[a] The percentages may not add to 100 due to rounding errors. In addition, the sum of all the male numbers will not equal the male QCP presented in Table 3, due to males with an "unknown" race/ethnicity.

Table 8. Medically adjusted female QCP, by race/ethnicity[a]

Region	District	White female QCP	Per-centage	Black female QCP	Per-centage	Hispanic female QCP	Per-centage	Other female QCP	Per-centage
ERR	E01	78,844	22.4%	7,826	21.1%	10,143	20.0%	12,993	23.7%
	E04	61,491	17.4%	7,444	20.1%	3,585	7.1%	6,403	11.7%
	E06	54,794	15.5%	11,463	30.9%	9,033	17.8%	4,891	8.9%
	Subtotal	195,130	55.3%	26,733	72.1%	22,761	44.9%	24,287	44.2%
WRR	W08	37,336	10.6%	3,431	9.3%	10,307	20.4%	5,750	10.5%
	W09	78,552	22.3%	4,737	12.8%	4,499	8.9%	6,151	11.2%
	W12	41,641	11.8%	2,185	5.9%	13,077	25.8%	18,748	34.1%
	Subtotal	157,529	44.7%	10,354	27.9%	27,883	55.1%	30,650	55.8%
	Total	352,659		37,086		50,644		54,936	

Source: CNA estimations from Barron's, IPEDS, and BRFSS data.

[a] The percentages may not add to 100 due to rounding errors. In addition, the sum of all the female numbers will not equal the female QCP presented in Table 4, due to females with an "unknown" race/ethnicity.

Table 9. Medically adjusted male QCP, by race/ethnicity[a]

Region	District	White male QCP	Per-centage	Black male QCP	Per-centage	Hispanic male QCP	Per-centage	Other male QCP	Per-centage
ERR	E01	63,999	22.7%	4,919	21.6%	5,823	19.2%	10,723	22.9%
	E04	47,830	17.0%	4,472	19.6%	2,358	7.8%	5,611	12.0%
	E06	42,065	14.9%	6,208	27.3%	5,367	17.7%	4,135	8.8%
	Subtotal	153,894	54.5%	15,599	68.5%	13,547	44.7%	20,469	43.8%
WRR	W08	30,913	11.0%	2,259	9.9%	6,325	20.9%	5,077	10.9%
	W09	63,213	22.4%	3,312	14.6%	2,963	9.8%	5,444	11.6%
	W12	34,150	12.1%	1,590	7.0%	7,463	24.6%	15,763	33.7%
	Subtotal	128,276	45.5%	7,161	31.5%	16,750	55.3%	26,285	56.2%
	Total	282,170		22,760		30,298		46,753	

Source: CNA estimations from Barron's, IPEDS, and BRFSS data.

[a] The percentages may not add to 100 due to rounding errors. In addition, the sum of all the male numbers will not equal the male QCP presented in Table 4, due to males with an "unknown" race/ethnicity.

Table 10. Medically qualified and propensed female QCP, by race/ethnicity[a]

Region	District	White female QCP	Percentage	Black female QCP	Percentage	Hispanic female QCP	Percentage	Other female QCP	Percentage
ERR	E01	507	18.3%	75	15.0%	70	17.3%	63	16.6%
	E04	528	19.1%	115	23.0%	30	7.5%	49	12.9%
	E06	489	17.7%	190	38.1%	78	19.3%	39	10.4%
	Subtotal	1,525	55.1%	380	76.1%	178	44.1%	151	39.9%
WRR	W08	295	10.7%	39	7.8%	93	23.1%	58	15.2%
	W09	553	20.0%	62	12.3%	36	9.0%	34	9.1%
	W12	393	14.2%	19	3.7%	96	23.9%	135	35.8%
	Subtotal	1,242	44.9%	119	23.9%	225	55.9%	227	60.1%
	Total	2,767		499		403		378	

Source: CNA estimations from Barron's, IPEDS, BRFSS, and JAMRS data.

[a] The percentages may not add to 100 due to rounding errors. In addition, the sum of all the female numbers will not equal the female QCP presented in Table 5, due to females with an "unknown" race/ethnicity.

Table 11. Medically qualified and propensed male QCP, by race/ethnicity[a]

Region	District	White male QCP	Percentage	Black male QCP	Percentage	Hispanic male QCP	Percentage	Other male QCP	Percentage
ERR	E01	2,870	20.0%	239	19.1%	279	19.6%	421	24.3%
	E04	2,613	18.3%	251	20.0%	114	8.0%	218	12.6%
	E06	2,462	17.2%	379	30.2%	282	19.8%	167	9.7%
	Subtotal	7,945	55.5%	869	69.3%	674	47.5%	806	46.5%
WRR	W08	1,649	11.5%	147	11.7%	301	21.2%	205	11.8%
	W09	2,919	20.4%	146	11.7%	113	7.9%	165	9.5%
	W12	1,805	12.6%	92	7.3%	332	23.4%	555	32.1%
	Subtotal	6,373	44.5%	386	30.7%	746	52.5%	925	53.5%
	Total	14,319		1,255		1,421		1,731	

Source: CNA estimations from Barron's, IPEDS, BRFSS, and JAMRS data.

[a] The percentages may not add to 100 due to rounding errors. In addition, the sum of all the male numbers will not equal the male QCP presented in Table 5, due to males with an "unknown" race/ethnicity.

Top QCP schools

In this subsection, we highlight those schools with particularly high concentrations of QCP. Table 12 presents those schools in the top 1 percent of our 1,489 schools for female QCP, and Table 13 presents those schools in the top 1 percent for male QCP. The top 1 percent lists shown here and in the rest of this subsection were populated by determining the top 1 percent of schools in terms of unadjusted QCP. These tables also display the medically adjusted QCP and the medically and propensity-adjusted QCP for these schools. By definition—because of the way we created the medically adjusted QCP—the ranked order of schools in terms of unadjusted QCP will always be the same as the ranked order of schools in terms of medically adjusted QCP. This is not true, however, for the medically and propensity-adjusted QCP. Tables 14 through 17 reveal the top 1 percent of schools for the four different racial/ethnic categories of female QCP: black, Hispanic, "other," and white. The corresponding tables for male QCP can be found in Appendix B.

As we have found for men in previous years, we find that QCP is highly concentrated. The top 1 percent of schools in terms of unadjusted female QCP—15 schools—comprise 10 percent of the nation's total unadjusted female QCP. This is due to a combination of these schools' larger sizes and higher test score qualification rates. The high QCP schools continue to be large, quite competitive, and mostly public. There has been little change over time in the schools that contain the greatest number of the nation's qualified youth.

Table 12. Top 1 percent of schools: Female QCP

Institution name	Unadjusted QCP	Medically adjusted QCP[a]	Medically and propensity-adjusted QCP[b]
University of Central Florida[c]	6,464	5,674	57
University of Florida	4,392	3,819	38
Florida State University	4,270	3,758	38
The University of Texas at Austin	4,133	3,744	31
Ohio State University-Main Campus	4,085	3,598	26
Pennsylvania State University-Main Campus	4,003	3,528	22
Texas A&M University-College Station	3,950	3,552	27
Florida International University	3,888	3,420	32
University of South Florida-Main Campus	3,860	3,380	34
University of Georgia	3,726	3,277	33
University of California-Los Angeles	3,621	3,250	26
University of California-Berkeley	3,540	3,072	25
University of Minnesota-Twin Cities	3,415	3,047	21
University of Wisconsin-Madison	3,289	2,906	21
University of Maryland-College Park	3,273	2,865	29

Source: CNA estimations using Barron's, IPEDS, BRFSS, and JAMRS data.

[a.] The University of Illinois at Urbana-Champaign is among the top 1 percent of schools for the medically adjusted QCP, but is not included in this table. This is because this table was populated based on the top 1 percent of schools in terms of unadjusted QCP.

[b.] Arizona State University-Tempe, Brigham Young University-Provo, and the University of Washington-Seattle Campus are among the top 1 percent of schools in terms of the medically qualified and propensed QCP, but do not appear in this table.

[c.] The University of Central Florida, Florida International University, and the University of South Florida-Main Campus have a significant number of graduates over the age of 25 (at least 30 percent) and, thus, may not be ideal sources for finding USMC officer candidates.

Table 13. Top 1 percent of schools: Male QCP

Institution name	Unadjusted QCP	Medically adjusted QCP	Medically and propensity-adjusted QCP[a]
University of Central Florida[b]	4,509	3,866	219
Pennsylvania State University-Main Campus	4,437	3,832	172
Ohio State University-Main Campus	4,185	3,655	166
Texas A & M University-College Station	3,935	3,451	181
The University of Texas at Austin	3,726	3,288	163
University of Maryland-College Park	3,443	2,996	166
University of Illinois at Urbana-Champaign	3,290	2,926	124
University of Florida	3,280	2,773	155
Arizona State University-Tempe	3,156	2,696	138
Florida State University	3,126	2,689	153
Rutgers University-New Brunswick	3,066	2,711	121
University of California-Berkeley	3,023	2,563	111
University of Minnesota-Twin Cities	2,990	2,625	114
Brigham Young University-Provo	2,973	2,599	134
University of Michigan-Ann Arbor	2,938	2,546	110

Source: CNA estimations using Barron's, IPEDS, BRFSS, and JAMRS data.

[a.] The University of Georgia, the University of South Florida-Main Campus, Virginia Polytechnic Institute and State University, and North Carolina State University at Raleigh are among the top 1 percent of medically and propensity-adjusted QCP, although they do not appear on this list. This is because this list was populated based on the schools with the top 1 percent of unadjusted QCP.

[b.] The University of Central Florida, according to IPEDS, has a significant number of graduates over the age of 25 (30 percent) and, thus, may not be an ideal source for finding USMC officer candidates.

Table 14. Top 1 percent of schools: Black female QCP

Institution name	Unadjusted QCP	Medically adjusted QCP	Medically and propensity-adjusted QCP
University of Central Florida[a]	698	542	9
Georgia State University	684	531	9
Florida International University	537	417	7
University of Maryland – College Park	520	404	6
Florida State University	470	365	6
University of South Florida – Main Campus	445	345	5
Howard University	433	336	5
Florida Atlantic University	419	325	5
Southern Illinois University – Carbondale	418	325	3
Ohio State University – Main Campus	416	323	5
Morehouse College	388	301	5
University of North Texas	366	284	3
Georgia Southern University	353	274	3
University of Florida	343	266	4
Temple University	325	252	4

Source: CNA estimations using Barron's, IPEDS, BRFSS, and JAMRS data.

[a.] The University of Central Florida, Florida International University, and the University of South Florida-Main Campus have a significant number of graduates over the age of 25 (at least 30 percent) and, thus, may not be ideal sources for finding USMC officer candidates.

Table 15. Top 1 percent of schools: Hispanic female QCP

Institution name	Unadjusted QCP	Medically adjusted QCP	Medically and propensity-adjusted QCP
Florida International University[a]	2,744	2,489	20
University of Central Florida	1,220	1,107	9
The University of Texas at Austin	782	709	5
University of Florida	780	707	5
California State University-Fullerton	764	693	4
University of South Florida-Main Campus	681	618	5
University of California-Los Angeles	678	615	4
Florida State University	650	590	4
University of California-Santa Barbara	632	573	4
Texas A & M University-College Station	631	572	4
California State University-Long Beach	623	565	4
The University of Texas at San Antonio	584	530	4
University of Houston	560	507	4
San Diego State University	546	495	3
Arizona State University-Tempe	541	491	5

[a.] Florida International University, the University of Central Florida, and the University of South Florida-Main Campus have a significant number of graduates over the age of 25 (at least 30 percent) and, thus, may not be ideal sources for finding USMC officer candidates.

Table 16. Top 1 percent of schools: "Other" female QCP[a]

Institution name	Unadjusted QCP	Medically adjusted QCP	Medically and propensity-adjusted QCP
University of Hawaii at Manoa	287	246	1
University of California-Santa Barbara	130	112	0
George Mason University	118	101	1
Oklahoma State University-Main Campus	106	91	1
University of Michigan-Ann Arbor	104	89	0
University of Arizona	99	85	0
University of Maryland-College Park	98	84	1
University of Central Florida[b]	98	84	1
University of Florida	96	82	1
Stanford University	95	82	0
University of Virginia-Main Campus	85	73	0
University of Southern California	84	72	0
Pennsylvania State University-Main Campus	84	72	0
Texas A & M University-College Station	84	71	0
Western Washington University	83	71	0

Source: CNA estimations using Barron's, IPEDS, BRFSS, and JAMRS data.

a. Officers who are not white, black, or Hispanic are classified as having an "other" race. This predominantly includes Asians, Asian Pacific Islanders, and Native Americans.

b. The University of Central Florida has a significant number of graduates over the age of 25 (at least 30 percent) and, thus, may not be an ideal source for finding USMC officer candidates.

Table 17. Top 1 percent of schools: White female QCP

Institution name	Unadjusted QCP	Medically adjusted QCP	Medically and propensity-adjusted QCP
University of Central Florida[a]	4,032	3,642	35
Ohio State University-Main Campus	3,304	2,984	21
Pennsylvania State University-Main Campus	3,127	2,824	16
Texas A & M University-College Station	2,952	2,666	19
Florida State University	2,923	2,640	25
University of Georgia	2,871	2,594	25
University of Minnesota-Twin Cities	2,766	2,498	16
University of Wisconsin-Madison	2,743	2,478	18
Brigham Young University-Provo	2,630	2,376	22
University of Florida	2,592	2,341	22
Michigan State University	2,473	2,233	16
Ohio University-Main Campus	2,468	2,229	16
Indiana University-Bloomington	2,431	2,196	15
University of South Florida-Main Campus	2,283	2,062	19
University of Michigan-Ann Arbor	2,265	2,046	14

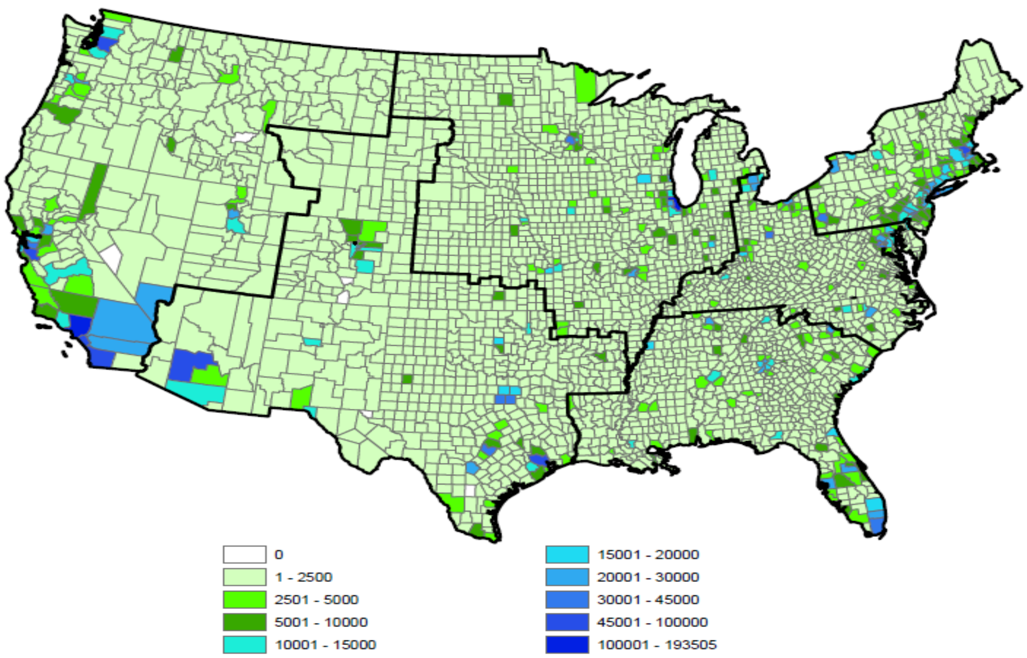
Source: CNA estimations using Barron's, IPEDS, BRFSS, and JAMRS data.

[a] The University of Central Florida and the University of South Florida-Main Campus have a significant number of graduates over the age of 25 (at least 30 percent) and, thus, may not be ideal sources for finding USMC officer candidates.

OCC candidates and the county-level, college-graduate QCP

Using ACS data, we estimate, by county, the number of college graduates by gender and racial/ethnic group. In this subsection, we summarize these findings and present maps showing the distribution of male and female QCP throughout the United States (see Figure 1 and Figure 2). Maps displaying the distribution by gender *and* racial/ethnic group, as well as tables displaying these potential OCC candidates' distribution across the six recruiting districts, are provided in Appendix C.[16] These maps were created using only the unadjusted QCP as inputs, since there is little difference in the list of counties that comprise the top 1 percent of the medically adjusted or medically adjusted and propensed QCPs. In fact, there is no change in the county list when comparing the unadjusted and the medically adjusted QCPs, since the medical adjustments were made using national rates (within a demographic subgroup). When comparing the unadjusted QCP with the medically adjusted and propensed QCP, there is, on average, a change in three of the counties on the top 1 percent list. When looking at the top 1 percent of counties for black men, for example, San Francisco county appears on the list for unadjusted QCP (and therefore for medically adjusted QCP), but is not among the top 1 percent of counties for medically adjusted and propensed QCP.

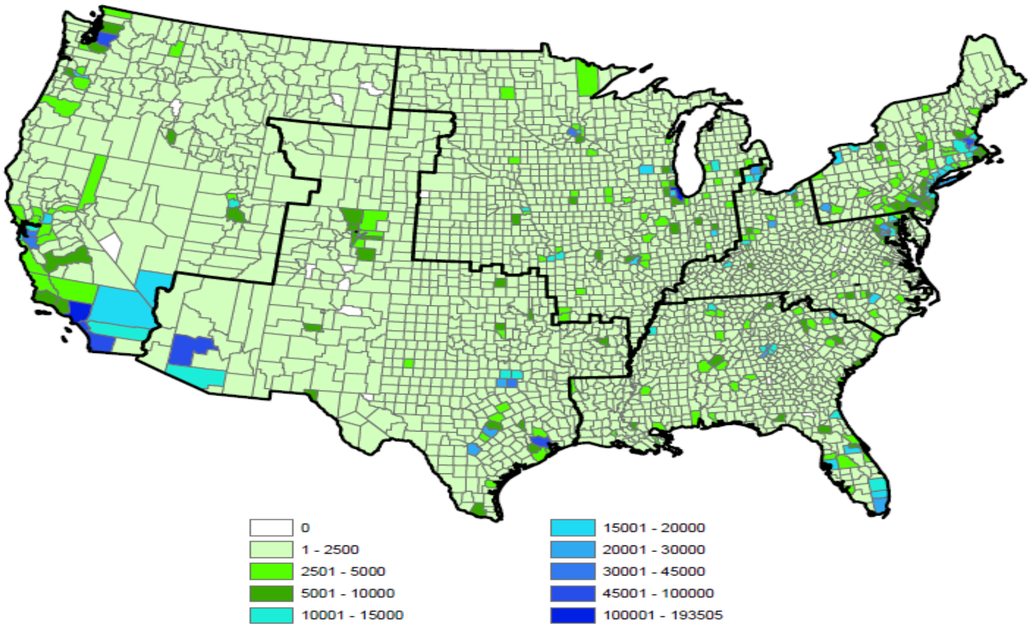
Figure 1. County-level distribution of female college graduates



Source: CNA estimates based on ACS data.

[16] The minorities' maps are on a different scale—indicated in the figures' legends—due to the smaller size of the minority, college-graduate population. A county-level spreadsheet providing the estimated college graduate population by racial/ethnic group and gender is available to the sponsor on request.

Figure 2. County-level distribution of male college graduates



Source: CNA estimates based on ACS data.

As with the PLC population, we find that potential OCC candidates are highly concentrated. This is not surprising because, as we previously noted, college graduates tend to relocate to large, metropolitan areas where there are a number and variety of employment opportunities. In Table 18, we show the percentage of college graduates in the top 1 and 2 percent of counties, for each gender and racial/ethnic group. For example, the top 1 percent of counties for white, female college graduates age 18 to 29 contains 29 percent of this entire population. The total population of 4,102,704 college-educated, white, female 18- to 29-year-olds reside in a total of 3,136 counties, according to the ACS. The most populated 31 counties (top 1 percent) contain 1,170,160 members of this population. Similarly, the most populated 62 counties (top 2 percent) contain 1,700,234 members, or 41 percent, of this population. As the table shows, concentration rates are higher for minority populations: the top 1 percent of counties for black men contain 33 percent of the black, male, college-graduate population; the top 1 percent of counties for Hispanic men contain 50 percent of that population; and the top 1 percent of counties for "other" men contain 41 percent of that population. This suggests that there are a relatively small and manageable number of counties where OSOs' efforts in recruiting OCC candidates could be most effective.

Table 18. Percentage of college-graduate population (age 18 to 29) in the top 1 and 2 percent of counties, by gender and racial/ethnic group

	Top 1 percent	Top 2 percent
White women	29%	41%
White men	30%	43%
Black women	32%	45%
Black men	33%	47%
Hispanic women	50%	63%
Hispanic men	50%	63%
Other women	40%	52%
Other men	41%	54%

Source: CNA estimates based on ACS data.

In the remainder of this section, we provide data on the specific counties with the highest concentration of college graduates for each gender and racial/ethnic group. This top 1 percent of counties, along with the corresponding population size, is provided in Table 19 through Table 22. A number of counties appear in each of these four tables, for both men and women, indicating that they are areas of concentration for all racial/ethnic groups of U.S. college graduates. These are Los Angeles County, CA; Cook County, IL; New York County, NY; Kings County, NY; and Queens County, NY. There are a number of others that appear in the top 1 percent lists for most, but not all, populations. These include Orange County, CA and Maricopa County, AZ. Additional counties with a significant minority, college-graduate presence include Fulton, Harris, and Montgomery counties for blacks; Harris, Santa Clara, San Francisco, and Dallas counties for Hispanics; and Santa Clara, San Francisco, and Honolulu counties for "Others."

Unadjusted QCP

Tables 19 through 22 display the top 1 percent of counties—as measured by age-qualified college graduates—for whites, blacks, Hispanics, and "others." Each table contains population estimates for men and women separately.

Table 19. Top 1 percent of counties (of unadjusted QCP), as measured by the white, college-graduate population (age 18 to 29), separately for women and men

Women		Men	
County	**Population**	**County**	**Population**
Cook County, IL	118,291	Cook County, IL	91,032
Los Angeles County, CA	101,873	Los Angeles County, CA	84,260
New York County, NY	78,474	New York County, NY	59,129
Kings County, NY	56,105	Kings County, NY	42,025
King County, WA	47,681	Middlesex County, MA	40,150
Harris County, TX	47,376	King County, WA	39,426
Middlesex County, MA	46,879	Harris County, TX	36,653
Maricopa County, AZ	44,603	Maricopa County, AZ	35,461
Queens County, NY	43,527	Queens County, NY	33,040
Philadelphia County, PA	37,144	San Diego County, CA	29,538
Hennepin County, MN	35,424	Hennepin County, MN	28,205
San Diego County, CA	34,571	Philadelphia County, PA	27,822
Suffolk County, MA	33,250	Suffolk County, MA	27,232
Orange County, CA	31,788	Orange County, CA	26,468
Allegheny County, PA	30,905	Allegheny County, PA	25,811
Franklin County, OH	30,161	Franklin County, OH	24,503
District of Columbia, DC	30,071	Santa Clara County, CA	23,826
Dallas County, TX	27,522	District of Columbia, DC	23,204
Miami-Dade County, FL	27,134	Fairfax County, VA	22,079
Fairfax County, VA	25,958	Dallas County, TX	21,562
Santa Clara County, CA	24,496	San Francisco County, CA	20,730
Nassau County, NY	23,547	Nassau County, NY	18,717
San Francisco County, CA	22,300	Travis County, TX	18,667
Alameda County, CA	21,914	Miami-Dade County, FL	18,666
Wake County, NC	21,794	Oakland County, MI	18,408
Travis County, TX	21,779	Alameda County, CA	17,947
Oakland County, MI	21,567	Fulton County, GA	16,891
Denver County, CO	21,255	Denver County, CO	16,533
Cuyahoga County, OH	21,150	Cuyahoga County, OH	16,514
Mecklenburg County, NC	20,845	Montgomery County, MD	16,036
Suffolk County, NY	20,760	Mecklenburg County, NC	15,924

Source: CNA estimates based on ACS data.

Table 20. Top 1 percent of counties (of unadjusted QCP), as measured by the black, college-graduate population (age 18 to 29), separately for women and men

Women		Men	
County	**Population**	**County**	**Population**
Cook County, IL	12,421	Cook County, IL	6,812
New York County, NY	10,156	Los Angeles County, CA	6,468
Los Angeles County, CA	7,983	New York County, NY	5,418
Harris County, TX	7,666	Fulton County, GA	4,376
Kings County, NY	7,345	Harris County, TX	4,311
Fulton County, GA	7,235	Kings County, NY	3,975
Montgomery County, MD	6,491	Montgomery County, MD	3,633
Queens County, NY	5,746	District of Columbia, DC	3,171
Miami-Dade County, FL	5,719	Queens County, NY	3,145
District of Columbia, DC	5,119	Miami-Dade County, FL	2,917
DeKalb County, GA	4,652	Fairfax County, VA	2,844
Wake County, NC	4,554	Dallas County, TX	2,534
Cobb County, GA	4,516	Mecklenburg County, NC	2,494
Fairfax County, VA	4,463	Wake County, NC	2,481
Dallas County, TX	4,458	DeKalb County, GA	2,401
Mecklenburg County, NC	4,365	Cobb County, GA	2,307
Baltimore County, MD	4,275	San Diego County, CA	2,267
Prince George's County, MD	4,180	Travis County, TX	2,219
Baltimore city, MD	4,046	Baltimore city, MD	2,150
Broward County, FL	3,991	Baltimore County, MD	2,145
Travis County, TX	3,508	Orange County, FL	2,122
Gwinnett County, GA	3,475	Broward County, FL	2,077
Orange County, FL	3,393	Orange County, CA	2,029
Hillsborough County, FL	3,218	Prince George's County, MD	1,931
Tarrant County, TX	3,153	Gwinnett County, GA	1,867
Jefferson County, AL	3,101	Santa Clara County, CA	1,793
Nassau County, NY	2,979	Nassau County, NY	1,768
Bexar County, TX	2,871	Tarrant County, TX	1,714
Philadelphia County, PA	2,827	Hillsborough County, FL	1,713
Anne Arundel County, MD	2,785	Bexar County, TX	1,630
Davidson County, TN	2,762	San Francisco County, CA	1,566

Source: CNA estimates based on ACS data.

Table 21. Top 1 percent of counties (of unadjusted QCP), as measured by the Hispanic, college-graduate population (age 18 to 29), separately for women and men

Women		Men	
County	**Population**	**County**	**Population**
Los Angeles County, CA	37,312	Los Angeles County, CA	24,244
Harris County, TX	14,836	Harris County, TX	9,600
San Diego County, CA	12,628	San Diego County, CA	8,480
Cook County, IL	12,163	Cook County, IL	7,966
Orange County, CA	11,647	Orange County, CA	7,618
New York County, NY	10,970	New York County, NY	6,602
Maricopa County, AZ	9,285	Santa Clara County, CA	6,569
Santa Clara County, CA	8,838	San Francisco County, CA	5,836
Dallas County, TX	8,581	Dallas County, TX	5,643
San Francisco County, CA	8,123	Maricopa County, AZ	5,622
Alameda County, CA	7,979	Alameda County, CA	5,087
Kings County, NY	7,918	Travis County, TX	4,916
Miami-Dade County, FL	7,639	Kings County, NY	4,749
Travis County, TX	6,832	Miami-Dade County, FL	4,525
Queens County, NY	6,200	Tarrant County, TX	3,786
Tarrant County, TX	6,163	Queens County, NY	3,739
Bexar County, TX	5,596	Bexar County, TX	3,613
Broward County, FL	5,296	Orange County, FL	3,245
Orange County, FL	4,574	Broward County, FL	3,207
San Bernardino County, CA	4,521	Hillsborough County, FL	2,642
Sacramento County, CA	4,413	Sacramento County, CA	2,587
Hillsborough County, FL	4,288	King County, WA	2,528
Riverside County, CA	4,177	San Bernardino County, CA	2,514
Bernalillo County, NM	3,937	Collin County, TX	2,461
Collin County, TX	3,933	Riverside County, CA	2,271
Contra Costa County, CA	3,394	Nassau County, NY	2,154
San Mateo County, CA	3,392	San Mateo County, CA	2,114
Denton County, TX	3,309	Bernalillo County, NM	2,111
Nassau County, NY	3,256	Denton County, TX	2,025
King County, WA	3,123	Contra Costa County, CA	1,999
Palm Beach County, FL	2,947	Hudson County, NJ	1,941

Source: CNA estimates based on ACS data.

Table 22. Top 1 percent of counties (of unadjusted QCP), as measured by the "other," college-graduate population (age 18 to 29), separately for women and men

Women		Men	
County	**Population**	**County**	**Population**
Los Angeles County, CA	8,365	Los Angeles County, CA	6,207
Honolulu County, HI	3,842	King County, WA	2,279
King County, WA	2,993	San Diego County, CA	2,176
San Diego County, CA	2,833	Cook County, IL	2,044
Orange County, CA	2,615	Orange County, CA	1,949
Cook County, IL	2,482	Honolulu County, HI	1,915
New York County, NY	2,361	New York County, NY	1,744
Santa Clara County, CA	1,987	Santa Clara County, CA	1,685
San Francisco County, CA	1,825	San Francisco County, CA	1,500
Alameda County, CA	1,797	Alameda County, CA	1,313
Kings County, NY	1,704	Kings County, NY	1,262
Maricopa County, AZ	1,557	Maricopa County, AZ	1,236
Harris County, TX	1,377	Harris County, TX	1,061
Queens County, NY	1,330	Queens County, NY	997
Middlesex County, MA	1,256	District of Columbia, DC	831
Clark County, NV	1,036	Fairfax County, VA	794
San Bernardino County, CA	1,017	Middlesex County, MA	784
Oklahoma County, OK	996	Sacramento County, CA	659
Sacramento County, CA	983	San Bernardino County, CA	647
Riverside County, CA	931	Dallas County, TX	623
Miami-Dade County, FL	929	Clark County, NV	614
Fairfax County, VA	906	Hennepin County, MN	608
District of Columbia, DC	905	Oklahoma County, OK	599
Suffolk County, MA	889	Riverside County, CA	579
Dallas County, TX	799	Nassau County, NY	575
Multnomah County, OR	774	Travis County, TX	544
Contra Costa County, CA	760	San Mateo County, CA	542
San Mateo County, CA	757	Miami-Dade County, FL	542
Tulsa County, OK	713	Suffolk County, MA	528
Nassau County, NY	694	Contra Costa County, CA	510
Montgomery County, MD	663	Montgomery County, MD	486

Source: CNA estimates based on ACS data.

Medically adjusted QCP

Table 23 displays the top 1 percent of counties—as measured by the population of age-qualified and medically qualified college graduates—for men and women separately.[17]

Table 23. Top 1 percent of counties, as measured by the medically qualified college-graduate population (age 18 to 29), separately for women and men

Women		Men	
County	**Population**	**County**	**Population**
Los Angeles County, CA	169,132	Los Angeles County, CA	130,980
Cook County, IL	134,216	Cook County, IL	99,383
New York County, NY	97,946	New York County, NY	69,604
Kings County, NY	70,210	Kings County, NY	49,655
Harris County, TX	65,734	Harris County, TX	47,656
San Diego County, CA	57,335	San Diego County, CA	45,902
Queens County, NY	54,585	King County, WA	43,399
King County, WA	53,407	Orange County, CA	41,146
Maricopa County, AZ	53,003	Middlesex County, MA	40,573
Orange County, CA	52,782	Maricopa County, AZ	39,377
Middlesex County, MA	49,342	Queens County, NY	39,067
Santa Clara County, CA	40,445	Santa Clara County, CA	36,680
Dallas County, TX	38,166	San Francisco County, CA	32,077
Philadelphia County, PA	37,834	Dallas County, TX	28,041
Miami-Dade County, FL	37,426	Alameda County, CA	27,823
San Francisco County, CA	36,939	Suffolk County, MA	27,516
Alameda County, CA	36,304	Philadelphia County, PA	27,382
District of Columbia, DC	35,639	Hennepin County, MN	27,075
Suffolk County, MA	35,036	District of Columbia, DC	25,941
Hennepin County, MN	34,261	Allegheny County, PA	25,410
Allegheny County, PA	31,477	Fairfax County, VA	25,239
Fairfax County, VA	30,912	Travis County, TX	24,281
Travis County, TX	30,209	Miami-Dade County, FL	23,893
Franklin County, OH	30,031	Franklin County, OH	23,654

[17] Separate tables by racial/ethnic group also are available to the sponsor on request.

Nassau County, NY	29,265	Nassau County, NY	22,148
Tarrant County, TX	27,101	Fulton County, GA	20,313
Broward County, FL	25,971	Montgomery County, MD	19,554
Suffolk County, NY	25,838	Hudson County, NJ	18,981
Montgomery County, MD	25,214	Tarrant County, TX	18,688
Wake County, NC	24,804	Oakland County, MI	18,101
Fulton County, GA	24,785	Suffolk County, NY	17,957
Bexar County, TX	24,684	Bexar County, TX	17,864

Source: CNA estimates based on ACS and BRFSS data.

Medically and propensity-adjusted QCP

Table 24 displays the top 1 percent of counties—as measured by the population of age-qualified and medically qualified college graduates who are propensed for military service—for men and women separately.[18]

Table 24. Top 1 percent of counties, as measured by the medically qualified and propensed college-graduate population (age 18 to 29), separately for women and men

Women		Men	
County	**Population**	**County**	**Population**
Los Angeles County, CA	9,643	Los Angeles County, CA	34,576
Cook County, IL	4,342	Harris County, TX	16,082
San Diego County, CA	3,269	Cook County, IL	15,829
King County, WA	3,045	New York County, NY	15,428
Orange County, CA	3,009	San Diego County, CA	12,117
Harris County, TX	2,985	King County, WA	11,456
Miami-Dade County, FL	2,931	Kings County, NY	11,006
District of Columbia, DC	2,791	Orange County, CA	10,862
New York County, NY	2,594	Maricopa County, AZ	9,971
Maricopa County, AZ	2,498	Santa Clara County, CA	9,683
Fairfax County, VA	2,421	District of Columbia, DC	9,619
Santa Clara County, CA	2,306	Dallas County, TX	9,463
San Francisco County, CA	2,106	Fairfax County, VA	9,359
Alameda County, CA	2,070	Miami-Dade County, FL	8,859

[18] Separate tables by racial/ethnic group also are available to the sponsor on request.

Broward County, FL	2,034	Queens County, NY	8,659
Montgomery County, MD	1,975	San Francisco County, CA	8,468
Wake County, NC	1,943	Travis County, TX	8,194
Fulton County, GA	1,941	Fulton County, GA	7,532
Kings County, NY	1,860	Alameda County, CA	7,345
Mecklenburg County, NC	1,857	Montgomery County, MD	7,251
Orange County, FL	1,751	Middlesex County, MA	6,814
Dallas County, TX	1,733	Mecklenburg County, NC	6,359
Hillsborough County, FL	1,646	Orange County, FL	6,337
Middlesex County, MA	1,551	Wake County, NC	6,329
Queens County, NY	1,446	Tarrant County, TX	6,306
Travis County, TX	1,372	Broward County, FL	6,290
Baltimore County, MD	1,289	Philadelphia County, PA	6,070
Arlington County, VA	1,272	Bexar County, TX	6,028
Prince George's County, MD	1,258	Allegheny County, PA	5,632
DeKalb County, GA	1,248	Hillsborough County, FL	5,178
Baltimore city, MD	1,231	Nassau County, NY	4,909
Tarrant County, TX	1,231	Arlington County, VA	4,702

Source: CNA estimates based on ACS, BRFSS, and JAMRS data.

Conclusion

MCRC has always been a critical player in the process of maintaining a diverse and well-qualified USMC officer corps. Its primary responsibilities in this process, of course, are identifying officer candidates and commissioning them. In this vein, it is important that MCRC receive regular updates of the size, racial/ethnic and gender distributions, and geographic locations of potential officer candidates. CNA, therefore, regularly provides MCRC with updated estimates of the QCP. In the current environment, in which the Marine Corps is expanding the opportunities available to women, it is likely that OSOs will soon see an increase in their female officer missions. As such, we provide more detailed estimates of female QCP in this report than we have in previous iterations.

For each college or university, we have provided three different estimates. First, for each racial/ethnic group and gender combination (e.g., black women), we estimate the number of test-score-qualified graduates from each institution (i.e., the number of academically qualified people who graduate from that school each year). We then provide additional QCP measures, which adjust for medical qualifications (not obese and not diabetic) and propensity to serve. As in previous years, we find that QCP is highly concentrated. Although female QCP is generally higher than male QCP for both the unadjusted QCP and the medically adjusted QCP (due to women's higher college graduation rates), this is not the case once we also account for propensity. That is, women's medically and propensity-adjusted QCP is lower than men's, due to their significantly lower propensity to serve. Thus, any large increases in the female officer mission will likely present MCRC with a substantial challenge. In addition to this study, we are providing MCRC with a school-level database containing all of these estimates, which will allow it to focus on whichever metric it finds most appropriate (which may vary with recruiting district or the economic climate, among other factors). We hope that these data will be of use to MCRC in distributing OSO missions and identifying particular schools that should be targeted.

We also have used ACS estimates to identify counties with a high concentration of college graduates, suggesting that these might be productive areas for OCC recruiting. We present the same three QCP metrics for this population: unadjusted, medically adjusted, and medically and propensity adjusted. We have presented the top 1 percent of counties (for every racial/ethnic-gender combination)—in terms of unadjusted QCP—and also provided the other two QCP metrics for these counties. We also will be providing MCRC with a database of these county-level estimates.

Our findings regarding both the school-level QCP and county-level QCP indicate that a significant change in OSOs' recruiting strategies, in terms of *where* they recruit, will not be necessary in response to any increases in female officer missions. With a few exceptions, the schools with the highest female QCPs were also among those with the highest male QCPs, suggesting that OSOs likely will be able to meet their female missions at the same schools they are currently targeting for their predominantly male missions. We find that the same is true regarding the location of male and female age-qualified college graduates; those counties that are rich pools for finding qualified males are also rich pools for qualified females.

It is important to remember that our estimates of the QCP are precisely that: *estimates*. On one hand, there are a number of disqualifiers not captured by data (e.g., tattoos, credit problems, mental health history, or drug use), which we cannot take into account. Thus, many of the college attendees and college graduates whom we have included in our QCP estimates will, in fact, not be qualified for USMC officer service. Our estimates take into account only those qualifications for which reasonable data exist: test scores, college graduation rates, obesity, diabetes, and propensity to serve. On the other hand, our propensity adjustments may be excluding potential candidates who, prior to talking to an OSO, had little to no interest in serving, but could be swayed when provided more information. In addition, a number of assumptions—and some admittedly unrealistic (such as the assumption that members of all racial/ethnic groups at a particular school have the same test score distributions)—had to be applied to arrive at our estimates, due to the way in which the available data are structured. Thus, the most simplistic QCP estimates (unadjusted QCP, by gender only) are likely the most accurate; as the estimates become increasingly complex, additional layers of assumptions are added. These more complex QCP estimates, however, still provide reasonable insights into how the addition of medical (and then propensity) qualifications reduce the QCP, and how this varies by gender and racial/ethnic group.

Appendix A: Calculations of the Test-Score-Qualified Populations

The Marine Corps requires officer candidates to have a combined Math/English ACT score of 45 (or an ACT composite score of 22) or a combined SAT Critical Reading/Math score of 1000. The ACT has four tests with differing numbers of questions: English (75), Math (60), Reading (40), and Science (40). A person's score for each test is determined by taking the number of questions answered correctly and equating it to a value out of 36. For example, if a person answered 50 out of 75 English questions correctly, his or her English test score would be 24 (50/75 = 24/36). The Composite score, as reported by Barron's [6], is the average of all four weighted test scores.

For the ACT, we estimate the number of students qualified for USMC officer service as those with a Composite score of 22 or higher. We calculate the percentage of ACT-score-qualified students by using two-thirds of the percentage that fall within the 21-23 score range, plus the percentage that score 24 and above.[19]

For the SAT, we calculate the percentage of SAT-score-qualified students at a given school by using the minimum of the percentage of students scoring 500 or higher on the Critical Reading and Math portions. We recognize the potential flaws of this methodology—that not all students who score 500 or higher on one section will necessarily score 500 or higher on the other section. Thus, claiming that 29 percent of students are SAT score qualified simply because 29 percent scored 500 or higher on the Critical Reading section may be inaccurate. We feel that using the lesser of the two percentages (those scoring 500 or higher on Critical Reading and Math) minimizes this bias. We emphasize that the calculation of QCP is by no means a perfect science and that the QCP numbers we provide in this document are *estimates.*

[19] This is different from the methodology used in previous QCP studies, in which we used half of the percentage falling within the 21-23 score range, plus the percentage scoring 24 and above. This is because, historically, candidates needed a combined score of 45 on the math and English portions to qualify. This has been changed, however, and candidates are now required to have a minimum composite score of 22.

Finally, IPEDS provides data on the percentage of students submitting ACT and SAT test scores. For schools that provide both ACT and SAT data in Barron's, we use the test-score-qualification rate associated with the most commonly submitted test score. The data indicate that the ACT is preferred at 37 percent of our selected schools, whereas the SAT is preferred at 52 percent of the schools. For the 11 percent with no data available for test score submission rates, we use SAT scores by default. If they are not available, we use ACT scores. As an illustration, Barron's publishes the test score data presented in Table 25 for Alabama State University, in Montgomery, Alabama. According to these data, for Alabama State University, 87 percent of incoming students submitted SAT scores compared with 18 percent for ACT. As a result, we use the Barron's SAT data to determine the qualified population for this school. Because 22 percent of students at Alabama State University scored 500 or higher on the SAT Mathematics and 18 percent scored 500 or higher on the SAT Critical Reading, we use 18 percent as the percentage of SAT-qualified students.

Table 25. Barron's test score data for Alabama State University

	Test and test score range	**Percentage of students**[a]
ACT	Below 21	60
	21 to 23	34
	24 to 26	5
	27 to 28	0
	Above 28	0
SAT Critical Reasoning	Below 500	82
	500 to 599	13
	600 to 700	4
	Above 700	1
SAT Mathematical Reasoning	Below 500	78
	500 to 599	17
	600 to 700	4
	Above 700	1

Source: Barron's [6].

a. The percentages may not add to 100 due to rounding errors.

How we calculate the test-score-qualified percentage

We used three main methods of calculating the percentage of test-score-qualified people at a given school, depending on the data available:

1. We used Barron's percentile data for the school's preferred test. This method was used for 785 (53 percent) of the schools.

2. We used percentile data from IPEDS and an assumption of normally distributed test score data to estimate the percentage scoring 500 or higher on each of the SAT components and 22 or higher for the Composite ACT. This method was used for 612 (41 percent) of the schools.

3. For those schools that had no IPEDS or Barron's test score data, but *did* provide a Barron's competitiveness rating, we applied the average test score qualification rates for the schools within the same Barron's rating that *did* provide test score data.[20] This method was applied to only 92 (6 percent) of the schools.

[20] Barron's competitiveness ratings are based on a general student's high school academic performance, median standardized test scores of the freshman class, and selectivity of admissions.

Appendix B: Top 1 Percent of Schools for Unadjusted, Medically Adjusted, and Medically and Propensity-Adjusted Male QCP

The tables in this appendix contain the top 1 percent of schools, in terms of male QCP, by racial/ethnic group. Table 26 presents black male QCP, Table 27 presents Hispanic male QCP, Table 28 presents "other" male QCP, and Table 29 presents white male QCP.

Table 26. Top 1 percent of schools: Black male QCP

Institution name	Unadjusted QCP	Medically adjusted QCP	Medically and propensity-adjusted QCP
University of Central Florida[a]	368	304	18
Georgia State University	304	251	15
Florida International University	297	246	14
University of Maryland – College Park	296	245	14
Florida State University	248	205	12
University of South Florida – Main Campus	247	205	12
Howard University	221	182	11
Florida Atlantic University	218	180	10
Southern Illinois University – Carbondale	206	170	7
Ohio State University – Main Campus	205	169	7
Morehouse College	199	164	9
University of North Texas	198	164	11
Georgia Southern University	195	161	9
University of Florida	191	158	9
Temple University	189	156	8

Source: CNA estimates based on Barron's, IPEDS, BRFSS, and JAMRS data.

a. The University of Central Florida, Florida International University, and the University of South Florida-Main Campus have a significant number of graduates over the age of 25 (at least 30 percent) and, thus, may not be ideal sources for finding USMC officer candidates.

Table 27. Top 1 percent of schools: Hispanic male QCP

Institution name	Unadjusted QCP	Medically adjusted QCP	Medically and propensity-adjusted QCP
Florida International University[a]	1,811	1,444	76
University of Central Florida	785	626	33
The University of Texas at Austin	629	502	22
Texas A&M University-College Station	591	471	21
University of Florida	582	464	24
The University of Texas at San Antonio	537	428	19
Arizona State University-Tempe	493	393	20
Florida State University	438	349	18
University of South Florida-Main Campus	435	347	18
University of California-Santa Barbara	426	339	14
University of California-Los Angeles	405	323	14
University of Houston	397	316	14
California State Polytechnic University-Pomona	390	311	13
California State University-Fullerton	388	310	13
University of California-Berkeley	371	296	12

Source: CNA estimates based on Barron's, IPEDs, BRFSS, and JAMRS data.

a. The University of Central Florida, Florida International University, and the University of South Florida-Main Campus have a significant number of graduates over the age of 25 (at least 30 percent) and, thus, may not be ideal sources for finding USMC officer candidates.

Table 28. Top 1 percent of schools: "Other" male QCP[a]

Institution name	Unadjusted QCP	Medically adjusted QCP	Medically and propensity-adjusted QCP
University of Hawaii at Manoa	196	183	6
University of Michigan-Ann Arbor	96	90	3
Rutgers University-New Brunswick	93	87	1
Oklahoma State University-Main Campus	92	86	3
University of Maryland-College Park	89	83	3
University of Southern California	83	77	2
University of California-Santa Barbara	82	77	2
George Mason University	82	77	2
University of Arizona	79	74	3
Stanford University	73	69	2
Texas A&M University-College Station	73	69	3
University of California-Los Angeles	70	66	2
Brigham Young University-Provo	70	65	2
Pennsylvania State University-Main Campus	68	64	1
University of California-San Diego	67	63	2

Source: CNA estimates based on Barron's, IPEDs, BRFSS, and JAMRS data.

a. Officers who are not white, black, or Hispanic are classified as having an "other" race. This predominantly includes Asians, Asian Pacific Islanders, and Native Americans.

Table 29. Top 1 percent of schools: White male QCP

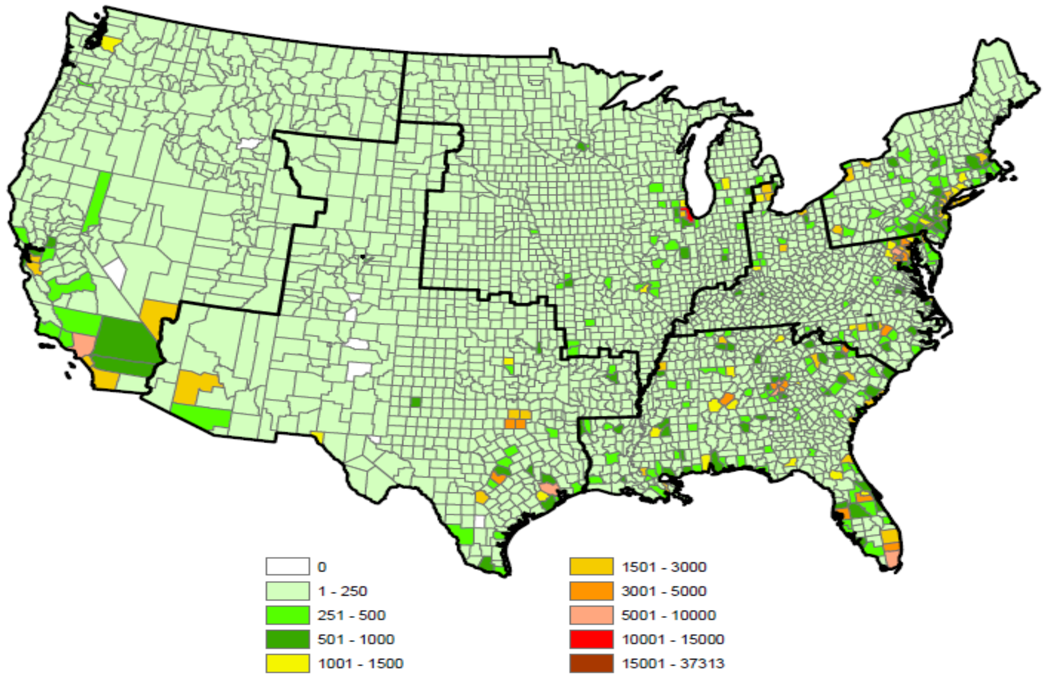
Institution name	Unadjusted QCP	Medically adjusted QCP	Medically and propensity-adjusted QCP
Pennsylvania State University-Main Campus	3,640	3,236	146
Ohio State University-Main Campus	3,491	3,103	148
University of Central Florida	2,974	2,643	153
Texas A&M University-College Station	2,938	2,611	142
Brigham Young University-Provo	2,660	2,364	123
Indiana University-Bloomington	2,419	2,150	103
University of Minnesota-Twin Cities	2,418	2,149	93
University of Wisconsin-Madison	2,336	2,076	99
University of Illinois at Urbana-Champaign	2,333	2,074	99
Florida State University	2,228	1980	115
University of Maryland-College Park	2,210	1,965	114
Arizona State University-Tempe	2,166	1,925	100
Michigan State University	2,164	1,924	92
University of Michigan-Ann Arbor	2,144	1,905	91
University of Georgia	2,116	1,881	109

Source: CNA estimates based on Barron's, IPEDS, BRFSS, and JAMRS data.

Appendix C: Distribution of U.S. College Graduate Population, by Racial/Ethnic Group

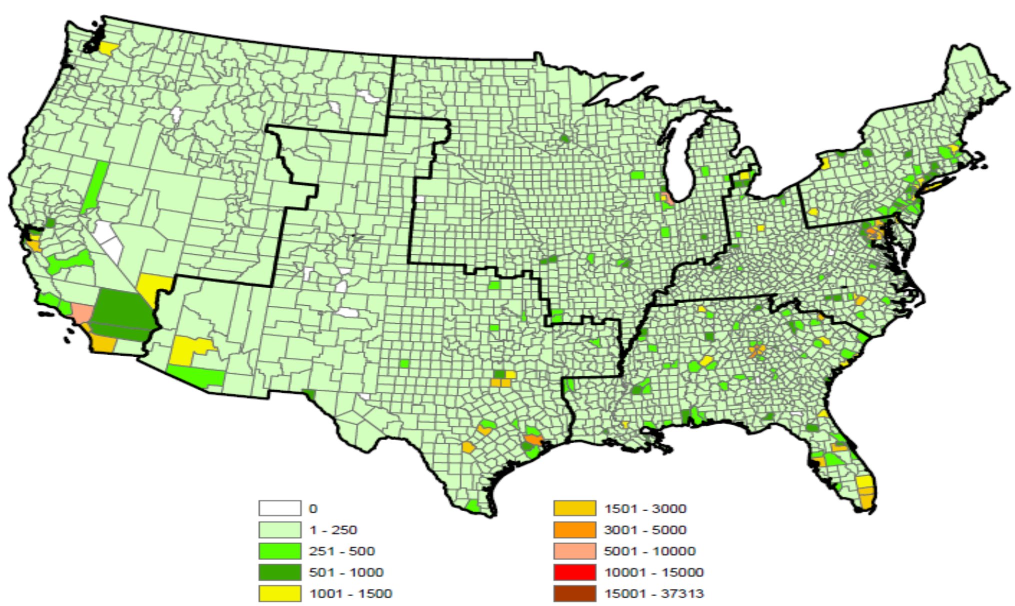
In this appendix, we present maps of the county-level distribution of college graduates, by gender and racial/ethnic group, as well as tables of the district-level distribution. Note that Figure 3 through 8—for blacks, Hispanics, and "Others"—use a different scale (and corresponding color scheme) than Figure 9 and 10 (for whites). This is because the number of white college graduates far exceeds the number of minority college graduates. As a result, if we were to simply use the white scale for the minority maps, minorities' county-level variation would not be visible.

Figure 3. County-level distribution of black female college graduates



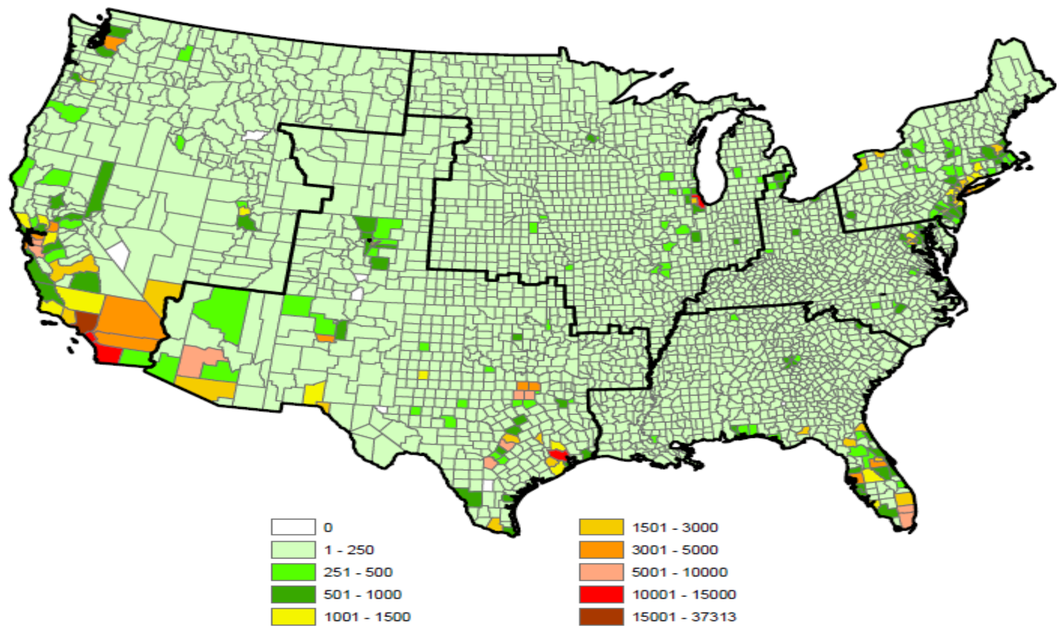
Source: CNA estimates based on ACS data.

Figure 4. County-level distribution of black male college graduates



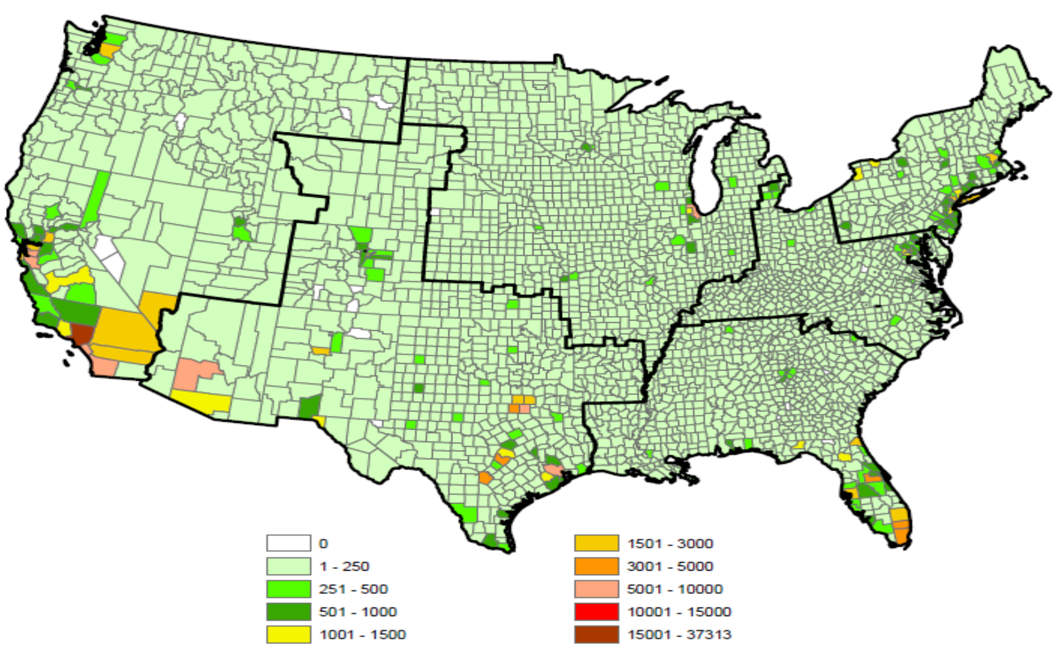
Source: CNA estimates based on ACS data.

Figure 5. County-level distribution of Hispanic female college graduates



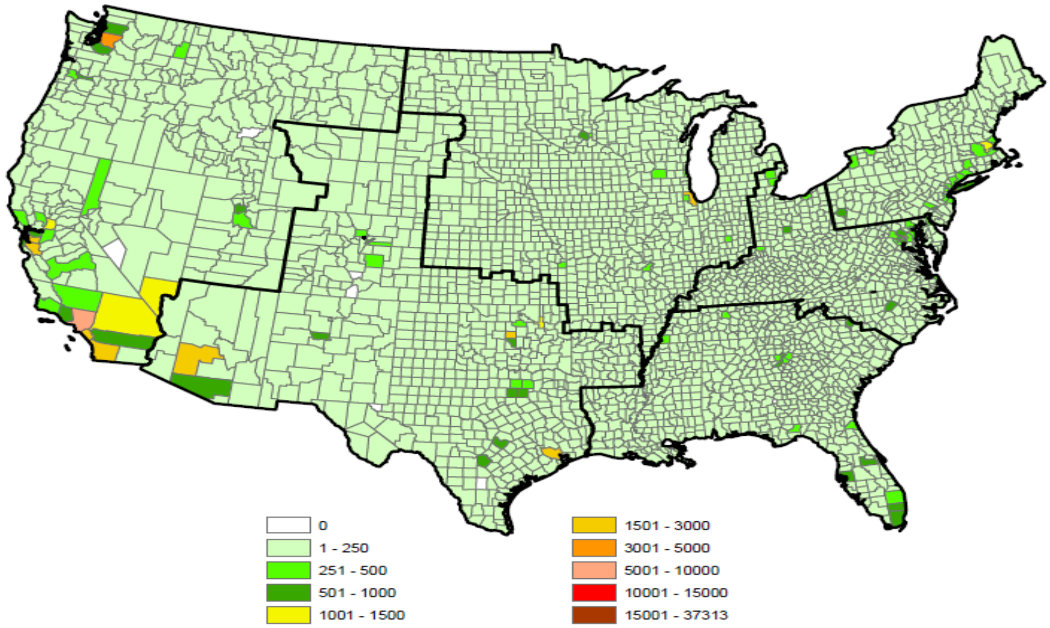
Source: CNA estimates based on ACS data.

Figure 6. County-level distribution of Hispanic male college graduates



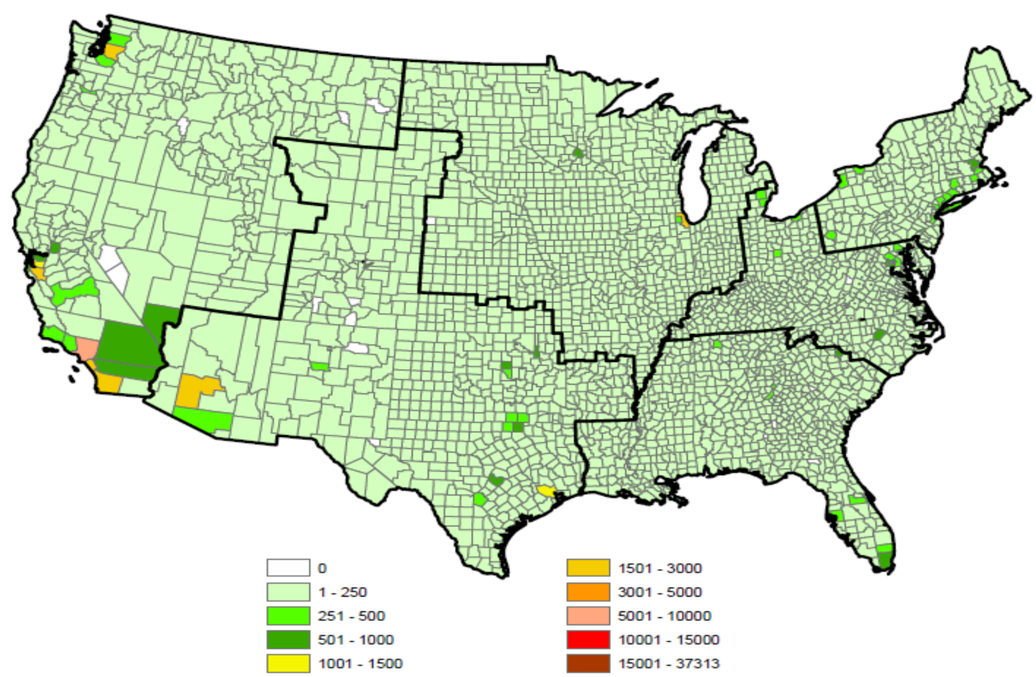
Source: CNA estimates based on ACS data.

Figure 7. County-level distribution of "Other" female college graduates



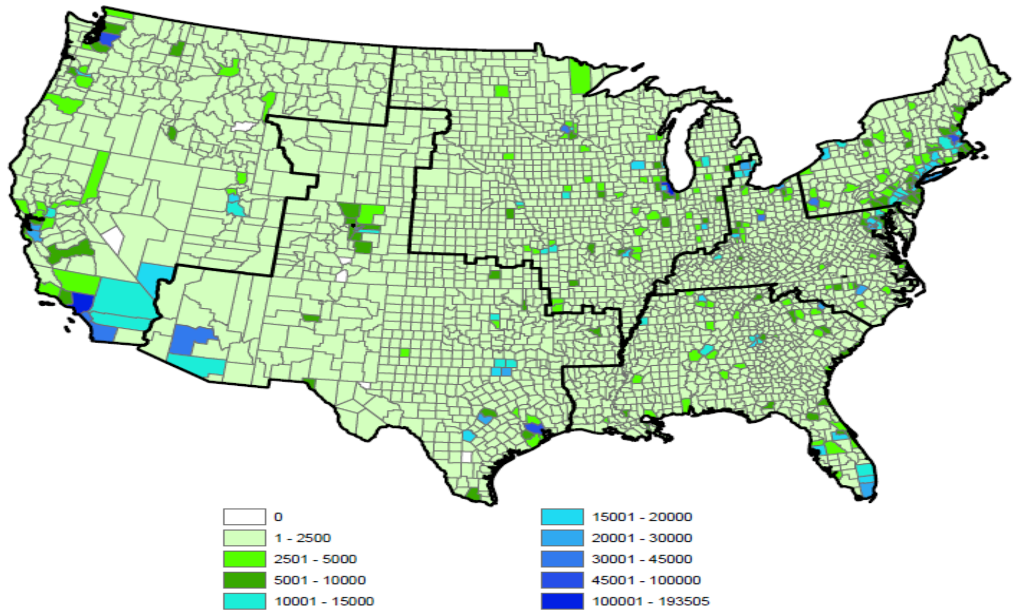
Source: CNA estimates based on from ACS data.

Figure 8. County-level distribution of "Other" male college graduates



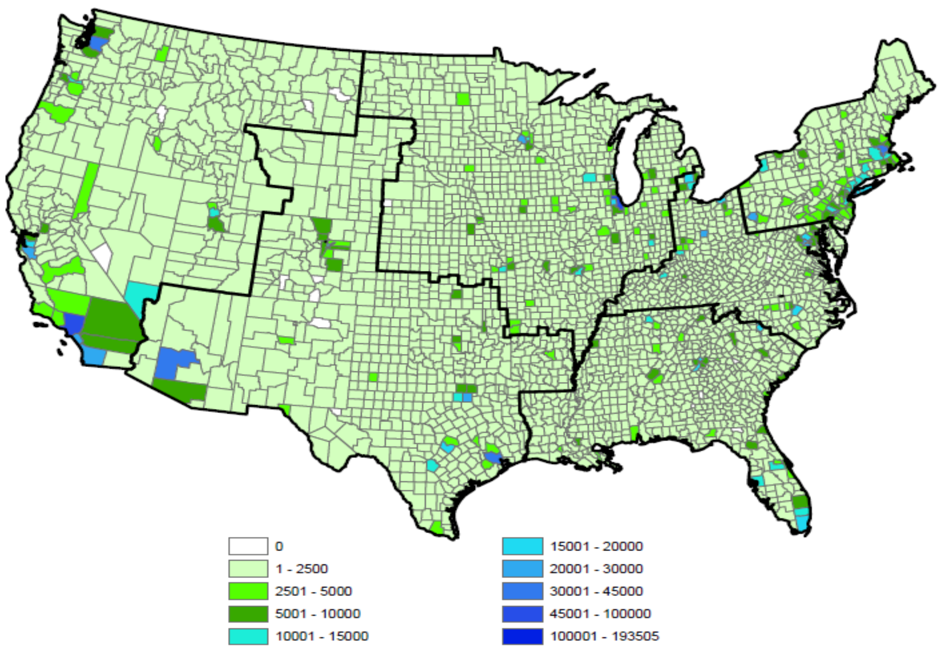
Source: CNA estimates based on ACS data.

Figure 9. County-level distribution of white female college graduates



Source: CNA estimates based on ACS data.

Figure 10. County-level distribution of white male college graduates



Source: CNA estimates based on ACS data.

Table 30. Unadjusted female district-level OCC population, by racial/ethnic group[a]

Region	District	White female QCP	Per-centage	Black female QCP	Per-centage	Hispanic female QCP	Per-centage	Other female QCP	Per-centage
ERR	E01	986,672	24.0%	90,836	19.1%	90,372	19.0%	113,584	22.8%
	E04	666,156	16.2%	103,709	21.8%	29,741	6.3%	47,091	9.5%
	E06	550,557	13.4%	147,371	31.0%	58,969	12.4%	34,615	7.0%
	Subtotal	2,203,385	53.7%	341,916	72.0%	179,081	37.7%	195,291	39.2%
WRR	W08	499,853	12.2%	52,085	11.0%	111,577	23.5%	52,941	10.6%
	W09	786,929	19.2%	47,478	10.0%	37,653	7.9%	43,619	8.8%
	W12	612,538	14.9%	33,608	7.1%	147,009	30.9%	205,814	41.4%
	Subtotal	1,899,319	46.3%	133,171	28.0%	296,239	62.3%	302,374	60.8%
	Total	4,102,704		475,088		475,320		497,664	

Source: CNA estimations based on ACS data.

[a] The percentages may not add to 100 due to rounding errors.

Table 31. Unadjusted male district-level OCC population, by racial/ethnic group[a]

Region	District	White male QCP	Per-centage	Black male QCP	Per-centage	Hispanic male QCP	Per-centage	Other male QCP	Per-centage
ERR	E01	753,540	24.3%	51,372	19.1%	58,033	18.9%	90,597	23.1%
	E04	498,383	16.1%	56,555	21.0%	19,691	6.4%	39,272	10.0%
	E06	405,594	13.1%	75,855	28.2%	38,746	12.6%	28,227	7.2%
	Subtotal	1,657,517	53.5%	183,783	68.3%	116,470	37.9%	158,097	40.4%
WRR	W08	381,694	12.3%	29,364	10.9%	70,265	22.9%	40,838	10.4%
	W09	587,667	19.0%	28,737	10.7%	26,182	8.5%	36,145	9.2%
	W12	471,425	15.2%	27,182	10.1%	94,340	30.7%	156,396	40.0%
	Subtotal	1,440,785	46.5%	85,282	31.7%	190,786	62.1%	233,380	59.6%
	Total	3,098,302		269,065		307,257		391,476	

Source: CNA estimations based on ACS data.

[a] The percentages may not add to 100 due to rounding errors.

Table 32. Medically-adjusted female district-level OCC population, by racial/ethnic group[a]

Region	District	White female QCP	Per-centage	Black female QCP	Per-centage	Hispanic female QCP	Per-centage	Other female QCP	Per-centage
ERR	E01	891,829	24.0%	62,119	19.1%	75,250	19.0%	98,793	23.4%
	E04	602,123	16.2%	70,923	21.8%	24,764	6.3%	39,088	9.2%
	E06	497,636	13.4%	100,782	31.0%	49,102	12.4%	27,930	6.6%
	Subtotal	1,991,588	53.7%	233,825	72.0%	149,116	37.7%	165,811	39.2%
WRR	W08	451,805	12.2%	35,619	11.0%	92,907	23.5%	42,267	10.0%
	W09	711,287	19.2%	32,469	10.0%	31,352	7.9%	36,409	8.6%
	W12	553,659	14.9%	22,984	7.1%	122,410	30.9%	178,457	42.2%
	Subtotal	1,716,750	46.3%	91,071	28.0%	246,669	62.3%	257,133	60.8%
	Total	3,708,339		324,896		395,785		422,945	

Source: CNA estimations based on ACS data.

[a] The percentages may not add to 100 due to rounding errors.

Table 33. Medically-adjusted male district-level OCC population, by racial/ethnic group[a]

Region	District	White male QCP	Per-centage	Black male QCP	Per-centage	Hispanic male QCP	Per-centage	Other male QCP	Per-centage
ERR	E01	652,099	24.3%	38,500	19.1%	47,994	18.9%	82,450	23.2%
	E04	431,291	16.1%	42,384	21.0%	16,285	6.4%	35,430	10.0%
	E06	350,994	13.1%	56,848	28.2%	32,044	12.6%	25,376	7.2%
	Subtotal	1,434,383	53.5%	137,732	68.3%	96,322	37.9%	143,256	40.4%
WRR	W08	330,310	12.3%	22,006	10.9%	58,110	22.9%	36,662	10.3%
	W09	508,555	19.0%	21,536	10.7%	21,653	8.5%	32,666	9.2%
	W12	407,962	15.2%	20,371	10.1%	78,020	30.7%	142,235	40.1%
	Subtotal	1,246,828	46.5%	63,913	31.7%	157,782	62.1%	211,564	59.6%
	Total	2,681,211		201,645		254,105		354,820	

Source: CNA estimations based on ACS data.

[a] The percentages may not add to 100 due to rounding errors.

Table 34. Medically and propensity-adjusted female district-level OCC population, by racial/ethnic group[a]

Region	District	White female QCP	Per-centage	Black female QCP	Per-centage	Hispanic female QCP	Per-centage	Other female QCP	Per-centage
ERR	E01	5,692	19.5%	607	13.8%	548	17.4%	456	15.2%
	E04	5,217	17.9%	1,126	25.5%	209	6.6%	322	10.7%
	E06	4,460	15.3%	1,667	37.8%	418	13.3%	243	8.1%
	Subtotal	15,369	52.6%	3,400	77.1%	1,175	37.3%	1,021	34.0%
WRR	W08	3,581	12.3%	416	9.4%	831	26.4%	479	16.0%
	W09	5,015	17.2%	399	9.0%	253	8.0%	206	6.9%
	W12	5,234	17.9%	195	4.4%	893	28.3%	1,297	43.2%
	Subtotal	13,830	47.4%	1,009	22.9%	1,976	62.7%	1,982	66.0%
	Total	29,200		4,409		3,151		3,003	

Source: CNA estimations based on ACS data.

[a] The percentages may not add to 100 due to rounding errors.

Table 35. Medically and propensity-adjusted male district-level OCC population, by racial/ethnic group[a]

Region	District	White male QCP	Per-centage	Black male QCP	Per-centage	Hispanic male QCP	Per-centage	Other male QCP	Per-centage
ERR	E01	29,258	21.5%	1,936	17.0%	2,295	23.5%	3,210	24.0%
	E04	23,596	17.3%	2,433	21.3%	796	8.2%	1,428	10.7%
	E06	20,504	15.1%	3,478	30.5%	1,682	17.3%	1,065	8.0%
	Subtotal	73,359	53.9%	7,847	68.7%	4,774	49.0%	5,703	42.6%
WRR	W08	17,613	12.9%	1,450	12.7%	2,741	28.1%	1,608	12.0%
	W09	23,478	17.3%	948	8.3%	811	8.3%	1,016	7.6%
	W12	21,620	15.9%	1,177	10.3%	3,455	35.4%	5,056	37.8%
	Subtotal	62,710	46.1%	3,575	31.3%	7,007	71.9%	7,680	57.4%
	Total	136,069		11,422		9,748		13,383	

Source: CNA estimations based on ACS data.

[a] The percentages may not add to 100 due to rounding errors.

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